Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Friday, October 19, 2007 3:33 PM
To: Evans, Lawrence C NWP; 'Kevin Moynahan'; 'Mike Tehan'; 'Monty Knudsen'; 'Ron Anglin'; 'Sally Puent'; 'Ted Freeman'; 'Karmen Fore'; 'Molly McCarthy'; 'Terri Moffett'; 'Alex Cyril'; 'Bill Yocum'; 'Bob Lobdell'; 'Chuck Wheeler'; 'David Pratt'; 'Frank Schnitzer'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Joy Smith'; 'Ken Phippen'; Linton, Judy L NWP; 'Michale Morales'; 'Patty Snow'; 'Rich Angstrom'; 'Robert Elayer'; 'Todd Confer'; Yvonne Vallette; Monical, Teena G NWP; 'gwhess@usgs.gov'; 'fittsj@co.curry.or.us'
Subject: Oct 17 gravel meeting notes
Attachments: CHETCO RIVER GRAVEL REMOVAL_Phase 2 mtg notes (ac).doc

Hi, all. Attached are notes from Wednesday's gravel meeting. Let me know if you have comments. Judy

CHETCO RIVER GRAVEL REMOVAL
PHASE 2 KICK-OFF MEETING
DSL LAND BOARD ROOM
OCTOBER 17, 2007 (1:00 – 2:30)

ATTENDEES:
Monty Knudsen (by phone), U.S. Fish and Wildlife Service
Michael Tehan, NMFS – Portland Office
Ken Phippen, NMFS – Roseburg Office
Chuck Wheeler, NMFS – Roseburg Office
Larry Evans (by phone), Corps of Engineers, Portland
Judy Linton, Corps of Engineers, Portland
Teena Monical, Corps of Engineers, Eugene Field Office
Yvonne Vallette, Environmental Protection Agency
Jim O'Connor, USGS
Glenn Hess, USGS
Louise Solliday, Department of State Lands
Kevin Moynahan, Department of State Lands
Bob Lobdell, Department of State Lands
Sally Puent, Department of Environmental Quality
Alex Cyril, Department of Environmental Quality
Patty Snow (by phone), Department of Fish and Wildlife, Salem Hdqtrs
Todd Confer, Department of Fish and Wildlife, Gold Beach Field Office
Jay Charland, Department of Land Conservation and Development
Bill Yocum, Freeman Rock
Robert Elayer, Tidewater Contractors
Joy Smith, Umpqua Sand & Gravel
Kelly Guido, Umpqua Sand & Gravel
Chris Doane, LTM
Rich Angstrom, OCAPA
David Pratt, Curry County
Jodi Fritts, Curry County
Molly McCarthy (by phone), Senator Wyden's Office
Terri Moffett, Senator Smith's Office

INTRODUCTIONS AND OPENING REMARKS:

The meeting started off with introductions and opening remarks. Larry Evans indicated the Corps of Engineers is very committed to continuing the collaboration with all partners in the issues surrounding gravel removal, not only as they apply to the Chetco River but as the study moves to other watersheds. If studies determine mining can continue in the Chetco River, the Corps will work towards the development of a regional general permit which would be used as a template for other systems. Larry indicated the Corps would look to the gravel industry to identify the next river system to be studied.

Kevin Moynahan echoed Larry's comments and added that evaluating the gravel issue is especially important given that some permits authorized by DSL now require federal permits which in turn trigger other review requirements (such as the endangered species act and water quality certification).

Rich Angstrom spoke in support of continuing the executive and technical teams as was discussed in the April 25, 2007 meeting. Rich stated the gravel industry would like the Umpqua River system to be evaluated next.

DISCUSSION POINTS:

Judy Linton started the discussion by stating the question we are trying to answer is whether mining can continue in the Chetco River beyond current permit authorizations. The term "current permit authorizations" refers to the permits issued in August 2007, to Freeman Rock and Tidewater for mining above the estuary (DSL permits year to year, Corps permits and 401 certifications and BOs expire in 2009). If mining can continue beyond 2009, work will then focus on trying to develop a general permit. If it is determined mining cannot continue, the reasons for coming to that conclusion will need to be spelled out in detail as the Corps will use that information in making future decisions on requests for Department of the Army permits for gravel removal. Such decisions could include permit denials.

Robert Elayer asked if the study will include the estuary as Tidewater was not given a permit to mine their estuary site. It was concluded the study areas (RM 11 to the mouth within the estuary) used in evaluating the Chetco River permit requests will also apply to this Phase 2 effort as there are no operators above the upper Tidewater site. The NMFS representatives all agreed the entire system needs to be looked at as a whole (estuary and upper reaches). We need to take into account all dredging occurring in the watershed, including work being done by the Corps of Engineers and the Port and marinas. For Phase 2 it is important to get the study design and data collection started so we don't miss the 2007/08 winter season.

USGS is interested in participating to the extent possible, but will need to know what information is necessary before determining the agency resources (including time and cost) required. Joy Smith indicated Umpqua Sand and Gravel has gathered much information over the years they have been mining which might be useful to the gravel study efforts; other operators may also be in the same position. Kevin Moynahan offered DSL as a repository for this data. One of the charges to USGS will be to act as a neutral party to interpret existing industry and agency data usefulness and determine what other data will be necessary as well as how to use it all.

Much discussion followed on the make-up of the Executive/Policy and Technical Teams. Questions were raised about who will lead each group and what the charge of each group will be. There needs to be a purpose and need statement for each team as well as a process for communication between the teams. For the gravel industry, Rich Angstrom asked that he plus one industry representative (Joy Smith) be on the Executive Team. For the Technical Team, Rich asked to have Chris Lidstone (consultant contracted by OCAPA) plus one industry rep (Bill Yokum or Robert Elayer). One issue for the Executive Team to discuss will be potential funding for the data collection (USGS work, etc.) and possibly other portions of Phase 2. We talked about how to pull in the counties in response to Curry County's request to wrap their permit process into the state and federal processes– perhaps the Association of Oregon Counties should be at the table. A suggestion was also made that we rotate county representation on the teams depending on the river system being studied. The Technical Team will largely be composed of agency reps who have been working together to draft the Sediment Removal Recommendations paper and now are charged with integrating the IMST review recommendations. Funding and workload issues will need to be discussed for those agency reps to continue working and take on this new charge.

We had a brief discussion about floodplain mining and whether this should be included in the overall evaluation. DOGAMI would be a key player in that discussion. Kevin will contact Gary Lynch to discuss DOGAMI's participation in the Phase 2 effort.

Timelines: The timelines for the action items listed on the agenda are proposed, based on the need to have some decision and product prior to the expiration of authorizations issued to Freeman and Tidewater above the estuary. *Note: If it is determined mining can continue, the focus will be on having no lapse in authorizations to remove gravel; therefore, the end dates of the Corps/DSL permits, 401 certification, and ESA BiOp will drive the date the decision and final product is required.* DEQ and NMFS are concerned we will not have enough time and information from the required monitoring for the existing permits to allow us to make decisions according to the proposed timelines. USGS believes we will not be able to have much information beyond existing with only one season to collection data. Generally more than one season is needed. This enforces need for Technical Team to meet as soon as possible to determine what information needs to be collected.

We concluded by discussing the possibility of using other groups to assist in the study efforts:

- Oregon State University Gravel Symposium: Guillermo Giannico (Associate Professor in the Department of Fish and Wildlife) sent an email in early summer asking about interest in putting together another gravel symposium. It appears this may not be possible until March 2008 given other work.
- Oregon Solutions Group: they may be able to help most with facilitation of meetings and figuring out allocation among users. Corps and DSL need to determine if that is worthwhile.
- Portland State University Conflict Resolution Group: Mike Tehan was approached by this group. We may not be at a stage where we need there efforts now, but they may be beneficial in the future if decisions focus on how to allocate gravel resources.

FOLLOW-UP ACTION ITEMS:

1. Schedule meeting of gravel technical team: Monty Knudsen offered to have Janine Castro take the lead.
2. Schedule meeting of Executive Team: Kevin Moynahan will take the lead with the goal of having a meeting the first part of November.
3. Kevin Moynahan will contact Association of Oregon Counties and DOGAMI to inquire about a representative from each participating in teams.
4. Umpqua system data information: Joy Smith will provide a summary of existing information to Kevin Moynahan.
5. Rich Angstrom requested minutes to memorialize this and all subsequent meetings of both teams.

MEETING NOTES
CHETCO RIVER GRAVEL REMOVAL
TECHNICAL TEAM MEETING
NOVEMBER 20, 2007
1:00 to 3:00

ATTENDEES:
Judy Linton, US Army Corps of Engineers
Janine Castro, US Fish and Wildlife Service
Chuck Wheeler, National Marine Fisheries Service
Yvonne Vallette, Environmental Protection Agency
Bob Lobdell, Oregon Department of State Lands
Alex Cyril, Oregon Department of Environmental Quality
Jay Charland, Oregon Department of Land Conservation and Development (phone)
Patty Snow, Oregon Department of Fish and Wildlife
Robert Elayer, Tidewater Contractors, Inc
Bill Yocum, Freeman Rock, Inc
Chris Lidstone, Lidstone and Associates, Inc (phone)
Jim O'Connor, US Geological Survey
Glen Hess, US Geological Survey

AGENDA ITEMS:

1) Administrative Details:

Mission: The focus of the Technical Team is evaluating specific watersheds to objectively determine whether gravel mining can occur on a short-term or long-term basis. Such evaluation will include looking at direct and indirect impacts to sediment movement. Meetings are not to evaluate or discuss specific permit actions which may be under review by either the Corps of Engineers (Corps) or Department of State Lands (DSL).

Organization: The Corps and DSL will act as co-chairs for the Technical Team and will be responsible for setting up meetings, taking notes and generally making sure there is follow through with identified action items. Draft meeting notes will be sent to meeting participants for review prior to becoming final.

The Team will attempt to reach agreement on future actions – any insurmountable disagreements will be raised to the Executive Team for resolution.

Membership: It was agreed the membership should be fluid based on the watershed being studied.

2) Process and Data/Information Needs:

Timelines: The timelines for existing Chetco River gravel mining authorizations for Freeman Rock and Tidewater were clarified. The Department of the Army permit expires September 2009; Water Quality Certification is valid until August 2009; DSL permits require annual renewal for work occurring beyond 2008; and the Biological Opinions provide endangered species coverage through the 2008 work season (which runs from July 15 through September 30 above the Chetco River estuary). Therefore, if it is determined further mining can occur in the Chetco River beyond the 2008 season, permits must be in place by spring of 2009 for mining to occur uninterupted. At the November 15 Executive Team meeting it was suggested this Phase 2 study be completed by spring 2008 to allow one full year to complete the permit process should that be the direction taken. The Technical Team is concerned this timeframe will not provide adequate time for date to be collected and evaluated.

Information Needs/Process to Obtain Information: Sediment budget information is crucial. Most of the winter high flows have already passed so we may not be able to collect any data this year. Jim O'Connor suggested there may be a way to estimate sediment budget information without doing actual measurements, which can be refined as data is collected over time. He will have a better idea once he has a chance to review the Phase 1 work. USGS will also evaluate the Phase 1 work to determine if there is better way to structure the determination of whether a system is aggrading, degrading, or in equilibrium.

USGS could do sediment transport studies. They will need to know the specific questions to be answered (including timelines and spatial scope) and then can prepare a draft scope of work to include required funding (estimated). This scope of work would include 1) data collection that can be done within the immediate timelines and 2) data collection that can be done given a longer time period. Subsequent to the Chetco process, as we move forward to tackle more watersheds, USGS suggested it may make most sense to pick one river system that can represent all coastal systems rather than evaluate all systems separately. *(Post meeting note: whether one river system can represent all or a group of river systems for purposes of simplifying the necessary evaluation process caused much discussion in email comments stemming from the review of the draft meeting notes. This question will not be resolved here but needs to be given further consideration).* USGS estimated it will be the 1st or 2nd week of January 2008 before they are able to provide the draft scope of work. The Technical Team needs to recommend to the Executive Team that funding for USGS work is crucial.

Additional information that may be beneficial:
1) Cross-sectional information provided by the operators could potentially be used if combined with known water events. The evaluation would also need to include review of aerial photos at these same cross-sections.
2) Monitoring reports as required under existing mining permits. Freeman Rock has collected data and will have the reports out by December. Although Tidewater did not

mine in 2007 they do have pre-mine surveys and will also be doing pre-mine surveys in 2008.
3) Pre-mine surveys at Tidewater Bar: This information has been collected for past two years.
4) Suggestion made that we should also look at site specific responses to gravel removal within watersheds.

Regarding evaluation of other watersheds, the group agreed we need direction from the Executive Team on prioritization beyond the Umpqua River system (which will be studied next). DSL has a list of active gravel operators; the Corps has a list of pending permit applications which needs to be updated to add the Coquille River and Hunter Creek. The mention of Hunter Creek raised the question of how we will deal with sub-basins. All agreed that we should recommend to the Executive Team that we start the Phase 1 study process for the Umpqua River. The Executive Team will need to decide who will pull together the final product for that effort, however, as Janine is pretty well tied up with other work well into next year.

3) Next Steps:

- Brief the Executive Team at their December 19 meeting on Technical Team organization details and information needed for Phase 2 study work. Execs also need to be briefed on work being done by USGS to assist the Technical Team in refining information needs and estimated timelines. (It was suggested that perhaps the Executive Team should postpone their December meeting until more information is available about what data collection is possible).
- The next meeting of the Technical Team will be scheduled around mid-January (exact date pending receipt of draft scope of work from USGS.

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Friday, December 07, 2007 3:50 PM
To: 'Alex Cyril'; 'Bill Yocum'; 'Bob Lobdell'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Patty Snow'; 'Robert Elayer'; 'Todd Confer'; 'Yvonne Vallette'; gwhess@usgs.gov
Cc: 'Frank Schnitzer'
Subject: November Tech Team mtg notes - final
Attachments: 20 Nov 2007 Tech Team mtg notes.doc

Attached are the final notes for the November meeting. I believe I addressed all comments except for the Mission Statement. This is something the Executive Team will need to define for us as they are ultimately responsible for directing our work.

Jim and Glen: did you get enough information at the meeting to prepare the draft scope of work or do you need additional information?

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CHETCO RIVER GRAVEL REMOVAL
TECHNICAL TEAM MEETING
NOVEMBER 20, 2007
1:00 to 3:00

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Janine Castro, US Fish and Wildlife Service
Chuck Wheeler, National Marine Fisheries Service
Yvonne Vallette, Environmental Protection Agency
Bob Lobdell, Oregon Department of State Lands
Alex Cyril, Oregon Department of Environmental Quality
Jay Charland, Oregon Department of Land Conservation and Development (phone)
Patty Snow, Oregon Department of Fish and Wildlife
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Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Tuesday, December 18, 2007 9:53 AM
To: Rich Angstrom; Mike Tehan; tedf@hughes.net; PUENT Sally; SNOW Patty; szerlog.michael@epa.gov; BAILEY Bob; GERMOND Jon P; joy@umpquasand.com; joe_ziza@fws.gov; Evans, Lawrence C NWP; LOBDELL Bob; Linton, Judy L NWP; Vallette.Yvonne@epamail.epa.gov; Bill Yocum; relayer@twcontractors.com; Monty_Knudsen@fws.gov
Cc: SOLLIDAY Louise
Subject: Agenda for Gravel Exec Team meeting Wednesday - 12/19/07 - noon to 2pm - DSL Mill Creek Room

All - here is the agenda for the meeting tomorrow. I heard back from some of you and placed your items on the agenda. It looks like the meeting will be full and may extend to 2pm. See you tomorrow. Kevin Moynahan

1) Extent of Exec team decision making authority - including direction to Tech Team on issues related to mission, extent of information gathering and scope of studies, timeframes and cost.

2) Budget - funding for the studies.

3) Public Participation on Gravel and or Tech Teams.

4) Possible Oregon Solutions involvement.

5) Tech Team report back on status of the process to date.

6) Umpqua, Rogue and other waters aggregate permitting issues - how these fit into the process.

7) Any other items.

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us <mailto:kevin.moynahan@state.or.us>

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Monday, December 24, 2007 12:29 PM
To: BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov; MOYNAHAN Kevin
Subject: Attached are draft notes from the 12/19/07 Gravel Exec team meeting
Attachments: Gravel Exec Team Meeting Notes 12.19.07.doc

Please review and comment back as necessary.

Next meeting is January 23, 2008 10am - noon here at DSL in the Mill Creek Room.

Enjoy the Holidays! Thanks, Kevin

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
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fax: 503-378-4844
e-mail: Kevin.Moynahan@state.or.us <mailto:Kevin.Moynahan@state.or.us>

DRAFT Meeting Notes
Gravel Executive Meeting
Wednesday, December 19, 2007
DSL-Mill Creek Room
12:00pm – 2:00pm

Attendees:

Kevin Moynahan, DSL
Michael Tehan, NOAA (Conference Call)
Lawrence Evans, US Army Corps of Engineers
Rich Angstrom, Oregon Concrete Aggregate Producers Association
Ted Freeman, Freeman Rock Products
Bill Yocum, Freeman Rock Products
Joy Smith, Umpqua Sand & Gravel
Jon Germond, ODFW
Jay Charland, DLCD/Coastal
Sally Puent, DEQ
Michael Szerlog, EPA
Yvonne Vallette, EPA
Patty Snow, ODFW
Monty Knudson, USFWS

Agenda:

I) Extent of Exec team decision making authority-including direction to Tech Team on issues related to mission, extent of information gathering & scope of studies, timeframes and cost.

-Exec Team provides direction to Tech team setting expectations of process and timelines.
-Exec team members act as representatives for Agencies with authority to make decisions, to the extent practicable. The decisions the members make during the meetings are then relayed back to the Agencies.
-The Tech team needs structure to keep them on track with current tasks. The Exec team wants everyone on the Tech team going in the same direction, everyone on the same page.
-COE & DSL will send out a draft mission statement to Exec team members for input.
-Exec team wants to be able to extract information from this process and use it within other watersheds.
-Conflict among Tech team will be resolved at Exec team if it cannot be resolved within Tech team.

II) Budget-funding for the studies.

-COE regulatory funding for this process is $0.00.

-DSL doesn't have Legislative authority currently to fund research studies. DSL, COE and other agencies continue to support this process thru commitments of staff time.
-To develop a budget request, make an itemized list for what is needed to conduct a specific study.
-Take a logical approach on what to request.
-Seek partnership funding for Tech team studies.
-Perhaps royalty $$ from the Common School Fund (CSF) could be freed up to support some studies. OCAPA will pursue this with DSL Director.
-Look into federal earmark funding from Northern California, Oregon & Washington federal delegation.
-**Ask questions within your Agencies about possible funding options and bring to next Exec meeting**.

III) Public Participation on Gravel and or Tech teams.
-Public attended Coquille meeting although not invited.
-Have not invited the public to the table on the Exec or tech teams.
-Potential benefit with Public at the table: collaborative process in the permitting process. What's the price of having the Public at the table?
-Making sure the Public includes persons of interest, not just some random person, difficult to identify who the "public" is.
-Lots of Public interest on Chetco River 401 certification (watershed groups, etc.).
-Have one person represent the "Public" at meetings, anymore than that is problematic.
-Local govt. representatives – county planning department staff - could represent a substantial amount of the Public.
-In each watershed, include input and Agencies within each community. Public can attend and be informed, make them feel at ease. Early in the process, have an informational meeting with the public.
-Getting the public involved is more of a state issue than federal issue.
-More a strategic than a legal consideration.
-**State agency reps - bring proposal for the process of getting the public involved to the next meeting.**

IV) Possible Oregon Solutions involvement
-Solutions can provide structure to process and help facilitate the process to push it forward.
-Request Oregon Solutions staff to attend next Exec team meeting

V) Tech team report back on status of the process to date
-Tech team needs to wrap up study of Chetco River.
-COE is ready to move forward in the regulatory process regardless if Chetco River study is completed.
-COE needs to start RGP process by March 2008 in order to complete process in time for 2009 in-water work season.

-DSL is also prepared to make permitting decisions even if studies are not complete.
-USGS wants to wait a year to be able to complete the study and information gathering.

VI) Umpqua, Rogue and other waters aggregate permitting issues-how these fit into the process

-There appears to be confusion amongst Tech team on timelines & process.
-Tech team will get written guidance from Exec team.
-COE sends out Public Notice, DEQ follows next, gathering public input regardless of study completeness.
-COE wants to start the RGP process before all information is gathered and add information as it becomes available.

VII) Any other items

-Let Tech team decide next watershed to study, possibility of South Fork Coquille River.

Next Meetings:

January 23, 2008	**Wednesday**	**10:00am – 12:00pm**	**DSL-Mill Creek Rm**
February 27, 2008	**Wednesday**	**12:00pm – 2:00pm**	**DSL-Mill Creek Rm**
March-TBA			

Latcu, Misty M NWP

From: Monty_Knudsen@fws.gov
Sent: Monday, January 07, 2008 4:14 PM
To: Joy Smith
Cc: byocum@hughes.net; Chris Lidstone; chris.doan@ltminc.com; Jodi Fritts, Curry County Rep; Jay Charland; GERMOND Jon P; Linton, Judy L NWP; Kevin Moynahan; Evans, Lawrence C NWP; Mike Tehan; Patty Snow; David Pratt; Sally Puent; relayer@twcontractors.com; Rich Angstrom; Ron Anglin; szerlog.michael@epa.gov; tedf@hughes.net; Yvonne Vallette; Joe_Zisa@fws.gov
Subject: Re: Public Notice comments...
Attachments: pic19264.gif

Joy, I appreciate your ideas and they sound intriguing. I would like a bit more discussion of how it would actually work and how it would relate to the Corps' Federal permit process.

Monty Knudsen, Assistant Project Leader
Oregon Fish & Wildlife Office
2600 S.E. 98th Avenue
Portland, OR 97266-1398
503.231.6179
Website: http://www.fws.gov/oregonfwo/

"Joy Smith" <Joy@UmpquaSand.com>
12/27/2007 01:40 PM

To
"Kevin Moynahan" <kevin.moynahan@dsl.state.or.us>, "Evans, Lawrence C NWP" <Lawrence.C.Evans@nwp01.usace.army.mil>

cc
<chris.doan@ltminc.com>, "David Pratt" <PrattD@co.curry.or.us>, "Jay Charland" <jay.charland@state.or.us>, "Jodi Fritts, Curry County Rep" <fittsj@co.curry.or.us>, "Judy Linton" <judy.l.linton@usace.army.mil>, "Mike Tehan" <mike.tehan@noaa.gov>, "Monty Knudsen" <Monty_Knudsen@fws.gov>, "Patty Snow" <Patty.Snow@state.or.us>, "Rich Angstrom" <rich@ocapa.net>, <relayer@twcontractors.com>, "Sally Puent" <PUENT.sally@deq.state.or.us>, <tedf@hughes.net>, "Yvonne

Vallette"
<vallette.yvonne@epamail.epa.gov>,
<byocum@hughes.net>, "Chris
Lidstone" <CDL@lidstone.com>, "Ron
Anglin"
<Ronald.E.Anglin@state.or.us>,
"GERMOND Jon P"
<Jon.P.Germond@state.or.us>,
<szerlog.michael@epa.gov>
Subject
Public Notice comments...

(Embedded image moved to file: pic19264.gif)
Kevin and Larry,

I want to say thank you so much for all your hard work on this inter-agency – RGP project, for that matter I am grateful we have formed such a good group of folks to help wade through this process.

I have a few comments to make regarding some of the agenda items that were under discussion at the last meeting and reference in the minutes that were published.

III) The Public Notice Issue – I have a few ideas that I wanted to get out to the group for consideration. The public notice portion may be more of a state issue as pointed out by Larry; however it is something that should have some direction for.

Having one "Public" person included on the Executive Team is not a bad idea at all; this would allow a permanent person to go through the entire process with the group. Additionally, I do feel that we do need to lay out some guidelines for each watershed as we work through the state. I think that each community of the watershed we are working on should be able to attend an informational meeting that could be organized through each county commissioner or planners offices. Since we are trying to get the county officials included into this, we could kill two birds with one stone. This allows people from the community to be informed of what we are working toward. The county and planning officials have been involved with countless public forums and would be a good place to have this go through. This would satisfy the public notice on the

front side so that if further concerns arise that can be taken into consideration to a positive end, it would be well worth our time to collect those comments and information and put them to use in our process (if need be.)

I understand not wanting to explain the entire process to numerous individuals as we go through the different watersheds. However, we could have a separate meeting with the commissioners/planners and operators (that are affected) to go over the process that will be happening with their watershed. From there the informational public meeting could be set. That way the time consuming part of sharing the process with 'new' people would not carry into the Executive or Technical Team, and some of the county involvement will be rolled into the process. As I recall that was one of our initial goals was to incorporate the process so that all parties know what is happening, and all agencies can make informed decisions. That then carries to the operators having a streamlined process that will allow a more efficient way of permitting in our beautiful state!

Hope you had an awesome Christmas, Happy New Year,
Joy

Joy Smith
Umpqua Sand & Gravel
640 Shady Drive
Roseburg, OR 97470
Phone: 541-673-1088 Fax: 541-673-1620

They may forget what you said, but they will never forget how you make them feel.

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Tuesday, January 22, 2008 3:20 PM
To: BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; lori warner-dickason; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Gravel Exec Team Meeting 1/23/08 10 - 12 noon DSL Mill Creek Room
Attachments: Agenda 1.23.08.doc; Gravel Tech Team Expectations draft - 1.22.08.doc

For the meeting tomorrow - see the attached proposed agenda.

Also, attached is a draft of the document promised at the last meeting - the general outline of the DSL/COE approach to dealing with the gravel related permitting issues as well as direction to the Tech Team as to deliverables required as part of the application review process.

See you tomorrow. Kevin

Agenda – Gravel Exec Team Meeting
10am – 12 noon – DSL Mill Creek Room

1) Short discussion/identification of items carrying over from last Exec Team meeting
2) Discussion of draft document concerning outline of DSL/COE approach to gravel related permitting issues and direction to Tech Team
3) Discussion of agenda and expectations relating to the next Tech Team meeting on February 1
4) Gravel study budgeting issue
5) Discussion of public involvement issue
6) Other issues

DRAFT

Gravel Exec Team Expectations and Scope of Project Outline Related to In-Stream Gravel Operations

Blue highlighted items indicate expectations for the Interagency Gravel Tech Team

As permitting agencies charged under state and federal law with review and decision making related to applications for in-stream gravel mining operations in the State of Oregon and as co-chairs of the Gravel Exec Team the Department of State Lands (DSL) and the US Army Corps of Engineers (COE) set forth the following expectations and outline of process related to the permitting of such operations. DSL and COE seek to ensure a fair process for decision making for applications submitted to the respective agencies for continued gravel mining in river systems throughout Oregon.

I. Chetco operations above head of tide (Freeman and Tidewater)

1. The COE and DSL have authorized work on the upper Chetco through the 2008 in-water work period. The National Marine Fisheries Service (NMFS) issued a biological opinion in support of these permitting decisions.
2. DSL and the COE anticipate evaluating applications for Freeman and Tidewater to operate on the upper Chetco in 2009. COE and DSL will be working to develop a regional general permit (RGP) and general permit) respectively, as the vehicle for authorization. The goal is to make a final decision on the respective permits before the in-water work period in 2009. The Tech Team will provide input to the COE/DSL to develop the anticipated RGP/GP.
3. The agencies will continue to gather information related to gravel budgets during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the COE and DSL may exercise the following options:
    a. Permit applications may be placed on hold pending data collection and information gathering,
    b. Permits may be granted, but with limited gravel volumes or other conditions to minimize impacts, or
    c. Short-term permits may be granted.
4. If information collected by the Tech Team indicates mining cannot continue without unacceptable impacts, the COE and DSL may consider permit denial.
5. A scope of work for investigation of the Chetco River system is expected from USGS by January 22, 2007. The scope of work will include:

a. A review of Phase I information that was used to authorize the two permits through 2008.
b. A recommendation for additional data for use in developing the RGP/GP.
c. A list of information requirements to address the other river systems. This will involve an evaluation of existing data and a recommendation for additional data collection needed to fill information gaps.
d. A description of deliverables and how those deliverables would be used to facilitate permit decisions.
e. Costs associated with creation of those deliverables.

The Tech Team will provide input on the scope of work and provide direction for future data collection for the RGP/GP.

II. Chetco operations below head of tide (Tidewater)

Lower Tidewater project: The Tech Team will provide input to the COE and DSL on whether or not the lower Chetco can be included in the RGP. If it is determined the lower Chetco cannot be included, the Tech Team will develop a list of information needs and a course of action to obtain the information.

III. Operations on other river systems

1. The Tech Team will review the USGS scope of work and create a list of information needs and a process for obtaining the information for use in developing the RGP/GP for the other river systems. Presently, the Umpqua River and ??? River (to be identified) have been identified as the next systems to be studied. This will be used as a model for information gathering.
1. Defer to the industry folks for prioritizing the other river studies.
2. Decide how future studies will be funded.

IV. Status and approach for permits pending COE/DSL permit renewals or issuance of a RGP/GP

1. COE and DSL will create a master list of operations with application and permit status.
2. DSL will continue to process renewals, considering Federal and State agency recommendations. DSL requests that other agencies improve consistency on how they respond to renewal requests. DSL will review each renewal request consistent with state law and will take into consideration comments from state and federal agencies on new and renewal applications, as well as comments made by others. To that end, DSL will respond to agency comments on renewals by doing one of the following, as appropriate:
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   b. Permits may be placed on hold pending data collection and information gathering, or
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3. COE will process permit applications consistent with federal laws and regulations, and will consider comments received during the public review period. The COE will follow up, as appropriate, with operators that have not submitted an application, to get them under the umbrella of the process for all gravel operations.

Latcu, Misty M NWP

From: J Barton [jabar40@dishmail.net]
Sent: Thursday, January 24, 2008 10:45 PM
To: 'J Barton'; 'Ted Freeman, Jr.'; 'MOYNAHAN Kevin'; 'BAILEY Bob'; billy@wave.net; 'CHARLAND Jay'; joe.zisa@fws.gov; 'GERMOND Jon P'; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; 'lori warner-dickason'; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; 'PUENT Sally'; Rich@OCAPA.net; relayer@twcontractors.com; 'ROSE Jennifer'; 'SNOW Patty'; Vallette.Yvonne@epamail.epa.gov; 'Dave Pratt'; 'BILL YOCUM'
Subject: RE: Executive Team Draft Comments
Attachments: Gravel Tech Team Expectations drafty - 1.24.08.doc

Oooops! Forgot the attachment. Here goes.

Bill,

Here are my adds, just a couple and relatively minor. I would like to see a better definition of the criteria by which permitting can be denied and I think there ought to be some language that allows permits to continue provided the mining does not deteriorate the river, e.g. degrade the sediment base, etc. If conditions change and there is evidence of degradation then, regardless of existing permits, the operator, upon reasonable notice would be required to modify operations or cease altogether until such time as the situation was rectified. This would help avoid the need to have everything nailed down 100% before issuing permits. Frankly, I doubt we'll ever get the evidence to satisfy everyone all the time. If this is to go forward, the exec group is going to have to accept some reasonable level of uncertainty and accept some risk that the tech group might not agree with 100%.

From the sidelines, I think you all are going a great job bringing this all together. This is a great example of how we might make the partnering of government and business a whole lot more productive and still protective of our natural resources going forward.

Cheers.

jb

From: Ted Freeman, Jr. [mailto:tedf@hughes.net]
Sent: Thursday, January 24, 2008 10:50 AM
To: MOYNAHAN Kevin; BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; judy.l.linton@usace.army.mil; Lawrence.C.Evans@nwp01.usace.army.mil; lori warner-dickason; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; Vallette.Yvonne@epamail.epa.gov; Dave Pratt; BILL YOCUM; Jon Barton
Subject: Executive Team Draft Comments

----- Original Message -----

From: MOYNAHAN Kevin <mailto:Kevin.Moynahan@state.or.us>

To: BAILEY Bob <mailto:Bob.Bailey@state.or.us> ; billy@wave.net ; CHARLAND Jay <mailto:Jay.Charland@state.or.us> ; joe.zisa@fws.gov ; GERMOND Jon P <mailto:Jon.P.Germond@state.or.us> ; joy@umpquasand.com ; judy.l.linton@usace.army.mil ; Lawrence.C.Evans@nwp01.usace.army.mil ; lori warner-dickason <mailto:Lori.Warner-Dickason@state.or.us> ; szerlog.michael@epa.gov ; mike.tehan@noaa.gov ; Monty_Knudsen@fws.gov ; PUENT Sally <mailto:Sally.Puent@state.or.us> ; Rich@OCAPA.net ; relayer@twcontractors.com ; ROSE Jennifer <mailto:Jennifer.Rose@state.or.us> ; SNOW Patty <mailto:Patty.Snow@state.or.us> ; tedf@hughes.net ; Vallette.Yvonne@epamail.epa.gov

Sent: Tuesday, January 22, 2008 3:19 PM

Subject: Gravel Exec Team Meeting 1/23/08 10 - 12 noon DSL Mill Creek Room

For the meeting tomorrow - see the attached proposed agenda.

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See you tomorrow. Kevin

Internal Virus Database is out-of-date.
Checked by AVG Free Edition.

Version: 7.5.516 / Virus Database: 269.19.1/1220 - Release Date: 1/11/2008 6:09 PM

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~~a.Permit applications may be placed on hold pending data collection and information gathering,~~

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Subject: Executive Team Draft Comments
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To: BAILEY Bob <mailto:Bob.Bailey@state.or.us> ; billy@wave.net ; CHARLAND Jay <mailto:Jay.Charland@state.or.us> ; joe.zisa@fws.gov ; GERMOND Jon P <mailto:Jon.P.Germond@state.or.us> ; joy@umpquasand.com ; judy.l.linton@usace.army.mil ; Lawrence.C.Evans@nwp01.usace.army.mil ; lori warner-dickason <mailto:Lori.Warner-Dickason@state.or.us> ; szerlog.michael@epa.gov ; mike.tehan@noaa.gov ; Monty_Knudsen@fws.gov ; PUENT Sally <mailto:Sally.Puent@state.or.us> ; Rich@OCAPA.net ; relayer@twcontractors.com ; ROSE Jennifer <mailto:Jennifer.Rose@state.or.us> ; SNOW Patty <mailto:Patty.Snow@state.or.us> ; tedf@hughes.net ; Vallette.Yvonne@epamail.epa.gov
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Sent: Thursday, January 24, 2008 2:12 PM
To: MOYNAHAN Kevin
Cc: billy@wave.net; BAILEY Bob; CHARLAND Jay; ROSE Jennifer; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; lori warner-dickason; mike.tehan@noaa.gov; SNOW Patty; relayer@twcontractors.com; Rich@OCAPA.net; PUENT Sally; szerlog.michael@epa.gov; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov; Janine_M_Castro@fws.gov
Subject: Re: Gravel Exec Team Meeting 1/23/08 10 - 12 noon DSL Mill Creek Room

Kevin, based on our discussions yesterday, we support the suggested edits mentioned at the meeting and offer the following specifically.

Item 5 c in Section I, actually refers to operations on other river systems so it should be moved into Section III where other river systems are discussed.

Section I, number 5 should be reworded or restructured to clearly distinguish between what the USGS is expected to provide via the scope of work and what is expected of the Tech Team. As currently constructed, the distinction is not clear.

We agree that a timeline or schedule needs to be established for the various products from USGS and the Tech Team which will be used in making decisions on subsequent permit applications for the Chetco. Obviously, this will require consideration of the seasonal dynamics of the Chetco system and when the gravel data can actually be collected. Funding availability for USGS to do the work will obviously play into this as well.

Thanks for the opportunity to provide our input.

Monty Knudsen, Assistant Project Leader
Oregon Fish & Wildlife Office
2600 S.E. 98th Avenue
Portland, OR 97266-1398
503.231.6179
Website: http://www.fws.gov/oregonfwo/

Latcu, Misty M NWP

From: Szerlog.Michael@epamail.epa.gov
Sent: Thursday, January 24, 2008 9:40 PM
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Subject: EPA's Comments
Attachments: EPA comments to Gravel Tech Team Expectations.yv.doc

Kevin,

Enclosed are EPA's comments.

(See attached file: EPA comments to Gravel Tech Team Expectations.yv.doc)

Thanks
Michael J. Szerlog
Aquatic Resources Unit Manager
Ecosystems, Tribal, and Public Affairs Office United States Environmental Protection Agency 1200 Sixth Avenue, Suite 900, Mailstop ETPA-083 Seattle, Washington 98101
(206) 553-0279

"MOYNAHAN Kevin" <Kevin.Moynahan@state.or.us>
01/22/2008 03:19 PM

To
BAILEY Bob <Bob.Bailey@state.or.us>, <billy@wave.net>, CHARLAND Jay <Jay.Charland@state.or.us>, <joe.zisa@fws.gov>, GERMOND Jon P <Jon.P.Germond@state.or.us>, <joy@umpquasand.com>, <judy.l.linton@usace.army.mil>, <Lawrence.C.Evans@nwp01.usace.army.mil>, "lori warner-dickason" <Lori.Warner-Dickason@state.or.us>, Michael Szerlog/R10/USEPA/US@EPA, <mike.tehan@noaa.gov>, <Monty_Knudsen@fws.gov>, "PUENT Sally" <Sally.Puent@state.or.us>, <Rich@OCAPA.net>, <relayer@twcontractors.com>,

"ROSE Jennifer"
<Jennifer.Rose@state.or.us>,
"SNOW Patty"
<Patty.Snow@state.or.us>,
<tedf@hughes.net>, Yvonne
Vallette/R10/USEPA/US@EPA
cc

Subject
Gravel Exec Team Meeting 1/23/08
10 - 12 noon DSL Mill Creek Room

For the meeting tomorrow - see the attached proposed agenda.

Also, attached is a draft of the document promised at the last meeting - the general outline of the DSL/COE approach to dealing with the gravel related permitting issues as well as direction to the Tech Team as to deliverables required as part of the application review process.

See you tomorrow. Kevin

[attachment "Agenda 1.23.08.doc" deleted by Michael Szerlog/R10/USEPA/US] [attachment "Gravel Tech Team Expectations draft - 1.22.08.doc" deleted by Michael Szerlog/R10/USEPA/US]

DRAFT

Gravel Exec Team Expectations and Scope of Project Outline Related to In-Stream Gravel Operations

Blue highlighted items indicate expectations for the Interagency Gravel Tech Team

Comment [MS1]: Need to include time-lines.

As permitting agencies charged under state and federal law with review and decision making related to applications for in-stream gravel mining operations in the State of Oregon and as co-chairs of the Gravel Exec Team the Department of State Lands (DSL) and the US Army Corps of Engineers (COE) set forth the following expectations and outline of process related to the permitting of such operations. DSL and COE seek to ensure a fair process for decision making for applications submitted to the respective agencies for continued gravel mining in river systems throughout Oregon.

I. Chetco operations above head of tide (Freeman and Tidewater)

1. The COE and DSL have authorized work on the upper Chetco through the 2008 in-water work period. The National Marine Fisheries Service (NMFS) issued a biological opinion in support of these permitting decisions.
2. DSL and the COE anticipate evaluating applications for Freeman and Tidewater to operate on the upper Chetco in 2009. COE and DSL will be working to develop a regional general permit (RGP) and general permit) respectively, as the vehicle for authorization. The goal is to make a final decision on the respective permits before the in-water work period in 2009. The Tech Team will provide timely input to the COE/DSL to develop the anticipated RGP/GP.
3. The agencies will continue to gather information related to gravel budgets during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the COE and DSL may exercise the following options:
    a. Permit applications may be placed on hold pending data collection and information gathering,
    b. Permits may be granted, but with limited gravel volumes or other conditions to minimize impacts, or
    c. Short-term permits may be granted.
4. If information collected by the Tech Team indicates mining cannot continue without unacceptable impacts, the COE and DSL may consider permit denial.

Comment [MS2]: Can both COE and DSL exercise these options, or just COE?

Comment [NU3]: It should be understood that the Tech Team will not be collecting info, but rather reviewing and analyzing information provided by the operators. But part of the issue is determining what information to bring to the agencies and what threshold to use to make a go or no go decision.

5. A ~~scope~~ Scope of ~~work~~ Work (SOW) for investigation of the Chetco River system is expected from USGS by January 22, 2007. The ~~scope of work~~SOW will include:
    a. A review of Phase I information that was used to authorize the two permits through 2008.
    b. A recommendation for additional data needs for use in developing the RGP/GP.
    c. A list of information requirements to address the other river systems. This will involve an evaluation of existing data and a recommendation for additional data collection needed to fill information gaps.
    d. A description of deliverables and how those deliverables would be used to facilitate permit decisions.
    e. Costs associated with creation of those deliverables.

The Tech Team will provide input on the ~~scope~~ SOW~~of work~~ and provide direction for future data collection for the RGP/GP.

II. Chetco operations below head of tide (Tidewater)

Lower ~~Tidewater~~ Chetco project: The Tech Team will provide input to the COE and DSL on whether or not the lower Chetco can be included in the RGP. If it is determined the lower Chetco cannot be included, the Tech Team will develop a list of information needs and a course of action to obtain the information.

III. Operations on other river systems

1. The Tech Team will review the USGS ~~scope of work~~SOW and create a list of information needs and a process for obtaining the information for use in developing the RGP/GP for the other river systems. Presently, the Umpqua River and ??? River (to be identified) have been identified as the next systems to be studied. This will be used as a model for information gathering.
1. Defer to the industry folks for prioritizing the other river studies.
2. Decide how future studies will be funded.

IV. Status and approach for permits pending COE/DSL permit renewals or issuance of a RGP/GP

1. COE and DSL will create a master list of gravel operations/operators ~~with~~ detailing the status of current applications and permit ~~status~~s.
2. DSL will continue to process renewals, considering Federal and State agency recommendations. DSL requests that other agencies improve consistency on how they respond to renewal requests. DSL will review each renewal request consistent with state law and will take into consideration comments from state and federal agencies on new and

Comment [MS4]: Revise the date?

Comment [MS5]: Besides reviewing the info, shouldn't they also be compiling and synthesizing the information to determine data gaps.

Comment [MS6]: I think this is a much bigger project that would require the USGS to review info for other permits in order to come up with a comprehensive list of information/data needs for other river systems.

Comment [NU7]: Potential deliverables. There is no funding to have USGS do more than estimate what data needs may be usefult.

Comment [NU8]: Or costs for additional studies.

Comment [MS9]: Shouldn't this be part of the Regional General Permit?

Comment [MS10]: In the form of comments and/or recommendations? May be good to list some factors that we would want the Tech Team to be considering.

Comment [MS11]: That is assuming the issue is that we do not have enough information or data to make a decision?

Comment [MS12]: Add additional systems. Coquille was suggested by the Tech Team as the next potential system to examine with permits expiring there in the near term.

renewal applications, as well as comments made by others. To that end, DSL will respond to agency comments on renewals by doing one of the following, as appropriate:

a. Permit renewals will be granted, or
b. Permits may be placed on hold pending data collection and information gathering, or
c. Permits may be granted, but for limited time period, limited gravel removal volumes or other conditions to minimize impacts, or
d. If information is provided that indicates renewal will cause jeopardy or other effects that cannot be mitigated, DSL will consider denial of renewal requests.

3. COE will process permit applications consistent with federal laws and regulations, and will consider comments received during the public review period. The COE will follow up, as appropriate, with operators that have not submitted an application, to get them under the umbrella of the process for all gravel operations.

Latcu, Misty M NWP

From: Jon Germond [Jon.P.Germond@state.or.us]
Sent: Friday, January 25, 2008 4:03 PM
To: MOYNAHAN Kevin; BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; WARNER-DICKASON Lori; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; Patty Snow; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: RE: Gravel Exec Team Meeting 1/23/08 10 - 12 noon DSL Mill Creek Room

ODFW does not have anything substantive to add to the comments everyone else already submitted. Thanks!

Jon Germond

Land Resources Program Manager

Wildlife Division

Oregon Department of Fish and Wildlife

3406 Cherry Avenue, NE

Salem, OR 97303

503-947-6088 (office)

503-269-9507 (cell)

503-947-6070 (fax)

Jon.P.Germond@state.or.us

From: MOYNAHAN Kevin [mailto:Kevin.Moynahan@state.or.us]
Sent: Tuesday, January 22, 2008 3:20 PM
To: BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; Jon Germond; joy@umpquasand.com; judy.l.linton@usace.army.mil; Lawrence.C.Evans@nwp01.usace.army.mil; WARNER-DICKASON Lori; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; Patty Snow; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
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For the meeting tomorrow - see the attached proposed agenda.

Also, attached is a draft of the document promised at the last meeting - the general outline of the DSL/COE approach to dealing with the gravel related permitting issues as well as direction to the Tech Team as to deliverables required as part of the application review process.

See you tomorrow. Kevin

Latcu, Misty M NWP

From: PUENT Sally [PUENT.Sally@deq.state.or.us]
Sent: Monday, January 28, 2008 9:23 AM
To: MOYNAHAN Kevin; BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; lori warner-dickason; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: RE: Gravel Exec Team Meeting 1/23/08 10 - 12 noon DSL Mill Creek Room
Attachments: Gravel Tech Team Expectations draft - 1.22.08.doc

My comments.

-----Original Message-----
From: MOYNAHAN Kevin
Sent: Tuesday, January 22, 2008 3:20 PM
To: BAILEY Bob; billy@wave.net; CHARLAND Jay; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; judy.l.linton@usace.army.mil; Lawrence.C.Evans@nwp01.usace.army.mil; WARNER-DICKASON Lori; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
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DRAFT

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Blue highlighted items indicate expectations for the Interagency Gravel Tech Team

As permitting agencies charged under state and federal law with review and decision making related to applications for in-stream gravel mining operations in the State of Oregon and as co-chairs of the Gravel Exec Team the Department of State Lands (DSL) and the US Army Corps of Engineers (COE) set forth the following expectations and outline of process related to the permitting decisions ~~of~~ for such operations. DSL and COE seek to ensure a fair process for decision making for applications submitted to the respective agencies ~~for~~ pursuing continued gravel mining in river systems throughout Oregon.

I. Chetco operations above head of tide (Freeman and Tidewater)

1. The COE and DSL have authorized work on the upper Chetco through the 2008 in-water work period. The National Marine Fisheries Service (NMFS) issued a biological opinion in support of these permitting decisions.
2. DSL and the COE anticipate evaluating applications for Freeman and Tidewater to operate on the upper Chetco in 2009. COE and DSL will be working to develop a regional general permit (RGP) and general permit~~)~~ respectively, as the vehicle for authorization. The goal is to make a final decision on the respective permits before the in-water work period in 2009. The Tech Team will provide input to the COE/DSL to develop the anticipated RGP/GP.
3. The agencies will continue to gather information related to gravel budgets during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the COE and DSL may exercise the following options:
    a. Permit applications may be placed on hold pending data collection and information gathering,
    b. Permits may be granted, but with limited gravel volumes or other conditions to minimize impacts, or
    c. Short-term permits may be granted.
4. If information collected by the Tech Team indicates mining cannot continue without unacceptable impacts, the COE and DSL may consider permit denial. DEQ may consider denial of the 401 Water Quality certification if findings indicate adverse impacts to water quality and its beneficial uses.

Comment [a1]: Please note that they must consider the timeframe of the 401 WQC to be developed before the USACE RGP can become effective.

Comment [a2]: Options b & c require 401 WQC

5. A scope of work for investigation of the Chetco River system is expected from USGS by January 22, 2007. The scope of work will include:
    a. A review of Phase I information that was used to authorize the two permits through 2008.
    b. A recommendation for additional data for use in developing a broader sediment budget and informing the RGP/GP development.
    c. A generic list of information requirements which can serve as a basic template for~~to~~ addressing the other river systems. This will involve an evaluation of existing data and a recommendation for additional data collection needed to fill information gaps. (I recommend reconsidering this item. Let's have USGS focus on the Chetco first for process and funding reasons.)
    d. A description of deliverables and how those deliverables would be used to facilitate permit decisions.
    e. Costs associated with creation of those deliverables.

The Tech Team will provide input on the scope of work and provide direction for future data collection for the RGP/GP.

II. Chetco operations below head of tide (Tidewater)

Lower Tidewater project: The Tech Team will provide input to the COE and DSL on whether or not the lower Chetco can be included in the RGP. If it is determined the lower Chetco cannot be included, the Tech Team will develop a list of information needs and a course of action to obtain the information.

III. Operations on other river systems

1. The Tech Team will review the USGS scope of work and create a list of information needs and a process for obtaining the information for use in developing the RGP/GP for the other river systems. Presently, the Rogue River (which is under review for permits), Umpqua River and ~~???~~ the Coquille River (to be identified) have been identified as the next systems to be studied. This will be used as a model for information gathering.

1. Defer to the industry folks,~~-~~ fish folks, and restoration folks for prioritizing the other river studies.
2. Decide how future studies will be funded.

IV. Status and approach for permits pending COE/DSL permit renewals or issuance of a RGP/GP

1. COE and DSL will create a master list of operations with application and permit status.
2. DSL will continue to process renewals, considering Federal and State agency recommendations. DSL requests that other agencies improve consistency on how they respond to renewal requests. DSL will review

each renewal request consistent with state law and will take into consideration comments from state and federal agencies on new and renewal applications, as well as comments made by others. To that end, DSL will respond to agency comments on renewals by doing one of the following, as appropriate:

a. Permit renewals will be granted, or
b. Permits may be placed on hold pending data collection and information gathering, or
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3. COE will process permit applications consistent with federal laws and regulations, and will consider comments received during the public review period. The COE will follow up, as appropriate, with operators that have not submitted an application, to get them under the umbrella of the process for all gravel operations.

Comment [a3]: DSL could apply the federal considerations across the board, and request specific input from agencies when this is not doable.

Gravel Tech Team Mtg
Feb 1, 2008, 10-12
COE office, 8th Floor Regulatory Branch Conference Room

Call in number 503-808-5198 passcode 3295

Agenda and Meeting Notes

Attendees:
Larry Evans, Judy Linton, Lori Warner-Dickason, Patty Snow, Alex Cyril, Yvonne Vallette, Janine Castro, Jim O'Conner, Glen Hess, Rose Walick, Bill Yocum, Chuck Wheeler, Robert Elayer, Chris Lidstone, Jay Charland.

1. Exec Team expectations draft document
   Larry gave a description of how the document was created. The Corps of Engineers will begin the process for developing a regional general permit (RGP) for gravel mining on the Chetco River. He told the group the Corps will issue a public notice for the RGP by Feb. 8th. The RGP will include all of the operations on the Chetco. The objective of starting the RGP process is to begin the endangered species consultation which could take 1 year to complete. The February public notice could include DEQ, DLCD notice as well. A permit decision must be reached by the in-water work period for 2009 for the Chetco projects.

   Larry also indicated the Tech Team needs to begin to look at information needs for the Umpqua River system so data can be collected during winter 2008/2009 if necessary. We need to become proactive and not reactive in our evaluation of river systems.

   a) Discussion of permit vehicle (RGP/GP), generally.
   Judy discussed the timeline for the RGP. The public notice will be very general and will include all the operations for the Chetco. Another public notice will be conducted after specific project details are determined. The group suggested that the public notice include a background piece. Chuck acknowledged NMFS may respond to the public notice by sending a letter requesting additional information, but at least the notice will get the consultation process started.

   b) Interim permit processes.
   Lori mentioned the list of active DSL permits. The master list of DSL permits, with status of COE action is forthcoming. It was suggested that DEQ also provide a status of 401 certification on the master list. Lori and Judy will provide the master list of permit status soon.

   Lori asked that other agencies try to be consistent in commenting on DSL renewals. Other agencies have work load constraints that prohibit them from

providing comments on all renewals. The group suggested that the Exec team follow up with their respective staff with regard to commenting on DSL renewals.

c) Timelines for RGP/GP development. (Discussed above)

2. Public participation-public information meeting in March?
The group discussed the need for outreach. Judy recommended conducting a public meeting close to the public notice-March or April. A decision on when to hold the public meeting was not made.

Bill Yocum suggested that the group conduct a site visit at the same time of the public meeting. There may be an opportunity to revise the current operating conditions based on what they think is working well and what isn't.

3. Additional data needs for development of the RGP/GP for the Chetco operations.

Jim O'Conner mentioned that the work Janine did for the phase I data collection was very reasonable. Depending on the type and amount of existing data for the other rivers it seems like an effective approach for determining whether a river is aggrading or degrading. USGS did not have any suggestions for improving the phase I analysis. For the future rivers, if phase I data indicates the system is incising, phase II may not be needed. Need to establish phase I protocol for use on other rivers.

The group discussed the timing constraints and the need to manage the Exec team expectations regarding the limits of what can be accomplished in such a short time frame. The group may want to consider a phased approach to data collection that would allow for the permit decision and adaptive management of the project using longer term evaluation.

The group also discussed opportunities for permittees to improve their data collection. Surveys should use permanent monuments with known elevations and conduct full channel surveys. Lori thought that all DSL permit conditions were updated to require this and will check on it.

The cost estimates provided in the summary document are extremely rough and are listed only to provide insight to the costs of the methods relative to each other. The actual costs may vary on an order of magnitude and could be refined when a method is chosen and the amount of existing data is determined.

The group discussed the need to get funding for this effort, as we cannot continue to rely on USGS doing this work for free.

The pros and cons of each method were discussed. (More detail was provided in the approach documents provided by Jim and Janine.)

Method 1: Direct Measurement.
Not really plausible for the S. Coast. They are flashy systems and far away. This method is very labor intensive with high annual variation. Valuable in conjunction with other methods.

Method 2: Empirical.
This method could be used in conjunction with existing data or other methods to ground truth. The efficacy of this method is dependent on assumptions regarding sediment supply and threshold mobilization. It could be done within the timeline. Could use the GIS approach to refine data from the empirical method.

Method 3: Morphologic Transport Estimates.
This method uses mapping area and thickness of actual gravel deposits. Can use longer term historical information and could provide information related to effects of gravel mining. Good for coastal systems where there is no gravel outlet.

Method 4: GIS based empirical.
This method would use basin characteristics to create a relationship between transport rates and watershed characteristics. Used in conjunction with bedload transport equations or the morphological approach, this method would be more effective.

Method 5: SIAM.
This method would used to evaluate flood risk. It would be very quick, 3-6 months, but by itself may not provide the information we need. It would be most effective in conjunction with other methods.

The group discussed the need to address the estuary site separately. The empirical methods do not address tidal systems.

The group did not decide on an approach to recommend to the Exec team. Jim and Janine will create a comparison table for the Exec Team to review. The table will be completed prior to the Exec team meeting on Feb 27.

Next Steps:

1. Lori and Judy will complete the master list of gravel permits for distribution to the team so that they can be aware of permit and renewal timelines.
2. Janine and Jim will create a comparison table of the methods by 2/15 for distribution to the tech team. The group will meet again on 2/25 at 3:30 by conference call. By Feb 27, we will outline the options and create a recommendation for the Exec team to discuss at their next meeting.

3. Janine will create a list of data needs for the phase I work. (In preparation for evaluation of the Umpqua River system.)
4. Lori will look at survey conditions of the DSL permits to confirm that permittees are collecting data we will be able to use.

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Thursday, February 21, 2008 10:24 AM
To: 'Alex Cyril'; 'Bill Yocum'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Frank Schnitzer'; 'Glen Hess'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Todd Confer'; 'Yvonne Vallette'
Subject: Meeting notes and gravel matrix
Attachments: 01Feb08_Gravel Tech Team Mtg Notes_final.doc; COMMERCIAL GRAVELPERMITS STATUS_DSL,COE.doc

Good morning, all –

I didn't receive any comments on the draft meeting notes I sent out a while back so consider the attached notes the final version…(do let me know, though, if you see any errors)

Also for your information, I have attached a matrix that Lori prepared of the active DSL permits (statewide) for gravel removal. I have inserted information in italics showing whether the Corps has an active permit or pending application and status.

Judy

Gravel Tech Team Mtg
Feb 1, 2008, 10-12
COE office, 8th Floor Regulatory Branch Conference Room

Call in number 503-808-5198 passcode 3295

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4. Lori will look at survey conditions of the DSL permits to confirm that permittees are collecting data we will be able to use.

DSL/CORPS
ACTIVE COMMERCIAL GRAVEL REMOVAL PERMITS
(Status as of January 2008)

DSL/ CORPS ID NO.	PERMITTEE	COUNTY	LOCATION (TRSQQ)	WATERBODY	DATE APPLICATION RECEIVED	CURRENT AUTHORIZATION PERIOD	VOLUME (cubic yards)	
RP16029 *NWP1998-1131*	Pacific Rock Products	Clatsop	06N02W17	Columbia R.	11/16/1998	1/02/04 - 3/12/09 *11/30/01 – 11/30/05*	700,000	
APP26589	Northwest Aggregate	Columbia	04N01W32	Wetland/Santosh Sl.	2/5/2003	10/26/04 - 10/26/09	3,000,000 + Fill 17,000	
RP2281 *No COE Appl*	Hayes Gordon	Coos	30S12W26	Coquille R./S. Fk	3/22/1976	12/21/06 - 1/22/08	25,000	
RP3250	LTM Inc.	Coos	30S12W04	Coquille R./S. Fk.	4/17/1980	6/21/07 - 7/17/08	35,000	
RP597 *NWP1996-588*	Merchen and Reed Gravel	Coos	30S12W15	Coquille R./S. Fk.	7/27/1971	11/20/06 - 12/18/07 in renewal process	20,000 *COE Pending?*	
RP3421	LTM Inc.	Coos	30S12W22	Coquille R./S. Fk.	4/16/1981	11/19/07 – 11/21/08	5,000	
APP38163 *NWP2007-196*	Tidewater Contractors Inc.	Curry	40S13W12	Chetco R.	3/20/2007	8/27/07 – 8/27/08 *8/2007 – 9/30/09*	20,000	
RP4010 *NWP2006-923*	Freeman Rock, Inc.	Curry	36S14W20	Rogue R.	11/1/1993	3/22/07 - 5/4/08 *COE PENDING*	30,000	
APP37065	Curry County**	Curry	37S14W19	Hunter Cr.	8/04/2006	10/17/07 – 11/30/08	10,000	
APP37680 *NWP2006-927*	Freeman Rock Inc.	Curry	40S13W35	Chetco R.	1/18/2007	8/27/07 – 8/27/08 *8/2007 – 8/30/09*	100,000	
RP3754 *NWP1996-1035*	Leith Thomas M	Curry	37S14W21	Hunter Cr.	4/8/1983	7/18/07- 7/25/08 *10/03/06 – 9/30/10*	10,000	
RP4187 *NWP1996-1727*	South Coast Lumber Co	Curry	40S13W24	Chetco R.	4/26/1985	7/16/07 - 8/9/08 *COE PENDING*	10,000	
APP30499 *NWP1996-1565*	Tidewater Contractors	Curry	36S14W29	Rogue R.	5/16/2003	11/16/07 - 11/7/08 *COE PENDNG*	60,000	
RP42 *NWP1996-1804*	Tidewater Contractors	Curry	40S13W33	Chetco R.	9/15/1997	7/26/07 - 10/22/08 *WITHDRAWN 2007*	100,000	
RP4722 *NWP1999-1114*	Wagner Glen	Curry	32S15W21	Elk R.	8/10/1987	8/8/07 - 10/15/08 *WITHDRAWN 12/04*	12,000	
RP1521	Beaver State Sand &Gravel	Douglas	28S06W35	Umpqua R/S. Fk.	4/18/1974	7/26/07 - 7/30/08	3,000	
APP34893	Beaver State Sand &Gravel	Douglas	27S06W34	Umpqua R/S. Fk.	6/27/2005	12/05/07 - 12/5/08	10,000	
RP15115 *NWP2006-300*	Buckwalter Harry	Douglas	27S06W16	Umpqua R/S. Fk.	4/7/1998	8/2/04 - 8/2/09 in renewal process	10,000	
RP43 *NWP2002-828*	LTM Inc.	Douglas	22S10W06	Umpqua R.	3/25/1999	4/7/04 - 4/7/09 *9/2004 – 9/30/09*	181,000	

RP4026 *NWP-0-5511*	S & K Excavation	Douglas	32S05W20D	Cow Cr.	8/12/1999	3/22/07 - 4/30/08 *COE PENDING*	20,000	
APP34374 *NWP1995-79*	Tri City Ready Mix, Inc.	Douglas	30S04W21	Umpqua R./S. Fk	4/26/2005	7/16/07 - 8/31/08 *COE DENIED 9/06*	20,000	
RP15419 *NWP2000-493*	Umpqua Sand & Gravel,Inc.	Douglas	27S06W04	Umpqua R./S. Fk	6/5/1998	6/28/07 - 8/31/08 *COE DENIED 9/06*	10,000	
RP13250	Rogue Aggregates Inc.	Jackson	36S02W22	Wetland/Whetstone	2/12/1998	2/13/07 - 4/20/08	.88 acres	
RP377	Wildish Sand & Gravel Co.	Lane	17S03W06	McKenzie/Willamette	7/25/1969	12/8/06 - 2/17/08***	20,000	
APP33939 *NWP1997-124*	Gilmour James	Linn	11S04W16	Willamette R.	2/14/2005 *01/29/97*	8/14/07 - 8/14/08 *COE PENDING*	15,000	
RP16275 *NWP2003-578* *NWP2006-127*	Baker Rock Resources	Marion	05S03W11	Willamette R. *Wetland exc/fill*	12/10/1998 *04/15/04*	2/11/04 - 1/25/09 *COE WITHDRAWN* *COE PENDING*	40,000	
RP10293	River Bend S & G	Marion	08S02W20	Mill Cr. /Wetland	10/13/1995	10/31/03 - 10/30/08	150,000 + Fill 20,000	
APP37325 *NWP2006-830*	River Bend S & G	Marion	08S02W33	Wtld/Etzel & Santiam *Wetland Impacts*	10/10/2006 *10/26/06*	6/19/07 – 6/19/08 *2007 - 2062*	8,950,000 + Fill 13,100	
RP7428 *NWP1998-490*	Columbia River S & G *(COE – Removal from nav channel under COE auth)*	Multnomah	02N01W00	Columbia R.	8/20/1999	12/15/03 - 2/28/09 *06/11/98 – 06/07/00*	210,000 *(COE -Upland Disposal Only)*	
RP16094 *NWP1998-1275*	Columbia River S & G	Multnomah	02N01E20	Columbia R.	10/15/1998	9/11/06 - 10/19/11 *08/24/06 – 08/31/11*	400,000	
APP23302 *NWP1999-972*	Morse Bros Inc.	Multnomah	01N03E23	Columbia R.	9/22/2000	1/24/06 - 12/15/08 *04/06/05 – 03/01/06*	200,000	
APP24793 *NWP2001-943*	Morse Bros Inc.	Multnomah	01N03E23C	Columbia R.	11/1/2001	1/04/08 - 2/26/09 *02/2002 – 02/28/07*	200,000	
RP7174	Northwest Aggregates Co.	Multnomah	01N03E16	Columbia R.	1/11/1993	5/21/07 - 6/30/08	200,000	
RP17111 *NWP1999-532*	Northwest Aggregates Co.	Multnomah	01N03E16	Columbia R.	4/14/1999	3/30/07 - 6/30/2012 *8/2006 – 8/31/11*	200,000	
APP25337	Northwest Aggregates Co.	Multnomah	01N03E20A	Columbia R.	4/11/2002	10/30/07 - 12/10/2010	200,000	
RP17209	Pacific Rock Products	Multnomah	01N03E22	Columbia R.	5/6/1999	7/10/07 - 9/25/08	200,000	
APP33165 *NWP1993-576*	KD Sand & Gravel Inc.	Polk	07S03W29	Willamette R.	7/23/2004 *05/15/01*	2/08/07 - 3/22/08 *COE DENIED* *11/30/05*	35,000	

APP30342 *NO COE APPL*	Bush Brownlee	Tillamook	01S09W34	Trask R.	4/28/2003	3/16/07 - 6/30/08	5,665	
APP30396 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01N09W32	Kilchis R.	5/2/2003	3/23/07 - 6/30/08 **Jurisdiction not det*	7,200	
APP32271 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01S09W20	Wilson R.	4/23/2004	6/06/07 - 8/10/08 **Jurisdiction not det*	2,700	
APP30541 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01S09W22	Wilson R.	5/21/2003	3/23/07 - 6/30/08 **Jurisdiction not det*	8,000	
APP30543 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01S09W06	Kilchis R.	5/21/2003	3/23/07 - 6/30/08 **Jurisdiction not det*	4,000	
APP34117 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01N10W11	Miami R.	3/18/2005	7/17/07 - 9/1/08 **Jurisdiction not det*	3,000	
RP448	Mohler Sand & Gravel	Tillamook	02N09W06	Nehalem R./S. Fk.	5/27/1970	1/2/07 - 2/17/08 in renewal process	15,000	
RP4397 *NWP1999-989/* *NWP2002-765*	Mohler Sand & Gravel *(BOTH COE APPS WITHDRAWN)***	Tillamook	02N09W05	Nehalem R.	5/12/1986	6/13/07- 8/28/08 ***JURISDICTION NOT DETERMINED*	15,000	
RP14259 *NWP1997-884*	C C Meisel Co Inc.	Yamhill	04S03W26	Willamette R.	6/26/1997	6/14/07- 7/26/08 *COE PENDING*	35,000	
RP2000 *NWP2004-340*	Poole Paul D	Yamhill	05S06W34	Yamhill R/S. Fk.	5/1/1975 *10/14/04*	5/21/07- 5/21/08 in renewal process *COE PENDING*	6,000	
						TOTALS	**15,512,565+**	

Notes (For DSL files):

*Most recent fee amount collected or to be collected in current renewal process

**Non-commercial gravel removal permit for 10,000 cubic yards of removal issued to Curry County Road Department for 10/17/07 through 11/30/08.

***Expiration Pending. RP377 to be replaced by APP0039619-RP, now in application pending status

+ Removal includes additional .88 acres. Fill total = 50,100 c.y.

Corps of Engineers project information shown in italics

From: Jay Charland
To: Linton, Judy L NWP
Subject: Conclusion from yesterday
Date: Tuesday, February 26, 2008 11:02:52 AM

Feb 26

Judy-

What I took from yesterday's conference call was the following:

- The Tech Team proposes using a combination of SIAM and Morphological Techniques to analyze each river system. SIAM includes Bed Load techniques.

- LIDAR elevation data with a grid size of 1 meter or less could be used in this analysis. Such data would greatly reduce, if not eliminate, the need for field surveys.

- The cost would be approximately $150,000 for the Chetco River. Costs for other rivers cannot be determined at this time. This is dependent on what information may exist already.

- USGS could potentially contribute up to 40% of the cost of analysis under a 60-40 match agreement.

- The Exec Team should not ask USGS for a proposal unless there is the realistic prospect of funding actual work.

Jay

Jay Charland
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Land Conservation and Development
635 NE Capitol St, Ste 150
Salem, Oregon 97301-2540
(503) 373-0050 x253
(503) 378-6033 fax
jay.charland@state.or.us
www.oregon.gov/lcd/ocmp/index.shtml

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Tuesday, February 26, 2008 8:18 AM
To: BAILEY Bob; bill yocum; CHARLAND Jay; David Pratt; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Reminder - next scheduled meeting is 2/27/08 - ere at DSL in the Mill Creek Room - noon - 2pm

The draft agenda is outlined below - any additional items - please let me know before the meeting. For those who will participate by phone, please e-mail me your contact number before the meeting.

1) Discuss option recommendations by Tech Team for sediment transport study in Chetco. Identify likelihood of funding, timeline and output.

2) Status of CORPS' Regional General Permit process for gravel extraction.

Please note - the CORPS has requested the next gravel meeting - currently scheduled for April 2nd in Salem - be held in Portland at the CORPS' office so Colonel O'Donovan can attend part of the meeting.

Also, due to schedule conflicts, NMFS will be unable to have a representative at the meeting this Wednesday.

Kevin

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us <mailto:kevin.moynahan@state.or.us>

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Wednesday, February 27, 2008 4:32 PM
To: BAILEY Bob; bill yocum; CHARLAND Jay; David Pratt; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: FW: Gravel info draft
Attachments: Gravel-budget-approach-summary.xls; 25Feb08 Conference Call.doc; COMMERCIAL GRAVELPERMITS STATUS_DSLCOE.doc

Attached are documents related to the Tech Team study recommendation including the 2/25/08 draft discussed at the meeting today.

From: WARNER-DICKASON Lori [mailto:Lori.Warner-Dickason@state.or.us]
Sent: Wednesday, February 27, 2008 9:25 AM
To: MOYNAHAN Kevin
Subject: Gravel info draft

I included the table of data gathering options and the list of gravel permits with COE and DSL status indicated, FYI.

Lori Warner-Dickason
Western Region Manager
Wetland and Waterway Conservation Division
Department of State Lands
775 Summer St. NE Suite 100
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(503)986-5271
(503)378-4844 (fax)
lori.warner-dickason@state.or.us

Approaches to Gravel Supply Evaluation

Prepared by Jim O'Connor, Glen Hess, Rose Wallick (USGS) and Janine Castro (USFWS)

February, 2008

Approach	Summary Statement	Applicability	Anticipated Accuracy	Advantages	Disadvantages	Project Duration	Costs	Bottom Line
Direct Measurement	Actual sampling of bedload transport rates	With development of proper infrastructure, can be undertaken for most rivers	Well designed and implemented measurement program can yield accuracies to within a factor of 2	Most accurate Limited measurements can supplement other approaches	Expensive for each river, requiring equipment investment and multiple sampling trips per year Several years of measurements required for suitable long-term average transport rates	If this approach used in isolation, several years for suitable analysis of transport rates. If project commited to by Summer 08, a measurement program could start during the 2008/2009 winter.	Depends on existing equipment at site of interest, but actively gaged river, about $25,000 per year for each measurement site, assuming about 10 site visits per year. Plus initial set-up cost.	Probably implausible for this to be the primary approach given costs and duration, but limited sampling at a couple key sites could vastly improve estimates from other approaches
Bedload Transport Calculations	Application of empirical to semi-emprical transport equations to predict bedload transport rates	Any river with adequate flow data (> 5-10 years)	Factor of 10, although perhaps better if performed in conjunction with other approaches, especially limited bedload sampling or morphologic estimates	Simplest, quickest, least expensive Readily conducted on most rivers with flow data Can be used in combination with other approaches to estimate transport in rivers without streamflow data Limited bedload transport sampling can greatly Can readily evaluate year-to-year variation	Difficult to judge accuracy without applying independent approaches Depends significantly on assumptions regarding sediment supply and sediment mobilization conditions	If conducted for several coastal watersheds, required field measurements could be conducted during the summer of 08, with analysis and reporting completed by early 09. Would require project initiation by Spring 08	Depending on scope and approach, $40,000-$100,000 for entire project, including multiple coastal watersheds	Logical first step to obtain rough estimates for several watersheds. Would greatly benefit from "reality" check provided by some level of application of additional approaches
Morphologic Transport Estimates	Mapping active transport volumes from analysis of historic photos and maps	Any gravel-bed river reach with sufficient multiple sequences of aerial photos or maps	Factor of 2-10, better where abundant data	Cheapest approach based on actual observations of reach conditions Analysis considers relevant multi-year to multi-decadal time scales Coastal streams probably good candidates for such an approach because of minimal land use changes upstream Data and analysis (GIS coverage's, mapping) acquired has wide utility for other studies and geomorphology monitoring	Relatively intense mapping and analysis effort required up front. Complicated in situations where there have been significant land-use changes	Conducted one reach (several km) at a time. For a project initiated spring 08, a complete reach analysis and report could be completed by spring or summer 09, depending on available source materials	Depending on the particular reach and available information, roughly $40,000-$80,000 per reach (for this method, the entire lower 12 miles of Chetco River, from exiting Coast Range to tidewater, would probably be considered a single reach)	Data intensive but viable long-term analysis approach, conducted reach-by-reach in order of interest, supplementing other approaches as well as providing consistent baseline data and protocols for future monitoring

								single reach.)	
GIS-based empirical analysis	Estimation of bedload transport rates from watershed characteristics on basis of empirical relations	Any reach of interest	Depends on quality of empirical relation, but can be evaluated statistically, could be factor of ten or total failure	Can make direct use of survey and extraction data in reaches of active and past gravel mining Can be used in combination with other approaches to estimate transport in rivers without streamflow data If appropriate data on transport rates is available from representative watersheds (e.g. reservoir accumulation volumes), this approach can be quick and widely applied If properly structured, does not require flow information Generally applicable for multi-year to multi-decadal timescales Builds readily from other approaches Provides framework for multiple methods and was developed to assist in sediment management-related decision making	Depends on existing information (data or estimates) of bedload volumes or transport rates from which to build regressions Risk of total failure if statistically significant regressions can't be developed Difficult to judge accuracy without applying independent approaches	A quick assessment, relying on existing data only, could be completed by early 2009 if started this spring	$25,000-$50,000 for quick assessment employing existing data	Reasonable analysis to attempt, especially in combination with the other approaches. A relatively quick analysis tool to help answer reach specific questions regarding aggradation and degradation in a relatively short period of time. Readily coupled with other approaches, especially **direct** and **morphologic** measurements so to evaluate/improve accuracy. The resolution of the study can be improved over time within this framework to address specific management questions. SIAM can be used to evaluate cumulative effects due to gravel extraction, bank stabilization, and other activities that affect the sediment supply.
Sediment Impact Analysis Model (SIAM)	An Army Corps of Engineers tool within HEC-RAS software. Application of empirical to semi-empirical transport equations, coupled with 1-d flow modeling, to predict bedload transport rates on a reach by reach basis. Allows reach specific predictions of aggradation or incision	Any river with adequate flow data (> 5-10 years) and information on bed material	Factor of 10, depending upon quality and resolution of input data; perhaps better if combined with other approaches	Readily conducted on most rivers with flow data Sediment "exports" can be built into the analysis to factor in gravel mining Relatively simple, fast, and inexpensive Limited bedload transport sampling and field verification of sediment sources and sinks can greatly improve accuracy Can readily evaluate year-to-year and reach-by-reach variation	Requires development of hydraulic model for reaches of interest Depends significantly on assumptions regarding sediment supply and sediment mobilization conditions Relies on daily flows, which may under-represent transport conditions	If conducted for the lower Chetco, required field measurements and surveys could be conducted during the summer of 08, with analysis and reporting completed by early 09 -- once surveying is complete, less than 3 months for data processing and analysis.	Assuming a "study-level" HEC-RAS analysis, costs will likely be between $35,000 and $75,000 per river. Sosts depend significantlyon availability of existing surveys to build hydraulic models. If surveying required, costs are difficult to predict and depend on local conditions and access	

Memorandum To: Lawrence Evans, U.S. Army Corps of Engineers
Kevin Moynahan, Oregon Department of State Lands

Date: February 26, 2008
Subject: Technical Team Recommendation for Chetco River Sediment Transport Study

1. On February 25, 2008, Technical Team members participated in a conference call to discuss alternative approaches for evaluating sediment transport specifically within the Chetco River system, but also as they may be applicable to other coastal river systems. Purpose of the call was to come up with a recommended approach to be considered by the Executive Team at their meeting on Wednesday February 27, 2008. The Executive Team will need to make decisions about moving forward with the recommended study given the cost involved. The following Tech Team members participated on the call: Judy Linton, Lori Warner-Dickason, Alex Cyril, Corey Saxton, Chuck Wheeler, Janine Castro, Jay Charland, Patty Snow, Robert Elayer, Chris Lidstone, Jim O'Connor, Glen Hess, and Rose Walick.

2. A summary of the methods discussed can be found in the attached spreadsheet "Approaches to Gravel Supply Evaluation". The Direct Measurement approach would provide the most accurate data but is time consuming. It could be done with other approaches, however, to validate results. The morphologic transport approach is the next most accurate method

It is very important to note that cost and timeframe estimates are very rough and are based on USGS conducting the studies. Depending on project scope, timing, and funding arrangements it is possible for the USGS to contribute to the cost on a 60/40 basis (60% cooperator and 40% USGS).

3. Recommendation: The Technical Team proposes the following analysis of the Chetco River.

a. Evaluate sediment transport in the Chetco River using the Morphological Transport Estimates and Sediment Impact Analysis Model (SIAM). Because of the similarity in the two models, they can be run concurrently. SIAM does include some bedload calculations and can use existing data (specifically cross sections). Estimated Cost:
Timeframe: If initiated in spring 2008 a complete reach analysis and report could be completed by spring or summer 2009.

Consideration should be given to running several independent bedload transport calculations to verify the results of the models. This would increase the estimated cost.

b. Purchase LIDAR elevation data. Could greatly reduce if not eliminate the need for field surveys.
Cost: $25K to $30K for one river system. As mobilization is a large part of the cost, some cost efficiencies could be realized by flying more than one river system. Consideration should therefore be given to purchasing the LIDAR data for at least two river systems.
Timeframe: Summer of 2008 during low flow periods.

Bottom line: Estimated total cost for the Chetco River is $100K to $150K. These numbers would be further refined in a detailed budget prepared as part of a Scope of Work. Since preparation of the Scope of Work is fairly labor intensive, it is recommended the Executive Team not request USGS move forward with this step unless there is a realistic prospect of funding the studies.

4. Next Steps:
    a. Decide on the appropriate method.
    b. Find the funds to conduct the work
    c. Request a proposal from USGS.

DSL/CORPS
ACTIVE COMMERCIAL GRAVEL REMOVAL PERMITS
(Status as of January 2008)

DSL/ CORPS ID NO.	PERMITTEE	COUNTY	LOCATION (TRSQQ)	WATERBODY	DATE APPLICATION RECEIVED	CURRENT AUTHORIZATION PERIOD	VOLUME (cubic yards)	
RP16029 *NWP1998-1131*	Pacific Rock Products	Clatsop	06N02W17	Columbia R.	11/16/1998	1/02/04 - 3/12/09 *11/30/01 – 11/30/05*	700,000	
APP26589	Northwest Aggregate	Columbia	04N01W32	Wetland/Santosh Sl.	2/5/2003	10/26/04 - 10/26/09	3,000,000 + Fill 17,000	
RP2281 *No COE Appl*	Hayes Gordon	Coos	30S12W26	Coquille R./S. Fk	3/22/1976	12/21/06 - 1/22/08	25,000	
RP3250	LTM Inc.	Coos	30S12W04	Coquille R./S. Fk.	4/17/1980	6/21/07 - 7/17/08	35,000	
RP597 *NWP1996-588*	Merchen and Reed Gravel	Coos	30S12W15	Coquille R./S. Fk.	7/27/1971	11/20/06 - 12/18/07 in renewal process	20,000 *COE Pending?*	
RP3421	LTM Inc.	Coos	30S12W22	Coquille R./S. Fk.	4/16/1981	11/19/07 – 11/21/08	5,000	
APP38163 *NWP2007-196*	Tidewater Contractors Inc.	Curry	40S13W12	Chetco R.	3/20/2007	8/27/07 – 8/27/08 *8/2007 – 9/30/09*	20,000	
RP4010 *NWP2006-923*	Freeman Rock, Inc.	Curry	36S14W20	Rogue R.	11/1/1993	3/22/07 - 5/4/08 *COE PENDING*	30,000	
APP37065	Curry County**	Curry	37S14W19	Hunter Cr.	8/04/2006	10/17/07 – 11/30/08	10,000	
APP37680 *NWP2006-927*	Freeman Rock Inc.	Curry	40S13W35	Chetco R.	1/18/2007	8/27/07 – 8/27/08 *8/2007 – 8/30/09*	100,000	
RP3754 *NWP1996-1035*	Leith Thomas M	Curry	37S14W21	Hunter Cr.	4/8/1983	7/18/07- 7/25/08 *10/03/06 – 9/30/10*	10,000	
RP4187 *NWP1996-1727*	South Coast Lumber Co	Curry	40S13W24	Chetco R.	4/26/1985	7/16/07 - 8/9/08 *COE PENDING*	10,000	
APP30499 *NWP1996-1565*	Tidewater Contractors	Curry	36S14W29	Rogue R.	5/16/2003	11/16/07 - 11/7/08 *COE PENDNG*	60,000	
RP42 *NWP1996-1804*	Tidewater Contractors	Curry	40S13W33	Chetco R.	9/15/1997	7/26/07 - 10/22/08 *WITHDRAWN 2007*	100,000	
RP4722 *NWP1999-1114*	Wagner Glen	Curry	32S15W21	Elk R.	8/10/1987	8/8/07 - 10/15/08 *WITHDRAWN 12/04*	12,000	
RP1521	Beaver State Sand &Gravel	Douglas	28S06W35	Umpqua R/S. Fk.	4/18/1974	7/26/07 - 7/30/08	3,000	
APP34893	Beaver State Sand &Gravel	Douglas	27S06W34	Umpqua R/S. Fk.	6/27/2005	12/05/07 - 12/5/08	10,000	
RP15115 *NWP2006-300*	Buckwalter Harry	Douglas	27S06W16	Umpqua R/S. Fk.	4/7/1998	8/2/04 - 8/2/09 in renewal process	10,000	
RP43 *NWP2002-828*	LTM Inc.	Douglas	22S10W06	Umpqua R.	3/25/1999	4/7/04 - 4/7/09 *9/2004 – 9/30/09*	181,000	

RP4026 *NWP-0-5511*	S & K Excavation	Douglas	32S05W20D	Cow Cr.	8/12/1999	3/22/07 - 4/30/08 *COE PENDING*	20,000	
APP34374 *NWP1995-79*	Tri City Ready Mix, Inc.	Douglas	30S04W21	Umpqua R./S. Fk	4/26/2005	7/16/07 - 8/31/08 *COE DENIED 9/06*	20,000	
RP15419 *NWP2000-493*	Umpqua Sand & Gravel,Inc.	Douglas	27S06W04	Umpqua R./S. Fk	6/5/1998	6/28/07 - 8/31/08 *COE DENIED 9/06*	10,000	
RP13250	Rogue Aggregates Inc.	Jackson	36S02W22	Wetland/Whetstone	2/12/1998	2/13/07 - 4/20/08	.88 acres	
RP377	Wildish Sand & Gravel Co.	Lane	17S03W06	McKenzie/Willamette	7/25/1969	12/8/06 - 2/17/08***	20,000	
APP33939 *NWP1997-124*	Gilmour James	Linn	11S04W16	Willamette R.	2/14/2005 *01/29/97*	8/14/07 - 8/14/08 *COE PENDING*	15,000	
RP16275 *NWP2003-578* *NWP2006-127*	Baker Rock Resources	Marion	05S03W11	Willamette R. *Wetland exc/fill*	12/10/1998 *04/15/04*	2/11/04 - 1/25/09 *COE WITHDRAWN* *COE PENDING*	40,000	
RP10293	River Bend S & G	Marion	08S02W20	Mill Cr. /Wetland	10/13/1995	10/31/03 - 10/30/08	150,000 + Fill 20,000	
APP37325 *NWP2006-830*	River Bend S & G	Marion	08S02W33	Wtld/Etzel & Santiam *Wetland Impacts*	10/10/2006 *10/26/06*	6/19/07 – 6/19/08 *2007 - 2062*	8,950,000 + Fill 13,100	
RP7428 *NWP1998-490*	Columbia River S & G *(COE – Removal from nav channel under COE auth)*	Multnomah	02N01W00	Columbia R.	8/20/1999	12/15/03 - 2/28/09 *06/11/98 – 06/07/00*	210,000 *(COE -Upland Disposal Only)*	
RP16094 *NWP1998-1275*	Columbia River S & G	Multnomah	02N01E20	Columbia R.	10/15/1998	9/11/06 - 10/19/11 *08/24/06 – 08/31/11*	400,000	
APP23302 *NWP1999-972*	Morse Bros Inc.	Multnomah	01N03E23	Columbia R.	9/22/2000	1/24/06 - 12/15/08 *04/06/05 – 03/01/06*	200,000	
APP24793 *NWP2001-943*	Morse Bros Inc.	Multnomah	01N03E23C	Columbia R.	11/1/2001	1/04/08 - 2/26/09 *02/2002 – 02/28/07*	200,000	
RP7174	Northwest Aggregates Co.	Multnomah	01N03E16	Columbia R.	1/11/1993	5/21/07 - 6/30/08	200,000	
RP17111 *NWP1999-532*	Northwest Aggregates Co.	Multnomah	01N03E16	Columbia R.	4/14/1999	3/30/07 - 6/30/2012 *8/2006 – 8/31/11*	200,000	
APP25337	Northwest Aggregates Co.	Multnomah	01N03E20A	Columbia R.	4/11/2002	10/30/07 - 12/10/2010	200,000	
RP17209	Pacific Rock Products	Multnomah	01N03E22	Columbia R.	5/6/1999	7/10/07 - 9/25/08	200,000	
APP33165 *NWP1993-576*	KD Sand & Gravel Inc.	Polk	07S03W29	Willamette R.	7/23/2004 *05/15/01*	2/08/07 - 3/22/08 *COE DENIED* *11/30/05*	35,000	

APP30342 *NO COE APPL*	Bush Brownlee	Tillamook	01S09W34	Trask R.	4/28/2003	3/16/07 - 6/30/08	5,665	
APP30396 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01N09W32	Kilchis R.	5/2/2003	3/23/07 - 6/30/08 **Jurisdiction not det*	7,200	
APP32271 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01S09W20	Wilson R.	4/23/2004	6/06/07 - 8/10/08 **Jurisdiction not det*	2,700	
APP30541 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01S09W22	Wilson R.	5/21/2003	3/23/07 - 6/30/08 **Jurisdiction not det*	8,000	
APP30543 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01S09W06	Kilchis R.	5/21/2003	3/23/07 - 6/30/08 **Jurisdiction not det*	4,000	
APP34117 *NO COE APPL*	Coastwide Ready Mix	Tillamook	01N10W11	Miami R.	3/18/2005	7/17/07 - 9/1/08 **Jurisdiction not det*	3,000	
RP448	Mohler Sand & Gravel	Tillamook	02N09W06	Nehalem R./S. Fk.	5/27/1970	1/2/07 - 2/17/08 in renewal process	15,000	
RP4397 *NWP1999-989/* *NWP2002-765*	Mohler Sand & Gravel *(BOTH COE APPS WITHDRAWN)***	Tillamook	02N09W05	Nehalem R.	5/12/1986	6/13/07- 8/28/08 ***JURISDICTION NOT DETERMINED*	15,000	
RP14259 *NWP1997-884*	C C Meisel Co Inc.	Yamhill	04S03W26	Willamette R.	6/26/1997	6/14/07- 7/26/08 *COE PENDING*	35,000	
RP2000 *NWP2004-340*	Poole Paul D	Yamhill	05S06W34	Yamhill R/S. Fk.	5/1/1975 *10/14/04*	5/21/07- 5/21/08 in renewal process *COE PENDING*	6,000	
						TOTALS	**15,512,565+**	

Notes (For DSL files):

*Most recent fee amount collected or to be collected in current renewal process

**Non-commercial gravel removal permit for 10,000 cubic yards of removal issued to Curry County Road Department for 10/17/07 through 11/30/08.

***Expiration Pending. RP377 to be replaced by APP0039619-RP, now in application pending status

+ Removal includes additional .88 acres. Fill total = 50,100 c.y.

Corps of Engineers project information shown in italics

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Tuesday, March 04, 2008 9:59 AM
To: BAILEY Bob; bill yocum; CHARLAND Jay; David Pratt; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; mike.tehan@noaa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: FW: Gravel meeting notes
Attachments: Gravel Exec Team Meeting Notes 2 27 08.doc

Here are the draft meeting bullets from last Exec team meeting. Please add, edit, comment etc.

Thanks, Kevin

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
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DRAFT

Gravel Exec. Meeting

Notes

DSL-Mill Creek Room
February 27, 2008
12 – 2pm

Attendance List
Kevin Moynahan – DSL
Larry Evans – Army Corps
Bill Yocum – Freeman Rock Products
Kelly Guido – Umpqua Sand & Gravel
Joy Smith – Umpqua Sand & Gravel
Jay Charland – DLCD (Coastal)
Jon Germond – ODFW
Patty Snow – ODFW
Melinda Yost – DSL
Jennifer Rose – DSL (Notes)

Tele-conference
David Pratt – Curry County Planning
Mike Szerlog – EPA

Absent
Monty Knudsen – USFWS
Joe Zisa - USFWS
Michael Tehan – NMFS
Sally Puent - DEQ

General Note: OR Coast Coho - NMFS has public noticed the relisting of the species.

I. Reviewed Tech Team's recommendations for Chetco River study.
   a. Timeframe outlined for study butts up against In-Water work period for Chetco River in 2009.
   b. LIDAR does not measure gravel bar through the water, therefore ground surveying in may also be needed.
   c. Chetco River Study includes RM. 2-11 (9 Miles/ 34 Cross-sections)
   d. Data gap of Chetco Estuary needs to be addressed.
   e. DOGAMI has a staffed Geomorphologist (Coastal) – discuss with DOGAMI whether they might have some utility in this study.
   f. LIDAR's resolution can go down to 1 meter.
   g. One system study (Chetco River) could cost up to $150 thousand. Potential USGS can contribute up to 40% of the total study cost.

II. Funding possibilities
   a. DSL does have a revenue source from Chetco River gravel operators; they pay royalties to DSL (approx. $0.60 per cy) – money goes into the Common School Fund. No current availability from these revenues to contribute to this study.
   b. COE has no money in the Regulatory fund to contribute.
   c. EPA might have funds available – will consider availability of funds to contribute to study.
   d. Curry County has an Economic Development fund – David Pratt will look at availability of County funds to contribute to study.

e. Bill Yocum will look at possibility of funding for the study from the Oregon Economic and Community Development Department.
f. Industry will consider a surcharge on materials sold to help fund the study.
g. OCAPA - $10,000 available to start study – payment for USGS to develop more detailed scope of work that can then be used to seek additional funding sources. Joy Smith will confirm availability of this funding source with Rich Angstrom. (Note: The Exec Team is looking at methods for passing study funding $$ through to USGS as USGS is not authorized to accept funds directly from OCAPA. USFWS suggested the Fish and Wildlife Foundation may be able to act in this capacity. The Corps is following up on this suggestion.)

III. Corps Public Notice for Region General Permit (RGP)

a. Public Hearing on the RGP will be held in the south coast region between the end of March, beginning of April.
b. DSL will also prepare a General Permit similar to the Corps RGP. DSL permit is on a later track then the Corps' RGP, as it does not require federal consultation. DSL and Corps permits are expected to be similar.

NEXT MEETING:

April 2, 2008; 12 noon – 2pm	(Tentative) May 7, 2008; 12 noon – 2pm
US Army Corps Office in Portland	DSL - Salem – Mill Creek Room

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Tuesday, April 01, 2008 12:55 PM
To: BAILEY Bob; bill yocum; CHARLAND Jay; David Pratt; joe.zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Agenda for 1/2/08 Gravel Exec Team meeting - Corps Offices in Portland - note change in time for meeting - 1-3 (previously announced).

1) Report back on funding possibilities for Chetco River study

2) Progress report on USGS preparation of Scope of Work

3) Update on Regional General Permit process

4) Discuss timelines/milestones for next river system

5) Other items (i.e. OSU Gravel Round Table proposal)

If you haven't already, please RSVP to Judy Linton at the Corps so she can make arrangements for you to pass thru security at the Corps' building. If you plan on calling in, please let Judy know that as well so she can make arrangements for you to attend the meeting via phone.

Thanks much.

Kevin

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us <mailto:kevin.moynahan@state.or.us>

DSL
49 active permits
on 15 waterways

AGENDA
EXECUTIVE TEAM MEETING
APRIL 2, 2008 (1:00 – 3:00)

1) Report back on funding possibilities for Chetco River study
- discussed use of 10K for SCN
- Ted Freeman discussed meeting w/ DC rep - funding request

2) Progress report on USGS preparation of Scope of Work → DSL no discretionary funds
Rich would like DSL to continue to look for $$
- use statewide ~~roty~~ royalty $
- develop fund for to fund study effort? Similar to Willamette R. fund - OWEB
- $ thru heritage fund?
- Joy possibly securing $ for LIDAR data (Umpqua Development Commission?)
- EPA funds if $ close

3) Update on Regional General Permit process

4) Discuss timelines/milestones for next river system
2) Umpqua
3) Rogue or Coquille? → Decided by May mtg

5) Other items (i.e. OSU Gravel Round Table proposal)
- FCIA request from NEDC

? Demonstration project $$?
- Ted & discussion w/ DC rep

- next meeting May 7 12-2 SALEM
June 4 12-2 → Larry will not be attending May 7 mtg

Judy work!!
- set up tech team mtg to determine $ for Umpqua system
- info needs?
- prep of Gantt chart
  - timelines & milestones
- need to begin discussion of developing parameters
  - conditions
  - Technical issue of storm water
- Get with operators on the how's of operation for DSL
- Keep options open
  - time for removal - need to remove during certain month(?)
  - method, etc.
  - allow gravel to remain in system until needed vs. removal of material to stay 'fat' throughout year
- How do we factor biological questions into study?
- Scientific basis for current regulated parameters
- Find out what parameters of OSU sea grant process are → Lori to make contact

AGENDA
EXECUTIVE TEAM MEETING
APRIL 2, 2008 (1:00 – 3:00)

1) Report back on funding possibilities for Chetco River study

- Portland District Regulatory Branch has received $35K from HQ, Regulatory for studies associated with the development of a regional general permit
- $10K is proposed to be used to fund the USGS preparation of a detailed Scope of Work for sediment transport modeling.

2) Progress report on USGS preparation of Scope of Work

- USGS has begun work on prep of SOW.
- Estimate completion mid-May

3) Update on Regional General Permit process

- Reviewing comments received on February 8 public notice
- Informational meeting to discuss regional general permit proposal scheduled for April 9 in Brookings

4) Discuss timelines/milestones for next river system

5) Other items (i.e. OSU Gravel Round Table proposal)

Gravel Tech Team Mtg
April 24, 2008, 9-11
COE office, 9th Floor Cascade Room
Agenda and Meeting Notes (*notes in italics*)

Present: Judy Linton, Jay Charland, Alex Cyril, Don Anglin, Lori Warner-Dickason, Patty Snow. By phone: Robert Elayer and Chuck Wheeler.

1. *Judy started the meeting by providing a recap of the public meeting held in Brookings on April 9th. The group discussed the issue of public involvement on the gravel teams by various stakeholder groups, which was repeatedly brought up at the public meeting. The tech team members agreed that participation by stakeholders other than the industry was important, but thought that it might reduce efficiency of the technical work that needed to be done. All agreed that it was a decision for the Exec team. One possible recommendation would be to reduce the tech team participation by industry and expand the Executive Team participation to include all stakeholder groups.*

   Chuck mentioned that he thought one of the prevailing concerns raised during the public meeting was the COE's decision to use the RGP process instead of an IP. A recommendation was made for the Corps to do more outreach in this area. (Follow-up note: the Corps is developing a communication plan that proposes a process for sharing information about the development of the proposed RGP with all stakeholders. The primary means of communication identified would be by posting information on the Portland District Regulatory website and by sending regular updates on progress/status to a project email distribution list.)

2. Discussion of Executive Team issues - specific to the Chetco River evaluation - (the following is from an email from Kevin Moynahan):
   a. Consideration of current in-water work period recommendations from ODFW. Point was raised the current in-water work periods concentrate mining activity in short windows not necessarily related to the changing conditions on a particular waterway. This results in greater impacts during the short in-water windows that might otherwise be spread out - with appropriate safeguards to protect habitat etc. - over longer periods - thereby possibly resulting in less impacts and more resource benefits.

   The operators want to be able to work whenever low water allows, allowing them to remove material as orders are generated, rather that remove the maximum amount allowable during the in-water work period so they have enough material for the whole year.

   The group discussed this extensively. The main objective for restricting in-water work is to limit the turbidity plume events to one per year. There is

little concern about allowing work to occur earlier than July 15 or past September 30, if high flows are not expected and if the operators allow for time to do planting and restore access areas. But to allow additional in-water work periods when flows are historically low, may result in more than one turbidity plume per year. The resource agencies agreed that a longer in-water work period could be established based on historical hydrograph information and the extension process could be used for exceeding the end date for any particular year. But, the operators need to reserve time for establishment of mitigation and restoring access ways well prior to high water. Additional in-water work periods would not provide protection of species.

b. Consideration of current agency required aggregate removal methods including the depth of approved scalping activities. Point was raised the current required mining methods may actually (unintentionally) be doing more harm to the bars than alternative methods - including those previously used - thereby resulting in negative resource impacts.
(At this point, a detailed study of these issues is not being requested of the Tech team. What is requested is a reasoned consideration and discussion by Tech team members of the relative merits of each issue.)

The Tech team discussed observations made during the site visit. Chuck mentioned that he did not see a lot of changes in the Freeman bar from last year. The bar did not appear to have gained additional material in the buffer areas and the plantings in the head of the bar did not appear to survive. It is not clear, however, if adequate time for plantings to establish prior to high water would have improved this. On the N. bar of the Freeman operation it appears they lost 30' off the top end. The bar is still not stable. The group hypothesized that the bar may be recovering from past use. The consensus of the team was that more information and time is needed before they can determine whether or not the removal methods are effective in helping to stabilize the bar. The Federal Sediment Considerations paper is still the most current compilation of science and adequate time to see results from implementing these limitations should be allowed. The group also thought they should consider changes in other bars on the system in the analysis. The tech team needs the Geomorphology folks to weigh in on this issue.

The group also discussed the idea that reduced recruitment rates exacerbates the accumulation problem at the estuary supporting the need for more removal up river. Chuck mentioned that there is beneficial use of the gravel by fish between these bars and the estuary so this should not be an argument for more removal or methods that increase sediment trapping. NOAA is OK with material removal for navigation and suggestions for how that material could be used by the gravel industry were discussed. Judy will talk with John Craig to see if materials generated from navigational dredging could be used.

2) Begin to work towards developing Chetco River RGP parameters – what issues need to be considered? (This also ties into item 1 – the Exec Team is asking us to keep all options open in the beginning.)

Several of the parameters were discussed during the course of the meeting: removal methods, minimizing turbidity plumes, requirements for the timeframe for plantings, potential to extend work windows as warranted, suspending mining to allow for bar stabilization, more aggressive stabilization measures.

3) How do we address biological issues on the Chetco – are further studies required?
The group agreed that the planned geomorphological studies will provide extensive habitat information which will inform on the biological issues. Alex mentioned that DEQ was assisting the watershed council in their data collection efforts (invertebrate sampling, temperature and dissolved oxygen). The group started to discuss the usefulness of that data, but the parameters of the data collection were unknown. ODFW has a lot of fish data for the river that could be used. The group did not determine what information was needed or whether existing efforts could be used in any way.

4) Begin to develop cost estimate for Umpqua River work – what are our info needs? (sediment studies, biological studies…) (Joy Smith, Umpqua Sand & Gravel, is preparing a summary of the existing information they have that may assist in this effort)
Patty reminded the group that Phase I work needed to be done on the Umpqua before phase II should be considered. There was no further discussion.

5) Schedule next meetings for May, June, July (even if it is only for a quick conference call to check in)
Next meetings are tentatively scheduled May 20, 9-11:30 in Salem (ODFW office) and June 17th, 10-12, in Portland (COE office).

Latcu, Misty M NWP

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Sent: Tuesday, May 06, 2008 12:44 PM
To: BAILEY Bob; bill yocum; CHARLAND Jay; Craig Tuss; David Pratt; Joe_Zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Cc: MOYNAHAN Kevin
Subject: Exec Team meeting scheduled for Wednsday - tommorrow - is cancelled.
Attachments: 24Apr08Gravel Tech Team Mtg notes (2)_draft3.doc

The Exec team meeting scheduled for tomorrow here in Salem is cancelled.
I have discussed this with some of you - apologize to those I did not speak with - but please note the meeting is cancelled.

DSL, the Corps and other Exec and Tech Team members are continuing to work on the issues raised thru the current process. The Exec team will meet again on Wednesday June 4th, here in Salem - noon - 2pm.

I have attached a draft version of the Tech Team meeting notes from April 24th for your review. Any comments, please let Lori Warner-Dickason and Judy Linton know.

Other items going on - this week Bob Lobdell and I will be meeting with Umpqua Sand and Gravel and Freeman Rock - and hopefully other operators
- to discuss specific issues related to their operations. Also - next Monday Rich Angstrom will be meeting with Louise Solliday and myself to discuss aggregate issues.

The Scope of Work for the Chetco study is still in development and there should be significant progress on this by the end of this month.

In the meantime, DSL and the Corps continue to work on their respective agency permitting issues for the in-water gravel mining operations up
and down the state.

Please contact me if you have any questions.

See you all in June - and some of you sooner.

Regards, Kevin Moynahan

Gravel Tech Team Mtg
April 24, 2008, 9-11
COE office, 9th Floor Cascade Room
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Sent: Friday, June 06, 2008 10:19 AM
To: Evans, Lawrence C NWP; Linton, Judy L NWP; WARNER-DICKASON Lori
Subject: Gravel Exec team meeting June 12th - Agenda - your comments please before agenda is finalized

Importance: High

Proposed agenda for next gravel Exec team meeting - June 12th, noon - 2pm, Mill Creek Room DSL, Salem

1) Brief discussion of OSU Symposium discussion - motion to Exec team to add a representative from that group - possibly Peter Klingeman - to the Exec and Tech teams
2) Brief discussion of the CHERT process in Northern California - motion to Exec team to invite a CHERT representative to address the Exec and Tech teams to discuss how the process works in California
3) Discussion of Chetco phase 2 study funding
4) Review and discussion of SOW for the Phase 2 Chetco study - USGS staff in attendance to answer questions
5) Status of Chetco RGP
6) Discussion of issues raised by the Tech team including the following: Tech team concern that the sediment budget study will not be completed in time to inform the state and federal agency permitting decisions for 2009; concern that the current Tech team process is inefficient due to industry presence at the meetings; concern the pi,to process for the Chetco will not be usefully extrapolated to other systems

Please review this agenda by next Monday 6/9 - and let me have your thoughts/additions. It is going to be a packed two hours.

Also, I have Exec team meetings scheduled out for July 10th and August 21. Let me know if these dates work for you. Larry - do you want to hold the July meeting in Portland or Eugene at the CORPS?

Thanks, Kevin

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us <mailto:kevin.moynahan@state.or.us>

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Monday, June 09, 2008 4:01 PM
To: BAILEY Bob; bill yocum; Cathy Tortorici; CHARLAND Jay; Craig Tuss; David Pratt; Joe_Zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: FW: Gravel Exec team meeting - June 12th - noon to 2 pm - DSL - tentative agenda attached

Let me know if you have any comments on the agenda set forth below:

1) Review of SOW for the Phase 2 Chetco study - USGS staff Rose Wallick present to answer questions

2) Chetco phase 2 study funding update

3) Brief discussion of OSU Gravel Symposium held last week - motion to Exec team to add a representative from that group - possibly Peter Klingeman - to the Exec and/or Tech teams

4) Brief discussion of the CHERT process in Northern California - motion to Exec team to invite a CHERT representative to address the Exec and Tech teams to discuss how the process works in California

5) Issues raised by the Tech team including the following:

* Concern the Chetco sediment budget study will not be completed in time to inform state and federal agency permitting decisions for 2009
* Concern the current Tech team process is inefficient due to the current make up of the committee
* Concern the pilot process underway for the Chetco will not be usefully extrapolated to other systems

6) Phase 1 study for Umpqua system - who will conduct this study

If you are participating by phone, let me have your contact # (David Pratt - I have yours already).

It is going to be a packed two hours.

Please note subsequent Exec team meetings are scheduled for July 10th and August 21.

Thanks!

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us <mailto:kevin.moynahan@state.or.us>

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Thursday, June 12, 2008 4:11 PM
To: 'Alex Cyril'; 'Bill Yocum'; 'Chip Andrus'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Don Anglin'; 'Frank Schnitzer'; 'Glen Hess'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'
Subject: Tech Team meeting June 17

This is a reminder of our tech team meeting scheduled for June 17 from 10 to 12 here at the Corps offices in Portland. Call-in number will be available – I'll pass this on to all Monday. Let me know if you will be participating in person so I can have appropriate info at the guard station.

Agenda items so far:

1) update on USGS scope for sediment budget

2) Biological information needs for Chetco River evaluation

- NMFS has provided the following regarding information needed for the consultation process. Need to identify other required information as we may be able to have USGS collect some of this info at the same time they are doing field work this summer.

The habitat parameters listed below are commonly measurable, have biological relevance to salmonid populations, and are sensitive to the potential effects of gravel mining. They demonstrate a clear connection between gravel mining and fish habitat, and are expected to reveal any habitat responses from the project. Furthermore, monitoring of project impacts has to be a requirement of the terms and conditions of a biological opinion, these parameters are the best available indicators for monitoring incidental take. They are separated into three categories based on limiting factors in the Chetco River. These categories were chosen because of common themes within documents from ODFW, South Coast Watershed Council, and NMFS.

a) Estuarine habitat quality
i) Estuary bathymetry
ii) Amount of bar surface
iii) Amount of vegetated bar surface
iv) Area inhabited by aquatic vegetation
v) Percent of vegetated bank
b) Riverine habitat quality
i) Amount of bar surface
ii) Amount of vegetated bar surface
iii) Amount of backwater/alcove area
iv) Width/depth ratio
v) Percent erodible bank
vi) Percent vegetated bank
c) Temperature
i) Pool temperatures stratified by depth throughout lower 11 miles

3) Other issues – are there other issues to discuss?

Thanks - Judy

Latcu, Misty M NWP

From: J. Rose Wallick [rosewall@usgs.gov]
Sent: Friday, June 13, 2008 4:29 PM
To: Janine M Castro; Linton, Judy L NWP
Cc: Chuck Wheeler; Glen Hess; Monty_Knudsen@fws.gov; Jim O'Connor
Subject: Re: Tech Team meeting June 17

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Blue Category

Hi Judy & Janine,

I'll plan on attending the Tech Team meeting on June 17 to address any questions for the USGS.

Regarding the NMFS & USFWS recommendations for biological data, we can certainly include most of these items in our scope of work, but I would like to get clarification from USFWS & NMFS to ensure that I have a clear understanding of the habitat data you'd like the USGS to collect. For example, in order to gauge the level of effort needed for the mapping the habitat features from different time periods, I will need more information from the biologists describing how they want the habitat features mapped. Similarly, our ability to measure width/depth ratios will be dependent upon availability of existing cross-section data and our ability to collect additional cross-sections this summer.

In order to have a Final Scope of Work by next Friday (6/20), I'd like to schedule a time to discuss the habitat data needs before Wednesday (6/18). I assume that there won't be time during the Tech meeting to have this discussion, but is there another time that will work for the interested parties?

Thanks,
Rose

Janine_M_Castro@fws.gov

06/13/2008 10:07 AM To
"Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>
cc
"Bill Yocum" <byocum@hughes.net>, "Chris Lidstone" <cdl@lidstone.com>, "Chip Andrus" <chip.w.andrus@mlrr.oregongeology.com>, "Chuck Wheeler" <Chuck.Wheeler@noaa.gov>, "Alex Cyril" <Cyril.Alex@deq.state.or.us>, "Don Anglin" <Don_Anglin@fws.gov>, "Frank Schnitzer" <e.frank.schnitzer@mlrr.oregongeology.com>, "Jodi Fritts" <frittsj@co.curry.or.us>, "Glen Hess" <gwhess@usgs.gov>, "Jay Charland" <jay.charland@state.or.us>, "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>, "Lori Warner-Dickason" <Lori.Warner-Dickason@state.or.us>, "Jim O'Connor" <oconnor@usgs.gov>, "Patty Snow" <Patty.Snow@state.or.us>, "Robert Elayer" <relayer@twcontractors.com>, "Rose Wallick" <rosewall@usgs.gov>, "Todd Confer"

<Todd.A.Confer@state.or.us>, "Yvonne Vallette" <Vallette.Yvonne@epa.gov>, Joe_Zisa@fws.gov, Monty_Knudsen@fws.gov
Subject
Re: Tech Team meeting June 17

Hi Judy,

I plan on attending the Gravel Tech Team meeting in person.

FWS agrees with recommendations provided by NMFS regarding additional biologic data that can be collected during the USGS study; however, we would like to clearly specify one additional element and that is establishing habitat trends over time. While implicit in NMFS's request, we would like to ensure that these data are collected for several time periods where possible so that trends through time can be established. We realize that this may not be possible for some of the field data, but it is essential for the data derived from current and historic aerial photos.

Thanks,
Janine

Janine M. Castro, PhD, RG
Geomorphologist

"There's no more to-day than
there was a thousand years ago --
You can't wear water out."
D.H. Lawrence

US Fish and Wildlife Service
2600 SE 98th Ave., Suite 100
Portland, OR 97266
503.231.6179

"Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>
06/12/2008 04:11 PM

To "Alex Cyril" <Cyril.Alex@deq.state.or.us>, "Bill Yocum" <byocum@hughes.net>, "Chip Andrus" <chip.w.andrus@mlrr.oregongeology.com>, "Chris Lidstone"

<cdl@lidstone.com>, "Chuck Wheeler" <Chuck.Wheeler@noaa.gov>, "Don Anglin" <Don_Anglin@fws.gov>, "Frank Schnitzer" <e.frank.schnitzer@mlrr.oregongeology.com>, "Glen Hess" <gwhess@usgs.gov>, "Janine Castro" <Janine_M_Castro@fws.gov>, "Jay Charland" <jay.charland@state.or.us>, "Jim O'Connor" <oconnor@usgs.gov>, "Jodi Fritts" <frittsj@co.curry.or.us>, "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>, "Lori Warner-Dickason" <Lori.Warner-Dickason@state.or.us>, "Patty Snow" <Patty.Snow@state.or.us>, "Robert Elayer" <relayer@twcontractors.com>, "Rose Wallick" <rosewall@usgs.gov>, "Todd Confer" <Todd.A.Confer@state.or.us>, "Yvonne Vallette" <Vallette.Yvonne@epa.gov>

cc

Subject

Tech Team meeting June 17

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- NMFS has provided the following regarding information needed for the consultation process. Need to identify other required information as we may be able to have USGS collect some of this info at the same time they are doing field work this summer.

The habitat parameters listed below are commonly measurable, have biological relevance to salmonid populations, and are sensitive to the potential effects of gravel mining. They demonstrate a clear connection between gravel mining and fish habitat, and are expected to reveal any habitat responses from the project. Furthermore, monitoring of project impacts has to be a requirement of the terms and conditions of a biological opinion, these parameters are the best available indicators for monitoring incidental take. They are separated into three categories based on limiting factors in the Chetco River. These categories were chosen because of common themes within documents from ODFW, South Coast Watershed Council, and NMFS.

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vi) Percent vegetated bank

c) Temperature

i) Pool temperatures stratified by depth throughout lower 11 miles

3) Other issues – are there other issues to discuss?

Thanks - Judy

Latcu, Misty M NWP

From: Monty_Knudsen@fws.gov
Sent: Thursday, June 19, 2008 10:45 AM
To: Joy Smith
Cc: BAILEY Bob; bill yocum; Cathy Tortorici; Craig Tuss; CHARLAND Jay; ROSE Jennifer; Joe_Zisa@fws.gov; GERMOND Jon P; Linton, Judy L NWP; MOYNAHAN Kevin; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; SNOW Patty; David Pratt; relayer@twcontractors.com; Rich@OCAPA.net; PUENT Sally; szerlog.michael@epa.gov; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: RE: Exec to Tech Team expectations

Your interpretation is how I understand it too. Perhaps my sentence is a bit too narrowly focused. The main point is that the Tech Team is to be focused on doing this system by system rather than trying to do everything for all systems at the same time. This means however, that those of our agencies that have responsibilities for addressing all systems have to figure out how to do that with the limited staff we have. We simply cannot ignore the other permits that come in our door.

Regarding the Stream Habitat training and whether the data subsequently collected by industry folks would be accepted, I expect it would have to be considered but there may be additional details and specifics about what data is needed and how it should be collected that would be the subject of discussion by the Technical Folks. This training will not make someone an expert in stream hydrology or doing physical stream measurements but as the announcement points out it will help someone gain "skills and knowledge related to stream habitat and geomorphic measurements".

Hope that helps.

Monty Knudsen, Assistant Project Leader
Oregon Fish & Wildlife Office
2600 S.E. 98th Avenue
Portland, OR 97266-1398
503.231.6179
Website: http://www.fws.gov/oregonfwo/

"Joy Smith" <Joy@UmpquaSand.com>
06/19/2008 10:12 AM

To
<Monty_Knudsen@fws.gov>, "MOYNAHAN Kevin" <Kevin.Moynahan@state.or.us>
cc
"BAILEY Bob" <Bob.Bailey@state.or.us>, "bill yocum" <byocum@hughes.net>, "Cathy Tortorici" <cathy.tortorici@noaa.gov>, "Craig Tuss" <Craig_Tuss@fws.gov>, "CHARLAND Jay" <Jay.Charland@state.or.us>, "ROSE

Jennifer"
<Jennifer.Rose@state.or.us>,
<Joe_Zisa@fws.gov>, "GERMOND Jon P"
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<judy.l.linton@usace.army.mil>,
"kevin moynahan"
<Kevin.Moynahan@state.or.us>,
<Lawrence.C.Evans@nwp01.usace.army.
mil>, "lori warner-dickason"
<Lori.Warner-Dickason@state.or.us>,
"marcella lafayette"
<Marcella.Lafayette@noaa.gov>,
"SNOW Patty"
<Patty.Snow@state.or.us>, "David
Pratt" <prattd@co.curry.or.us>,
<relayer@twcontractors.com>,
<Rich@OCAPA.net>, "PUENT Sally"
<Sally.Puent@state.or.us>,
<szerlog.michael@epa.gov>,
<tedf@hughes.net>,
<Vallette.Yvonne@epamail.epa.gov>
Subject
RE: Exec to Tech Team expectations

Monty and group :)

One comment on this...or maybe I should say clarification.
I have read your modified sentence and believe it to be a good statement, however the comment you made after it is not the way I understood our direction to be...
You said,
This should make very clear that the role of the Tech Team is limited to one watershed at a time as agreed to by the Exec Team.

...I was under the impression that we are going to concurrently study the systems that have been outlined in our 'order' so that while Phase 2 is happening on the Chetco, Phase 1 can be underway on the Umpqua and when the Umpqua gets to Phase 2 we should already be working on Phase 1 in the next system. Perhaps I am interpreting this incorrectly; if I read your suggested sentence it makes sense that it could be two concurrent systems, Right?

One other question I would like to bring up is this. I have reviewed the Training Announcement for the Stream Habitat Measurement Techniques Course and think it would be a great course for people in our industry that would like to collect the necessary data for permitting questions and a good basis for learning how to create data that will be acceptable for agency use. If we invest in this education opportunity will our data that is collected

be accepted by all agencies? I know the question seems broad, but because I'm not certain of the answer I would like people to think about how they would address that and maybe we can have a quick discussion at the July 10th meeting in regard to this.

Thanks for your time...hope this finds you all well and with sunny skies in your neighborhood.
Joy

Joy Smith
Umpqua Sand & Gravel
640 Shady Drive
Roseburg, OR 97470
Phone: 541-673-1088 Fax: 541-673-1620

They may forget what you said, but they will never forget how you make them feel.
-----Original Message-----
From: Monty_Knudsen@fws.gov [mailto:Monty_Knudsen@fws.gov]
Sent: Tuesday, June 17, 2008 7:47 AM
To: MOYNAHAN Kevin
Cc: BAILEY Bob; bill yocum; Cathy Tortorici; Craig Tuss; CHARLAND Jay; ROSE Jennifer; Joe_Zisa@fws.gov; GERMOND Jon P; Joy Smith; judy.l.linton@usace.army.mil; kevin moynahan; Lawrence.C.Evans@nwp01.usace.army.mil; lori warner-dickason; marcella lafayette; SNOW Patty; David Pratt; relayer@twcontractors.com; Rich@OCAPA.net; PUENT Sally; szerlog.michael@epa.gov; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Re: Exec to Tech Team expectations

Kevin and Larry:

We suggest the following clarification to the second sentence (highlighted in blue) of the following paragraph from the Tech team guidance:

> "It is the role of the Gravel Exec Team to coordinate agency reviews and activities and provide direction to the Gravel Tech Team. It is the role of the Tech Team to scope, collect, review and analyze data and other information to present recommendations in a coordinated fashion to the Exec Team. It is anticipated the information developed as part of this process will be useful to the COE and DSL in considering regional general permits (RGP) and general permits (GP) respectively for commercial gravel mining activities in various watersheds along the Oregon Coast. This information will also be useful for other agencies with regulatory oversight over gravel mining activities."

To be clear about the current focus of the Tech Team, this sentence could be reworded to say that the role of the Tech Team is to "scope, collect, review, and analyze....for the particular watershed that is being addressed by the Exec Team at any given time". This should make very clear that the
role of the Tech Team is limited to one watershed at a time as agreed to by the Exec Team.

Thanks!

Monty Knudsen, Assistant Project Leader

Oregon Fish & Wildlife Office
2600 S.E. 98th Avenue
Portland, OR 97266-1398
503.231.6179
Website: http://www.fws.gov/oregonfwo/

"MOYNAHAN Kevin"

<Kevin.Moynahan@s

tate.or.us>

To

BAILEY Bob

06/13/2008 09:43 <Bob.Bailey@state.or.us>, "bill

AM yocum" <byocum@hughes.net>,
"Cathy

Tortorici"

<cathy.tortorici@noaa.gov>,

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Tuss" <Craig_Tuss@fws.gov>, "David
Pratt" <prattd@co.curry.or.us>,

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<Lawrence.C.Evans@nwp01.usace.army.
mil>, "lori warner-dickason"

<Lori.Warner-Dickason@state.or.us>,
"marcella lafayette"

<Marcella.Lafayette@noaa.gov>,

<szerlog.michael@epa.gov>,

<Monty_Knudsen@fws.gov>, "PUENT

Sally" <Sally.Puent@state.or.us>,

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Jennifer"

<Jennifer.Rose@state.or.us>, "SNOW
Patty" <Patty.Snow@state.or.us>,

<tedf@hughes.net>,

<Vallette.Yvonne@epamail.epa.gov>

cc

Subject

Exec to Tech Team expectations

As discussed at the Exec team yesterday, please comment/update/edit the attached Expectations document. I made some initial edits as you will see.

Please have your comments back to Larry and myself by the close of business on June 17th. The document will be reworked and sent out to Exec team members for final approval by the end of next week.

Thanks much. Kevin

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us
(See attached file: Exec to Tech Team - Expectations KPM edits 6.13.08.doc)

From:	CYRIL Alex
To:	Evans, Lawrence C NWP; Linton, Judy L NWP; Monty_Knudsen@fws.gov; Cathy Tortorici; MOYNAHAN Kevin; WARNER-DICKASON Lori
Cc:	PUENT Sally
Subject:	RE: Charter - word version
Date:	Monday, July 07, 2008 11:23:48 AM
Attachments:	Gravel Initiative Process Document July08 (deq edits).doc

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A few edits to offer...

-----Original Message-----
From: Evans, Lawrence C NWP [mailto:Lawrence.C.Evans@usace.army.mil]
Sent: Monday, July 07, 2008 8:42 AM
To: Linton, Judy L NWP; Monty_Knudsen@fws.gov; Cathy Tortorici; CYRIL Alex; MOYNAHAN Kevin; WARNER-DICKASON Lori
Subject: RE: Charter - word version
Importance: High

Team -

I believe I was to make a few edits to the second paragraph of the Charter we reviewed last Thursday to better identify the role of the gravel representatives. Here is my suggested edit:

In addition to the Corps and DSL, the Teams consists of representatives from the following: Oregon Department of Fish and Wildlife (ODFW); Oregon Department of Environmental Quality (ODEQ); Oregon Department of Land Conservation and Development (ODLCD); U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA); Oregon Concrete and Aggregate Producers Association (OCAPA); participating county planning departments; and current/prospective commercial mining operators based on the watershed being evaluated. Both the Executive and Technical Teams will be made up of at least one representative of the agencies/organizations listed above . Technical Team discussions will be restricted to technical issues and may include invitations to individuals with specific technical expertise on an as needed basis. T he gravel industry will be represented by a general technical representative/consultant on the technical team and may also be represented by an OCAPA representative or an operator from the watershed being evaluated , to offer input on operational experience when sought by the technical team members.

If you have any thoughts, please feel free to send them to me. Once Judy receives the input from Janine, I will incorporate this revised paragraph into the document.

-----Original Message-----
From: Linton, Judy L NWP
Sent: Monday, July 07, 2008 8:12 AM
To: 'Monty_Knudsen@fws.gov'; Cathy Tortorici
Cc: Evans, Lawrence C NWP; CYRIL Alex

Subject: Charter - word version

Attached find the word version of the charter you folks discussed July 3rd.

1 July 2008

Regional Gravel Initiative

Gravel Executive Team/Technical Team Roles and Responsibilities, and Scope of Project Outline Related to a Watershed Evaluation of In-Stream Gravel Operations

Two interagency teams (the Gravel Executive Team and Gravel Technical Team) have been established in an effort to strategically evaluate, on a watershed basis, whether the mining of gravel from Oregon rivers can be supported. As permitting agencies charged under state and federal law with review and decision making related to applications for in-stream gravel mining operations in the State of Oregon, the U.S. Army Corps of Engineers, Portland District (Corps) and the Oregon Department of State Lands (DSL) act as co-chairs of both the Executive and Technical Teams (Teams).

In addition to the Corps and DSL, the Teams consists of representatives from the following: Oregon Department of Fish and Wildlife (ODFW); Oregon Department of Environmental Quality (ODEQ); Oregon Department of Land Conservation and Development (ODLCD); U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA); participating county planning departments; and current and prospective commercial mining permitting proponents based on the watershed being evaluated. Both the Executive and Technical Teams will be made up of at least one representative of the agencies/organizations listed above . Technical Team discussions will be restricted to technical issues and may include invitations to individuals with specific technical expertise on an as needed basis. The gravel industry will be represented by a general technical representative/consultant on the technical team and may also be represented by an OCAPA representative or an operator from the watershed being evaluated , to offer input on operational experience when sought by the technical team members. ~~Both the Executive and Technical Teams will be made up of one representative of the agencies/organizations listed above except that the gravel industry may be represented by two individuals – a technical person/consultant and an operator from the watershed being evaluated.~~

The overall goal of this regional gravel initiative is for the Corps and DSL to consider developing regional general permits (RGP) and general permits (GP), respectively, for commercial gravel mining activities in various watersheds throughout Oregon. It is the role of the Executive Team to ensure progress continues, and to provide support and direction to the Technical Team. It is the role of the Technical Team to scope, collect, review and analyze data and other information to present recommendations in a coordinated fashion to the Executive Team for the particular watershed being evaluated. While this regional gravel initiative moves forward, it is understood the Corps and DSL must continue to process individual applications for gravel mining throughout the state. Although certain Technical Team representatives may also be responsible for evaluating these individual applications as part of their agency duties, the RGP specific Technical Team meeting times~~s~~ will not be used to discuss these projects.

In working through the regional gravel initiative, it is understood the criteria for permit and related decision making processes come from federal, state and local statutes, regulations, and codes. For example, there may be federal Endangered Species Act (ESA) and Magnuson-Stevens Act Essential Fish Habitat (EFH) consultations required

as part of the permitting process. All appropriate laws, regulations, and codes will be followed.

River Specific Evaluations:

The Chetco River was chosen as the first study river for the regional gravel initiative. Phase 1 study efforts focused on evaluating existing information to determine vertical stability (i.e. whether the system was aggrading, degrading, or in equilibrium). Phase 2 study efforts will evaluate sediment transport and biological data requirements. A scope of work (SOW) for investigation of the Chetco River system has been completed by USGS and is expected to be implemented during the summer/fall of 2008 with a preliminary report available in January 2009 and a final report anticipated in April 2009.

I. Chetco River Operations

A. The Corps and DSL issued permits to Freeman Rock and Tidewater Contractors authorizing gravel extraction through the 2008 in-water work period on the portion of the Chetco from head of tide to just past the second bridge at approximately river mile 11. In support of these permitting decisions, NMFS issued a biological opinion, ODEQ issued Water Quality Certification, and ODLCD concurred the projects were consistent with the Oregon Coastal Management Program.

B. The Corps and DSL will work to develop a RGP and GP respectively, as the vehicle for authorizing continued mining on the Chetco River beyond 2008. The goal is to make a final decision on the respective permits by June 30, 2009. The Technical Team will provide scientific and technical input to the Executive Team and the Corps/DSL to develop the anticipated RGP/GP and inform the agency decision-making on these permits.

C. The agencies will continue to gather relevant information ~~related to gravel budgets~~ during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the Corps and DSL may exercise the options listed below. ~~Any decision to extend the current Freeman and Tidewater permits beyond the 2008 in-water work period will require a re-initiation of ESA consultation with NMFS.~~

1. Permit applications may be placed on hold or denied pending data collection and information gathering,
2. Individual short-term permits may be granted, but with limited gravel volumes or other conditions to minimize impacts. This option includes all relevant permitting requirements being met, including re-initiation of ESA consultation with NMFS and evaluation for 401 Water Quality Certification by DEQ.

D. It is understood ~~information~~ that ~~resulting from the~~evaluation of the Phase 1 and Phase 2 studies and all other relevant information~~y~~ may indicate that continued mining in the Chetco River can not be supported. In this case, the Technical Team will develop a document for presentation to the Executive Team describing in detail the reasons supporting this conclusion. The Corps and DSL will use this document as part of their respective agency decision making related to consideration of any future request for commercial gravel mining in the Chetco River.

E. Lower Tidewater project: The Tidewater location below head of tide will be included in the development of the RGP/GP for commercial gravel mining activities in the Chetco system. The Technical Team will continue to work with USGS in identifying and synthesizing any data gaps required to be addressed below head of tide on the Chetco to inform RGP/GP permitting decisions.

II. Operations on other river systems

A. The Phase 1/Phase 2 study process used on the Chetco River will serve as a model for evaluating other river systems. The Technical Team, in coordination with the gravel industry, will recommend the priority of future river systems to be studied. Presently, the Umpqua, Rogue, Coquille and Tillamook systems have been identified as the next systems to be studied in the order listed.

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C. The Executive Team will approve or revise recommendations made by the Technical Team, and will develop strategies to distribute informational materials to potential operators and to fund necessary studies and data collection in support of the development of the watershed specific RGP/GP.

This process is agreed to by the following members of the Executive Team:

_____	_____
U.S. Army Corps of Engineers	OR Department of State Lands
_____	_____
National Marine Fisheries Service	OR Department of Environmental Quality
_____	_____
U.S. Fish and Wildlife Service	OR Department of Fish and Wildlife
_____	_____
Environmental Protection Agency	OR Dept of Land Conservation & Develop

OCAPA

Latcu, Misty M NWP

From: Evans, Lawrence C NWP
Sent: Monday, July 07, 2008 8:42 AM
To: Linton, Judy L NWP; 'Monty_Knudsen@fws.gov'; 'Cathy Tortorici'; 'CYRIL Alex'; 'MOYNAHAN Kevin'; 'WARNER-DICKASON Lori'
Subject: RE: Charter - word version

Importance: High

Team -

I believe I was to make a few edits to the second paragraph of the Charter we reviewed last Thursday to better identify the role of the gravel representatives. Here is my suggested edit:

In addition to the Corps and DSL, the Teams consists of representatives from the following: Oregon Department of Fish and Wildlife (ODFW); Oregon Department of Environmental Quality (ODEQ); Oregon Department of Land Conservation and Development (ODLCD); U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA); Oregon Concrete and Aggregate Producers Association (OCAPA); participating county planning departments; and current/prospective commercial mining operators based on the watershed being evaluated. Both the Executive and Technical Teams will be made up of one representative of the agencies/organizations listed above except that the gravel industry may be represented by two individuals on the technical team – a general technical representative/consultant and a representative from OCAPA or an operator from the watershed being evaluated. The OCAPA representative, or operator, will be there to observe the discussions at the technical team meetings and only participate when input is sought by the technical team members.

If you have any thoughts, please feel free to send them to me. Once Judy receives the input from Janine, I will incorporate this revised paragraph into the document.

-----Original Message-----
From: Linton, Judy L NWP
Sent: Monday, July 07, 2008 8:12 AM
To: 'Monty_Knudsen@fws.gov'; Cathy Tortorici
Cc: Evans, Lawrence C NWP; CYRIL Alex
Subject: Charter - word version

Attached find the word version of the charter you folks discussed July 3rd.

From:	Cathy Tortorici
To:	CYRIL Alex; Evans, Lawrence C NWP; Linton, Judy L NWP; Monty_Knudsen@fws.gov; MOYNAHAN Kevin; WARNER-DICKASON Lori; PUENT Sally; joe_zisa@fws.gov
Subject:	NMFS changes to Regional Gravel Initiative
Date:	Monday, July 07, 2008 3:39:25 PM
Attachments:	Gravel Initiative Process Document_July08 (NMFS edits).doc

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Hello!

I edited a bit of what Alex did (with hope, my comments are in Blue) and then added in the changes you asked to make. I also broke up a couple of the paragraphs into smaller ones to make the document a bit easier to read.

Just let me know if this is working for you -

Cathy Tortorici

Regional Gravel Initiative

Cathy Tortorici's edits in Blue

Gravel Executive Team/Technical Team Roles and Responsibilities, and Scope of Project Outline Related to a Watershed Evaluation of In-Stream Gravel Operations

Two interagency teams (the Gravel Executive Team and Gravel Technical Team) have been established in an effort to strategically evaluate, on a watershed basis, whether the mining of gravel from Oregon rivers can be supported. As permitting agencies charged under state and federal law with review and decision making related to applications for in-stream gravel mining operations in the State of Oregon, the U.S. Army Corps of Engineers, Portland District (Corps) and the Oregon Department of State Lands (DSL) act as co-chairs of both the Executive and Technical Teams (Teams).

In addition to the Corps and DSL, the Teams consists of representatives from the following: Oregon Department of Fish and Wildlife (ODFW); Oregon Department of Environmental Quality (ODEQ); Oregon Department of Land Conservation and Development (ODLCD); U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA); participating county planning departments; and current and prospective commercial mining permitting proponents based on the watershed being evaluated. Both the Executive and Technical Teams will be made up of at least one representative of the agencies/organizations listed above . Technical Team discussions will be restricted to technical issues and may include invitations to individuals with specific technical expertise on an as needed basis. The gravel industry will be represented on the Technical Team by –a general technical representative/consultant ~~on the technical tea~~. ~~m and may also be represented by an OCAPA representative or an operator from the watershed being evaluated , to offer input on operational experience when sought by the technical team members.~~
~~Both the Executive and Technical Teams will be made up of one representative of the agencies/organizations listed above except that the gravel industry may be represented by two individuals – a technical person/consultant and an operator from the watershed being evaluated.~~

The overall goal of this regional gravel initiative is for the Corps and DSL to consider developing regional general permits (RGP) and general permits (GP), respectively, for commercial gravel mining activities in various watersheds throughout Oregon. It is the role of the Executive Team to ensure progress continues, and to provide support and direction to the Technical Team.

It is the role of the Technical Team to scope, collect, review and analyze data and other information to present recommendations in a coordinated fashion to the Executive Team for the particular watershed being evaluated. The Technical Team will also seek advice from an OCAPA representative or an operator from the watershed being evaluated to offer input on operational experience on an as needed basis, along with other appropriate expertise depending upon the issue being discussed by the team.

While this regional gravel initiative moves forward, it is understood the Corps and DSL must continue to process individual applications for gravel mining throughout the state. Although certain Technical Team representatives may also be responsible for evaluating these individual applications as part of their agency duties, the RGP specific Technical Team meeting times~~s~~ will not be used to discuss these projects.

In working through the regional gravel initiative, it is understood the criteria for permit and related decision making processes come from federal, state and local statutes, regulations, and codes. For example, there may be federal Endangered Species Act (ESA) and Magnuson-Stevens Act Essential Fish Habitat (EFH) consultations required as part of the permitting process. All appropriate laws, regulations, and codes will be followed.

River Specific Evaluations:

The Chetco River was chosen as the first study river for the regional gravel initiative. Phase 1 study efforts focused on evaluating existing information to determine vertical stability (i.e. whether the system was aggrading, degrading, or in equilibrium). Phase 2 study efforts will evaluate sediment transport and biological data requirements. A scope of work (SOW) for investigation of the Chetco River system has been completed by USGS and is expected to be implemented during the summer/fall of 2008 with a preliminary report available in January 2009 and a final report anticipated in April 2009.

I. Chetco River Operations

A. The Corps and DSL issued permits to Freeman Rock and Tidewater Contractors authorizing gravel extraction through the 2008 in-water work period on the portion of the Chetco from head of tide to just past the second bridge at approximately river mile 11. In support of these permitting decisions, NMFS issued a biological opinion, ODEQ issued Water Quality Certification, and ODLCD concurred the projects were consistent with the Oregon Coastal Management Program.

B. The Corps and DSL will work to develop a RGP and GP respectively, as the vehicle for authorizing continued mining on the Chetco River beyond 2008. The goal is to make a final decision on the respective permits by June 30, 2009. The Technical Team will provide scientific and technical input to the Executive Team and the Corps/DSL to develop the anticipated RGP/GP and inform the agency decision-making on these permits.

C. The agencies will continue to gather relevant information ~~related to gravel budgets~~ during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the Corps and DSL may exercise the options listed below. ~~Any decision to extend the current Freeman and Tidewater permits beyond the 2008 in-water work period will require a re-initiation of ESA consultation with NMFS.~~

1. Permit applications may be placed on hold or denied pending data collection and information gathering,
2. Individual short-term permits may be granted, but with limited gravel volumes or other conditions to minimize impacts. This option includes all relevant permitting requirements being met, including re-initiation of ESA

consultation with NMFS and evaluation for 401 Water Quality Certification by DEQ.

D. It is understood ~~information~~ that ~~resulting from the~~evaluation of the Phase 1 and Phase 2 studies and all other relevant information~~y~~ ~~may indicate that continued mining in the Chetco River can not be supported.~~ will be used to determine final permitting decisions for gravel mining in the Chetco River system. ~~In this case, the~~ The Technical Team will develop a document for presentation to the Executive Team ~~describing in detail the reasons supporting this conclusion.~~ summarizing their analyses and any recommendations regarding project permitting. The Corps and DSL will use this document as part of their respective agency decision making related to consideration of any future request for commercial gravel mining in the Chetco River.

E. Lower Tidewater project: The Tidewater location below head of tide will be included in the development of the RGP/GP for commercial gravel mining activities in the Chetco system. The Technical Team will continue to work with USGS in identifying and synthesizing any data gaps required to be addressed below head of tide on the Chetco to inform RGP/GP permitting decisions.

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_____	_____
Environmental Protection Agency	OR Dept of Land Conservation & Develop
_____	
OCAPA	

From:	Evans, Lawrence C NWP
To:	"Cathy Tortorici"; CYRIL Alex; Linton, Judy L NWP; Monty_Knudsen@fws.gov; MOYNAHAN Kevin; WARNER-DICKASON Lori
Subject:	RE: NMFS changes to Regional Gravel Initiative
Date:	Tuesday, July 08, 2008 7:05:08 AM
Importance:	High

Good morning Cathy -

Thank you for the quick review. I have one question -

Your edit(s) include striking out the language in the second paragraph that identified the opportunity for a general OCAPA representative, or operator within a given watershed, to sit in on the technical team meetings as a "quiet" observer. In place of that language, you inserted a sentence into a subsequent paragraph that describes a process whereby the technical team can invite said representative/operator to specific meetings on an "as needed" basis.

It was my understanding we had agreed (some perhaps reluctantly) that a general OCAPA rep or operator would be allowed to sit in on any, or all, technical team meetings at their discretion, but they would not be allowed to actively participate unless asked to contribute information by the team. Your edits don't quite reflect this understanding. Was that your intent?

The Corps needs to have the language in the second paragraph remain because it is our position the attendance wy a general OCAPA rep is necessary. We would absolutely agree to support the process whereby that rep would not be allowed to speak unless requested.

Thoughts?

Thanks

Larry

-----Original Message-----
From: Cathy Tortorici [mailto:Cathy.Tortorici@noaa.gov]
Sent: Monday, July 07, 2008 3:39 PM
To: CYRIL Alex; Evans, Lawrence C NWP; Linton, Judy L NWP; Monty_Knudsen@fws.gov; MOYNAHAN Kevin; WARNER-DICKASON Lori; PUENT Sally; joe_zisa@fws.gov
Subject: NMFS changes to Regional Gravel Initiative

Hello!

I edited a bit of what Alex did (with hope, my comments are in Blue) and then added in the changes you asked to make. I also broke up a couple of the paragraphs into smaller ones to make the document a bit easier to read.

Just let me know if this is working for you -

Cathy Tortorici

From:	Monty_Knudsen@fws.gov
To:	MOYNAHAN Kevin; Cathy Tortorici; Evans, Lawrence C NWP
Cc:	CYRIL Alex; Linton, Judy L NWP; WARNER-DICKASON Lori; Joe Zisa
Subject:	Re: NMFS changes to Regional Gravel Initiative
Date:	Wednesday, July 09, 2008 10:36:27 AM

It was my understanding that OCAPA would have a technical rep on the tech team anthat person would participate as a full team member. The operators could have an "observer" present as well. If that person is an OCAPA person that is ok but whoever the observer is they would not participate in the tech team discussions unless asked by the team. So if we could have the document clearly reflect that I would agree. Monty

----- Original Message -----
From: "MOYNAHAN Kevin" [Kevin.Moynahan@state.or.us]
Sent: 07/08/2008 08:18 AM MST
To: "Cathy Tortorici" <Cathy.Tortorici@noaa.gov>; "Evans, Lawrence C NWP" <Lawrence.C.Evans@usace.army.mil>
Cc: "CYRIL Alex" <Alex.Cyril@state.or.us>; "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>; Monty Knudsen; "MOYNAHAN Kevin" <Kevin.Moynahan@state.or.us>; "WARNER-DICKASON Lori" <Lori.Warner-Dickason@state.or.us>
Subject: RE: NMFS changes to Regional Gravel Initiative

Cathy/Larry - this language seems correct to me. Kevin

-----Original Message-----
From: Cathy Tortorici [mailto:Cathy.Tortorici@noaa.gov]
Sent: Tuesday, July 08, 2008 8:13 AM
To: Evans, Lawrence C NWP
Cc: CYRIL Alex; Linton, Judy L NWP; Monty_Knudsen@fws.gov; MOYNAHAN Kevin; WARNER-DICKASON Lori
Subject: Re: NMFS changes to Regional Gravel Initiative

Larry -

I was trying to reword the language to get at what we had agreed to. I did not think the sentence I struck out was getting to our point. Maybe what we need to do is be specific here and just say the following, "There will be one OCAPA representative or operator from the watershed allowed to attend Technical Team meetings as an "observer." That person will be present to listen only and provide information on gravel operations at the request of the Technical Team. The Technical Team may also seek other appropriate expertise depending upon the issue being discussed by them."

I moved the sentence to the second paragraph because I thought it was better placed there.

Cathy T.

Let me know what you think of this new sentence.

Evans, Lawrence C NWP wrote the following on 7/8/2008 7:05 AM:
> Good morning Cathy -
>

> Thank you for the quick review. I have one question -
>
> Your edit(s) include striking out the language in the second paragraph

> that identified the opportunity for a general OCAPA representative, or

> operator within a given watershed, to sit in on the technical team
> meetings as a "quiet" observer. In place of that language, you
> inserted a sentence into a subsequent paragraph that describes a
> process whereby the technical team can invite said
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> a general OCAPA rep or operator would be allowed to sit in on any, or
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> Thoughts?
>
> Thanks
>
> Larry
>
> -----Original Message-----
> From: Cathy Tortorici [mailto:Cathy.Tortorici@noaa.gov]
> Sent: Monday, July 07, 2008 3:39 PM
> To: CYRIL Alex; Evans, Lawrence C NWP; Linton, Judy L NWP;
> Monty_Knudsen@fws.gov; MOYNAHAN Kevin; WARNER-DICKASON Lori; PUENT
> Sally; joe_zisa@fws.gov
> Subject: NMFS changes to Regional Gravel Initiative
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> Hello!
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> I edited a bit of what Alex did (with hope, my comments are in Blue)
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>
> Cathy Tortorici
>
>
>
>
>

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Wednesday, July 09, 2008 10:29 AM
To: BAILEY Bob; bill yocum; Cathy Tortorici; CHARLAND Jay; Craig Tuss; David Pratt; Joe_Zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Gravel Exec team meeting Thursday in Portland

Importance: High

Reminder - the Gravel Exec team meeting is scheduled for Thursday at the USACE offices in Portland. Meeting time is noon - 2. If you are attending, please notify Judy Linton Judy.L.Linton@usace.army.mil so arrangements can be made for access with building security.

Tentative agenda for the meeting:

- Randy Klein on the CHERT process in Northern California

- update on Chetco SOW and schedule

- update on funding for river system studies

- Exec Team to Tech Team document discussion

- other items

Kevin Moynahan
Assistant Director
Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer St. NE, Suite 100
Salem, OR 97301
phone: 503-986-5259
fax: 503-378-4844
e-mail: kevin.moynahan@state.or.us <mailto:kevin.moynahan@state.or.us>

Regional Gravel Initiative

Gravel Executive Team/Technical Team Roles and Responsibilities, and Scope of Project Outline Related to a Watershed Evaluation of In-Stream Gravel Operations

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The overall goal of this regional gravel initiative is for the Corps and DSL to consider developing regional general permits (RGP) and general permits (GP), respectively, for commercial gravel mining activities in various watersheds throughout Oregon. It is the role of the Executive Team to ensure progress continues, and to provide support and direction to the Technical Team.

It is the role of the Technical Team to scope, collect, review and analyze data and other information to present recommendations in a coordinated fashion to the Executive Team for the particular watershed being evaluated. Technical Team discussions will be restricted to technical issues and may include invitations to individuals with specific technical expertise on an as needed basis.

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River Specific Evaluations:

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A. The Corps and DSL issued permits to Freeman Rock and Tidewater Contractors authorizing gravel extraction through the 2008 in-water work period on the portion of the Chetco from head of tide to just past the second bridge at approximately river mile 11. In support of these permitting decisions, NMFS issued a biological opinion, ODEQ issued Water Quality Certification, and ODLCD concurred the projects were consistent with the Oregon Coastal Management Program.

B. The Corps and DSL will work to develop a RGP and GP respectively, as the vehicle for authorizing continued mining on the Chetco River beyond 2008. The goal is to make a final decision on the respective permits by June 30, 2009. The Technical Team will provide scientific and technical input to the Executive Team and the Corps/DSL to develop the anticipated RGP/GP and inform the agency decision-making on these permits.

C. The agencies will continue to gather relevant information during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the Corps and DSL may exercise the options listed below.

    1. Permit applications may be placed on hold or denied pending data collection and information gathering,
    2. Individual short-term permits may be granted, but with limited gravel volumes or other conditions to minimize impacts. This option includes all relevant permitting requirements being met, including re-initiation of ESA consultation with NMFS and evaluation for 401 Water Quality Certification by DEQ.

D. It is understood that evaluation of the Phase 1 and Phase 2 studies and all other relevant information will be used to determine final permitting decisions for gravel mining in the Chetco River system. The Technical Team will develop a document for presentation to the Executive Team summarizing their analyses and any recommendations regarding project permitting. The Corps and DSL will use this document as part of their respective agency decision making related to consideration of any future request for commercial gravel mining in the Chetco River.

E. Lower Tidewater project: The Tidewater location below head of tide will be included in the development of the RGP/GP for commercial gravel mining activities in the Chetco system. The Technical Team will continue to work with USGS in identifying and synthesizing any data gaps required to be addressed below head of tide on the Chetco to inform RGP/GP permitting decisions.

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A. The Phase 1/Phase 2 study process used on the Chetco River will serve as a model for evaluating other river systems. The Technical Team, in coordination with the gravel industry, will recommend the priority of future river systems to be studied. Presently, the Umpqua, Rogue, Tillamook, and Coquille systems have been identified as the next systems to be studied in the order listed.
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This process is agreed to by the following members of the Executive Team:

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OR Department of State Lands

National Marine Fisheries Service

OR Department of Environmental Quality

U.S. Fish and Wildlife Service

OR Department of Fish and Wildlife

Environmental Protection Agency

OR Dept of Land Conservation & Develop

OCAPA

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Friday, July 11, 2008 8:37 AM
To: 'Alex Cyril'; 'Bill Yocum'; 'Chip Andrus'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Don Anglin'; 'Frank Schnitzer'; 'Glen Hess'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'
Subject: Tech Team meeting - July 15

Hi, folks: a reminder that we have a tech team meeting scheduled for July 15 at the Corps offices (8th floor, Regulatory Branch conference room); time is 1-3. A call in number is: 503-808-5198; Password – 3295. Please let me know if you will attend in person. See you soon. Judy

Agenda items:

1) Chetco River Phase 2 scope of work – update on tasks included in the sediment transport study and schedule.

2) Umpqua River Phase 1 and 2 studies:

- At the request of the Corps, USGS provided scope for Phase 1/Phase 2 effort which covers South Umpqua (RM 110 to 175)
- Corps HQ has provided funds to cover this effort Discussion items:
- What this scope covers/schedule
- What biological information do we need? (i.e. veg mapping, mapping of bank materials, other items)
- Are there other ongoing studies that may benefit our efforts?
- How can we tie S. Umpqua evaluation into remainder of river system particularly the estuary
- Other items?

3) General discussion of CHERT process

- Presentation of process given at the Executive Team meeting July 10. I have created a folder on our public ftp site called Regional Gravel Initiative, Regulatory. The powerpoint presentation is in this folder. Here is the link: ftp://ftp.usace.army.mil/pub/nwp/
- Can we use anything from this process?

4) Other items

From: Linton, Judy L NWP
To: "Jay Charland"
Subject: RE: Regional Gravel Initiative
Date: Tuesday, July 15, 2008 11:41:37 AM

Jay: in response to your comments --

1. Okay with adding the word "co-chairs" to the end of the sentence.

2. Yes

3. Yes

4. The sentence was changed at the request of OCAPA to put the Tillamook before the Coquille but yes, this sentence does indicate these rivers will be evaluated in the order listed. OCAPA is representing the gravel industry on the Executive Team and so there is no need to have others members of the industry sign the document. The document is meant to describe the process for evaluating river systems and how we developed that process. Since there will likely be other rivers after the Coquille, getting all potential operators to sign a document would be overwhelming to say the least.

5. I don't think it is necessary to mention funding sources in this document. The Corps has been fortunate to obtain funding to conduct necessary studies for evaluation of the Chetco and South Umpqua. I believe we have been clear folks should not expect this to continue. That is why operators on the Umpqua are looking ahead, not only for their river but others, to see if there is a way to assess a surcharge on the operators that could be used towards future study needs. Kevin Moynahan spoke of this at the last Executive Team meeting.

6. See second part of #4. I think it important we describe how we are currently evaluating the Chetco and that this process will be used to evaluate future river systems.

-----Original Message-----
From: Jay Charland [mailto:Jay.Charland@state.or.us]
Sent: Monday, July 14, 2008 2:31 PM
To: Linton, Judy L NWP
Subject: Regional Gravel Initiative

July 14

Judy-

I have looked over the Regional Gravel Initiative document distributed last Thursday. I have a couple of comments and questions.

1. In the second paragraph, second to last sentence, I would be more comfortable if the sentence read:

"They can provide information on gravel operations only at the request of the Technical Team co-chairs."

2. Under Chetco River Operations, I.A, the Corps and DSL have issued permits for the Chetco River. Are those 2006-927 for Freeman (River Mile 4.5-5.5) and 2007-196 for Tidewater (River Mile 10.2)?

3. Is the below head of tide location on the Chetco the Tidewater project 1996-1804/3 (River Mile 2.0)?

4. Is there a priority implied in the order of listing of the Umpqua, Rogue, Coquille, and Tillamook systems in II.A? If an order or priority is to be given, should not the operators on those rivers be included as signatories to this agreement? If OCAPA is agreeing for them all, that should be clearly

stated.

5. I would also like to see some mention of the money the Corps is contributing to these analyses, and recognition of the fact that these funds are for the development of the process only. I am concerned that operators on other rivers will also expect their permit applications to be partially funded by the Corps.

6. I really think this is two documents. One on the operation of the Executive and Technical Teams, another on the Chetco studies and on the other systems.

Jay

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Gravel Tech Team Mtg
July 15, 2008
COE office
Agenda and Meeting Notes (*notes in italics*)

Present: Judy Linton, Lori Warner-Dickason, Alex Cyril, Rose Wallick, Jim O'Connor, Patty Snow, Bill Yocum, Janine Castro and Jay Charland By phone: Chris Lidstone and Chuck Wheeler.

Before the meeting started, Judy mentioned that the Regional Gravel initiative paper was expected to be signed by the Exec Team on August 21 and comments should be sent in ASAP.

1. Update on the USGS Scope of Work for Phase II of the Chetco: *Rose described the current scope of work, which includes sediment transport, vegetation mapping, soils materials mapping, bathymetric survey (lower 3.5 miles) to compare with 1939 data. Because of costs and need to complete scope for sediment transport studies, water quality data (temp and turbidity) and aquatic vegetation data were omitted from the scope of work. The Watershed Council may have dissolved oxygen and temperature data, which may be useful but they lack funding for long-term monitoring. Rose asked the group of she should pursue the WSC data? Rose will forward the description of the WSC data to the team to see if it is useful.*

2. Update on Phase I and II of Umpqua work*: The SOW for the Phase I was discussed. Cost is 613K. Some questioned the need for a Phase II study if the results of Phase 1 showed the system is degrading. The need to stay flexible was discussed in case the phase II was not needed.*

   Geographical scope of the phase I study: *Chuck mentioned that unless a rigorous study of the estuary is included, his agency may not accept the results of phase I or II. Need to know the vertical trend of the estuary as well.*

   The group thought it would be appropriate to do an intensive look in permit area in S. Umpqua, reconnaissance level review for the rest of the basin. The scope of phase II will be dependent on the results of Phase I.

   Timing of Phase I work: USGS needs to do fieldwork for Phase I work during low water in October.

3. CHERT process discussion: *the group discussed the information about the CHERT process. It appeared to be information intensive with lots of annual monitoring. It provides consistency and predictability for the industry. Elements of the CHERT process were discussed. One item we can take from CHERT process is need for consistent monitoring.*

4. It was noted that Janine prepared a description of the phase I study and sent it to the Tech team. Chris provided comments which will be incorporated into a new draft.

Next Steps:

Phase II, Chetco work:

1. Rose will forward a description of the WSC data to the team to see if it is useful.
2. Chuck will review the WSC data description to see what else is needed for NMFS purposes. He will also check with roundtable group to see if they are interested in supporting more data collection.
3. Judy will forward revised SOW to the team.

Phase I and II Umpqua:

1. Judy will check to see if the Phase I for the Umpqua can also include the estuary.
2. Judy will report back to the group on how much flexibility the COE has for funding and project scope of work.
3. Janine will send a new draft of the phase I study procedure.

Next meeting: August 19th, 10-12 at the COE.

G:\WWC\Gravel Issues\July 1508Gravel_Tech_Team_Mtg_notes.doc

Latcu, Misty M NWP

From: Evans, Lawrence C NWP
Sent: Wednesday, July 23, 2008 1:21 PM
To: 'Monty_Knudsen@fws.gov'; 'kim.kratz@noaa.gov'; 'cathy.tortorici@noaa.gov'; 'szerlog.michael@epamail.gov'; 'kevin.moynahan@state.or.us'; 'Puent.sally@deq.state.or.us'; 'Jon.P.Germond@state.or.us'; 'jay.charland@state.or.us'; 'rich@ocapa.net'
Cc: Linton, Judy L NWP
Subject: Proposed "Charter" for the Strategic Gravle Initiative

Importance: High

Team –

At our last Executive meeting we had discussed the proposed "Charter" for our gravel initiative and we agreed to provide one last opportunity for review before signing the instrument at our next meeting, August 21. To date the Corps has received input from Jay Charland at DLCD and Judy incorporated Jay's interests into the document. I look forward to your representation at the next meeting and your agency signature on the instrument as we move forward with our studies on the Chetco and Umpqua River Systems. If you have any last comment, please send them immediately to Judy.

Thank you again for your support

Larry

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Tuesday, August 19, 2008 8:17 AM
To: 'Alex Cyril'; 'Bill Yocum'; 'Chip Andrus'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Don Anglin'; 'Glen Hess'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'
Subject: Agenda for Aug 19 meeting
Attachments: Tech Team Agenda.doc

Sorry for getting this out late…I had computer problems yesterday

Tech Team Agenda
August 19, 2008
COE Office, Portland (10-12)
Call-in 503-808-5199; Password – 2580

1. Chetco River Phase 2:
   - Update on status/schedule for USGS data collection
   - Requirements for development of RGP/GP
     - Timelines
     - Process
     - Identification of activities
     - Preparation of biological assessment
   - Evaluation of extraction methods (Dennis Halligan handout)
     - Are any of these methods possible on Chetco?
   - Other Items?

2. Umpqua River Phase 1:
   - Update on status/schedule for USGS data collection
   - Clarification on Phase 1 details/level of coverage
   - Report back on items discussed at July 15 mtg
   - Other items?

3. Reporting Inconsistencies
   - Development of basic data needs all agencies can adopt

4. Any updates or discussions from Gravel Round-Table meeting?

5. Other issues?

6. Next steps and future meeting dates

Oregon
Theodore Kulongoski, Governor

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RECEIVED
AUG 26 2008
By

August 20, 2008

Larry Evans
US Army Corps of Engineers
PO Box 2946
Portland, OR 97208-2946

Re: Regional Gravel Initiative

Dear Mr. Evans:

The Department of Environmental Quality (DEQ) has reviewed the Regional Gravel Initiative (attached) and agrees with its content. We support the concept of permitting in-water gravel mining operations on a watershed basis and intend to participate in the development process until a permitting decision is reached.

As we have previously stated, DEQ believes that the executive and technical teams do not represent all interested parties. We continue to believe that the public process would be better served by including representatives of groups who have gone on record as interested parties with regard to the Chetco and Rogue River permits.

DEQ will sign the Regional Gravel Initiative, agreeing to the process, with the above caveat.

Sincerely,

Nina DeConcini

Nina DeConcini
NW Region Administrator

Cc: Sally Puent
Water Quality Manager

Alex Cyril
401 Water Quality Certification Statewide Coordinator

DEQ-DC1

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Wednesday, August 20, 2008 4:50 PM
To: BAILEY Bob; bill yocum; Cathy Tortorici; CHARLAND Jay; Craig Tuss; David Pratt; Joe_Zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Gravel Exec Team meeting - 8/21/08

A reminder - the Gravel Exec Team meeting is scheduled for Thursday - 8/21/08 - here at DSL noon - 2pm - Mill Creek Room.

Tentative agenda:

- Finalization of Strategic Gravel Initiative Charter
- Updates on Chetco and Umpqua studies and funding
- Discussion of the OSU Gravel Roundtable meetings/process and how it integrates with the Exec and Tech Team process
- Other items of interest to committee members

Kevin

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From:	Linton, Judy L NWP
To:	"Alex Cyril"; "Bill Yocum"; "Chuck Wheeler"; "Janine Castro"; Linton, Judy L NWP; "Lori Warner-Dickason"; "Patty Snow"; "Robert Elayer"; "Rose Wallick"
Cc:	"Jay.Charland@state.or.us"
Subject:	draft TT meeting notes
Date:	Monday, August 25, 2008 11:13:16 AM
Attachments:	19August08 MeetingNotes.doc FW Tech Team meeting - July 15 (ORUSG101).msg

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Attached are the draft meeting notes for the 19 August TT meeting – please review and provide comments as appropriate. Also attached is the email chain regarding concerns/comments expressed by Chris Lidstone regarding the Phase 1 evaluation of the South Umpqua and the need to include the Umpqua estuary. Intent is to discuss this at the next meeting. I'll send out final meeting notes to entire Tech Team contact list.

Gravel Tech Team Meeting
Agenda and Meeting Notes
August 19, 2008 (10 – 12)
COE Office, Portland

Attendees: Patty Snow, Janine Castro, Bill Yocum, Alex Cyril, Rose Wallick, Judy Linton. Phone: Lori Warner-Dickason, Chuck Wheeler, Robert Elayer.

1. Chetco River Phase 2:
   - Update on status/schedule for USGS data collection

Rose indicated that Scott Anderson has been hired to assist. Most of historical photos have been collected. Week of 25 August will be a 3 day reconnaissance effort – a two week field effort will occur in mid-September. USGS is acquiring equipment for bedload transport studies. Bathymetric mapping also proceeding on schedule: survey will occur week of 19 September.

   - Requirements for development of RGP/GP
     - Timelines
     - Process
     - Identification of activities
     - Preparation of biological assessment

Judy talked about process for RGP and draft schedule. Proposal is to include a broad range of excavation methods in the public notice and narrow down as appropriate based on USGS work. Shooting for mid-November to issue notice. Patty asked if notice could be moved forward to get more information into the notice. Chuck commented that public angst is with calling the permit a "Regional General" permit. Need to clarify with public. Suggestion also made that a CHERT like process is proposed for adaptive management.

Based on other general discussion regarding process needs for development of RGP the following actions will occur:

- Judy will contact Rich Angstrom or Joy Smith to determine whether Chris Lidstone is available to assist in development of Biological Assessment.

- Lori and Judy will have a discussion off-line with the Chetco operators to discuss information needs.

- Robert will provide a list of extraction methods for the estuary portion of the Chetco.

   - Evaluation of extraction methods (Dennis Halligan handout)
     - Are any of these methods possible on Chetco?

Need someone to fill in the gap here as I was out of the room…

2. Umpqua River Phase 1:
   - Update on status/schedule for USGS data collection
   - Clarification on Phase 1 details/level of coverage
   - Report back on items discussed at July 15 mtg

Rose indicated USGS will do a drive-by of the Umpqua River starting the week of 25 August. Steve ____ has been hired to help with this effort. The Phase 1 work will include a detailed look at the South Umpqua (miles 110-175) and a recon level evaluation for the mainstem Umpqua below mile 110 and for the alluvial portion of the North Umpqua River. The USGS views Phase 1 as a scoping effort which the Tech Team can use to make further decisions.

General discussion followed regarding an email from Chris Lidstone regarding concerns about the potential need to look at the estuary portion of the Umpqua River along with the detailed evaluation of the South Umpqua. It was agreed the best approach is to send the email to the group so all can see the comments first hand and then to have further discussion at the next Tech Team meeting.

3. Reporting Inconsistencies
   - Development of basic data needs all agencies can adopt

The subject of inconsistent agency requirements individual gravel mining permits came up at the August 6 Gravel Round-Table meeting. In some instances, these inconsistencies have resulted in added cost for the operators. Janine has started to pull together a list of requirements with the focus being to identify those items that are really needed for monitoring purposes. Bill has also started to go through all the requirements from permits issued for the Freeman Rock operation. Tech Team will then review these lists and see if we can come up with a single set of requirements that will satisfy needs of all agencies.

4. Any updates or discussions from Gravel Round-Table meeting?

Judy asked group for input on what assistance Gravel Round-Table folks can provide to the overall watershed evaluation of gravel mining. Concerns were expressed about their role and that the meetings are diluting the Tech Team efforts. A suggestion was made that public education and outreach may be a fit – perhaps they could assist in coordinating public meetings. Another suggestion was having some of the Round-Table folks join the Tech Team and/or Exec Team.

5. Other items?

Janine indicated Monty will continue to attend Executive Team meetings for the next few months. Paul Henson will attend the August Exec meeting and will eventually take over as the FWS representative on the Executive Team.

Chuck indicated he and Ken Phippen are trying to schedule time with Kim Kratz to bring him up to speed on issues that have been discussed by the Tech Team.

Janine will send final version of Sediment Considerations paper to Judy for distribution to rest of Tech Team.

6. Next steps and future meeting dates

a. Lori and Judy will schedule a conference call with the Chetco River operators to discuss information needed for the RGP/GP public notice.

b. Robert will provide a list of extraction methods specific to the Chetco estuary.

c. Judy will send email chain regarding concerns expressed by Chris Lidstone to Tech Team for their review and follow-up discussion at next meeting.

d. Janine and Bill will complete their efforts to pull together a list of reporting requirements and provide to Tech Team. The team will discuss these requirements at a future meeting with the intent of coming up with a standard list.

Next meeting is scheduled for October 1 at the Corps offices from 10-12.

From: MOYNAHAN Kevin
To: WARNER-DICKASON Lori; Linton, Judy L NWP
Cc: Evans, Lawrence C NWP
Subject: FW: Tech Team meeting - July 15 (ORUSG101)
Date: Monday, August 18, 2008 5:10:01 PM

Lori and Judy - please let me know how Chris' points on this issue are addressed by the Tech team.

Thanks, Kevin

-----Original Message-----
From: Chris Lidstone [mailto:CDL@lidstone.com]
Sent: Friday, August 08, 2008 8:58 AM
To: Linton, Judy L NWP
Cc: Joy Smith; Rich Angstrom; Bill Yocum; Evans, Lawrence C NWP; MOYNAHAN Kevin; Lori Warner-Dickason
Subject: RE: Tech Team meeting - July 15 (ORUSG101)

Judy:

I thank you for your email and it does help clarify certain things. In particular I am pleased to hear that there is a commitment to follow the Chetco Process on the other watersheds. I agree that we, as a Technical Team, would be remiss to make any recommendation (re. permitting of gravel removal) to the Executive Team without a properly completed Phase 1 and Phase 2 analysis. I am also happy to hear that the Corps has the funds to conduct a Phase 2 analysis of the S. Umpqua and that these funds will be provided to the USGS. I look forward to working closely with the USGS in an effort to shape both the Phase 1 and 2 evaluations.

I still have problems with the Lower Umpqua effort. I don't agree with Chuck technically on the estuary, but will attempt to discuss this with him directly outside the Tech Team. To help you understand my concern, let me summarize as follows:

To understand how gravel mining in the South Umpqua affects the estuary, one first has to separate out the impacts of some 400 overall dams within the entire Umpqua River Watershed, then separate out the impacts of the Corps dredging in Winchester Bay and then qualitatively estimate how the removal of X cubic yards of gravel removal from River Mile 110 to 165 river miles affects the estuary which is tidally affected and exists between RM 0 and 25. This would have to be completed with limited hydraulic information, no sediment transport information and very little quantification of sediment production. Even with this proposed effort, one likely wouldn't have the data or the time to include the sediment contributions from the Smith River and the North Umpqua side. As a scientist and without the opportunity to review their detailed technical approach, I don't understand what the USGS can accomplish with a reconnaissance Phase 1 on the lower Umpqua, which will have any meaning to the Technical Team. NOAA seems to want a conclusion that I am afraid will be impossible to substantiate.

In conclusion I think it is dangerous to approach something (linkage between gravel mining on the South Umpqua with the geomorphic state of the estuary) that is as far reaching as this and involves so many intrinsic and extrinsic variables with the predisposition that we will find out what we can, but not spend much time and obviously no

additional budget. I guess I am a believer that if we do something, we should do it right. Finally I assume that we have authorized the USGS to do a "normal phase 1 for the South Umpqua" so that the Technical Team can make a well founded recommendation to the Executive Team on whether or not we should progress from a phase 1 to a phase 2 on the South Umpqua.

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-----Original Message-----
From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Thursday, July 24, 2008 10:43 AM
To: Chris Lidstone
Cc: Joy Smith; Rich Angstrom; Bill Yocum; Evans, Lawrence C NWP; MOYNAHAN Kevin; Lori Warner-Dickason; Linton, Judy L NWP
Subject: RE: Tech Team meeting - July 15 (ORUSG101)

Chris: sorry for not replying to your message sooner. I have been meaning to call you (left a message yesterday) to allow a better discussion. I understand you are traveling so wanted to get a response out.

1. Chuck Wheeler indicated NMFS would not be supportive of a Phase 1 or 2
evaluation of the S. Umpqua that does not also include the estuary. They
believe we need to evaluate how work (gravel mining) on the S. Umpqua affects the estuary. Unfortunately, the estimate we received from USGS (and subsequent dollars from COE Headquarters) was for a detailed evaluation of the S. Umpqua only. In an effort to come to some resolution, the idea of adding a "reconnaissance" level Phase 1 evaluation of the mainstem Umpqua (mile 110 to the mouth) and the N. Umpqua was discussed. The reconnaissance Phase 1 differs from the normal Phase 1 approach in that the level of effort to track down existing information is not as intense (i.e. find out what you can but don't spend much time). Hopefully this can provide the necessary link between the S. Umpqua and the estuary that NMFS believes important. USGS has indicated they will not require additional funds to add this recon effort.

Phase 2 is a different matter. Again, USGS provided cost and schedule for conducting a sediment transport study of the S. Umpqua only. As you

indicate, budgets are limited...if it is concluded that a Phase 2 of the estuary (or other another portion of the Umpqua) is required, it will be the responsibility of the Technical Team to provide that recommendation to the Executive Team with rationale and cost estimate. The Executive Team will then be responsible for accepting (or not) the recommendation and developing a strategy for obtaining the necessary funds.

2. The question was raised about the need to conduct a Phase 2 evaluation if the Phase 1 evaluation showed the system to be degrading. The Charter that will be signed by the Executive Team at their next meeting states in
part-

"It is understood that evaluation of the Phase 1 and Phase 2 studies and all other relevant information will be used to determine final permitting decisions for gravel mining in the Chetco River system. The Technical Team will develop a document for presentation to the Executive Team summarizing their analyses and any recommendations regarding project permitting.
The
Corps and DSL will use this document as part of their respective agency decision making related to consideration of any future request for commercial gravel mining in the Chetco River."

This process also applies to the other watersheds we study. I don't know if it would be possible for the Technical Team to make a recommendation regarding project permitting based solely on the results of a Phase 1 evaluation. It seems the results of a Phase 2 analysis would strengthen any recommendation for or against further mining of a watershed. At this point the Corps has the funds to conduct a Phase 2 analysis of the S. Umpqua and will be providing those funds to USGS. USGS will work closely with the Technical Team to shape both the Phase 1 and 2 evaluations.

3. I don't recall this statement being made, but I could have missed that portion of the conversation. I do know Joy Smith has been working closely with Teena Monical, Permit Chief of our Eugene Office, to see if it is possible for some level of mining to occur either during the 2008
or
2009
season.

I hope this helps. Perhaps we can take a few minutes at the next tech team meeting to make sure all members are on the same page regarding the direction we are headed with evaluations on the Umpqua.

Judy

-----Original Message-----
From: Chris Lidstone [mailto:CDL@lidstone.com]
Sent: Friday, July 18, 2008 3:18 PM
To: Linton, Judy L NWP
Cc: Joy Smith; Rich Angstrom; Bill Yocum
Subject: RE: Tech Team meeting - July 15 (ORUSG101)

Judy:

As you were aware, I was in and out of the meeting on Tuesday. We were in pre-op and my wife's surgery kept getting delayed. Unfortunately in my effort to participate in the conference call and juggle the surgery,

I lost most of the meeting and only picked up bits and pieces. I understand that certain things did occur, which I would not have supported had I been in full participation. I would like to confirm several items and if necessary redirect the discussion, if my understanding of what occurred is correct.

1. Did the Tech Team agree that a Phase I analysis of the South Fork of the Umpqua must also look at the estuary? I disagree with this approach since (a) there is 110+/- river miles distance to the estuary. This is a completely different situation from the Chetco and a significantly different size watershed. In a perfect world we (the Tech Team) would study the entire watershed-for every watershed. However budgets are limited and science does not necessarily support a dilution of our technical resources. It is my opinion that we need to concentrate our resources on the issues at hand as defined by the Executive Team. (b) furthermore, the Corps is actively dredging in Winchester Bay and I think that dredging activity will complicate the analysis of estuary response and certainly would obscure an analysis of the relationship between the "condition of the estuary" and material removal 110+ miles upstream.

2. Did the Tech Team make a recommendation that "if it is determined, from Phase I that if either the estuary or the South Fork is in a degrading condition, then the Phase II analysis will not be needed and no permits will be issued? Again I question the technical basis for this recommendation, since the only thing that will answer the question of sediment continuity (connectivity) between the seven (7) +/- gravel bar permits from RM 112 to RM 165 and the estuary is a sediment transport study. This study is an integral part of Phase 2. I don't think there should be an either/or and certainly, I don't think the Tech Team should make any permitting decisions solely based on a Phase 1 study. Unique circumstances could be considered, but at this stage I don't know what those circumstances might be.

3. Finally I understand that someone may have noted that that "no permit applications have been submitted for the Umpqua River and that this failure to submit a new permit application (which I can't even guarantee is true) reinforces the lack of need for the Phase II study." If this was said it is a smoke screen and reflects either ignorance or bias on the part of the individual who made this statement. This statement needs to be corrected amongst the entire Tech team in whatever fashion you think is appropriate.

The facts are and all of the agency personnel should be aware that (a) the South Umpqua permits were denied in Fall, 2006; (b) the permit denials were appealed in November 2006. (c) the Omaha District of the Corps agreed with several aspects of the appeal and remanded it back to the Portland District (effectively the Eugene Field office) in August 2007; (d) there was a concerted effort to resubmit and receive approval for the 2007 field (in-water work window) season by the operators and the effort was derailed by the DEQ 401 certification process that failed to take place in August and September, 2007; (e) several of the companies involved in that appeal have continued to work with the agencies with respect to the 2008 and likely the 2009 field season. This effort has included meetings, investments into surveys etc. In conclusion it is a patently false statement for anyone to say that there is no interest from the operators on gravel removal from the South Umpqua. I cannot conceive what prompted this statement and can not agree with the conclusion. Given the amount of time, money and resources expended by industry on these economically important resources, I am

disappointed with the individual who made this statement.

Please clarify what transpired and let me know what needs to be done to correct this misinformation.

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Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Tuesday, October 14, 2008 9:30 AM
To: Evans, Lawrence C NWP; Linton, Judy L NWP
Cc: WARNER-DICKASON Lori
Subject: Gravel Exec team Meeting - 10/16/08 - noon - 2pm - Department of State Lands

Here is the draft agenda for the meeting - please add any other item of interest. I spoke with Ted Freeman and he would like to see a discussion related to the recent citizen suit notice Freeman Rock received.

Next meeting - Corps offices in PDX or Eugene? December 18th? The every two months schedule we are on now seems to be more realistic than meeting every month - we can bring this up at the meeting Thursday - your thoughts...

1) Update on Chetco and South Umpqua USGS studies
2) Update on Corps/DSL RGP/GP process for the Chetco
3) Update on additional federal funding for phase 1 and 2 studies on additional systems
4) Update on latest Tech Team meeting
5) Discussion related to priority ranking of river systems for studies
6) Discussion related to recent notice of federal Clean Water Act citizen suit received by Freeman Rock
7) Discussion of possible state legislative concepts related to aggregate issues

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Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Tuesday, October 28, 2008 10:42 AM
To: 'Alex Cyril'; 'Bill Yocum'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Glen Hess'; 'Jay Charland'; 'Jim O'Connor'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Rose Wallick'
Subject: Tech Team meeting notes - please review
Attachments: Gravel Technical Team Meeting Notes01Oct08.doc

Attached are the notes from the October 1 meeting. Please review and provide comments as necessary. I'll send out to the entire group once finalized.

Gravel Technical Team Meeting
Agenda and Meeting Notes
October 1, 2008 (10 – 12)
COE Office, Portland

Attendees: Patty Snow, Jay Charland, Alex Cyril, Rose Wallick, Jim O'Connor, Glen Hess, Judy Linton. Phone: Lori Warner-Dickason, Chuck Wheeler, Robert Elayer, Bill Yocum, Chris Lidstone.

1. Discussion of schedule for Chetco River Evaluation.

- Brief discussion of schedule outlining tasks for development of regional general permit.
- Chris asked if there was an appeal process and suggested if so we should factor that possibility into the schedule.
- Regulatory agencies will review process and potential for appeals.
- COE/DSL will have separate discussion with DEQ/DLCD regarding process (i.e. how and when to request water quality certification and czm concurrence, overall mechanics of RGP/GP development, etc).

2. Status on preparation of project description and information for biological assessment.

- Freeman Rock and Tidewater Contractors are providing information to COE/DSL regarding project description (excavation methods, project location, etc), purpose and need discussion, alternatives discussion, and concepts for adaptive management. This information will assist in public notice preparation.
- Information to be provided by 15 October.

3. Status of USGS studies – Chetco and Umpqua Rivers.

* Chetco River:

<u>Study work</u>

- aerial photos: digitization not yet complete
- sediment budget and SIAM model development to begin within next month
- bathymetry 90% complete; expect to complete within next week
- bedload sampling: will be doing dry run in next week

<u>Draft Report</u>: Need to clarify distribution process for draft report. USGS will discuss further with management.

<u>LiDAR</u>: images have been obtained but USGS has not yet received the data set.

* Umpqua River:

- Phase 1 study areas: North Umpqua goes to Glide, South Umpqua to Tiller Gage, mainstem Umpqua is from mouth to confluence with S. Umpqua

- study is transitioning from evaluating available information to interpretation phase.
- goal is draft report by end of November
- Week of Oct 27: 3 day field work scheduled

4. Discussion of next study rivers (Rogue, Tillamook, and Coquille)

- Brief discussion regarding changing study sequence. Not all Tech Team members have enough information to make decision about such change. Decision on priority for study will need to be made at Executive Team level.
- USGS will prepare cost estimate/brief scope for Phase 1 work on Rogue, Tillamook and Coquille – estimate completion by Jan 09. They will need maps showing mining locations (COE to provide). Preliminarily USGS recommends similar evaluation process as done for the Umpqua River (look at entire system rather than just area of mining; how does mining affect other portions of the system).

5. Other items: mention was made that the Applegate River has bee named as an Oregon Solutions project. Copeland and local watershed council are trying to raise money for required studies.

6. Next meeting: November 13, 2008 from 10 to 12; at USGS offices (?)

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Thursday, November 13, 2008 1:37 PM
To: 'Alex Cyril'; 'Bill Yocum'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Glen Hess'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'
Subject: Tech Team meeting notes_13 November
Attachments: Gravel Technical Team Meeting.doc

Attached are the notes from today's tech team meeting. Please let me know if comments. Also note, we would like to schedule a meeting for December to discuss the results of the Umpqua Phase 1 study. Jim and Rose will present. Suggested dates are the 10th, 22nd or 23rd. Please respond as soon as possible on your meeting date preference – I'll even bring goodies! Judy

Gravel Technical Team Meeting
Agenda and Meeting Notes
November 13, 2008 (10:00)
USGS Office, Portland
2130 SW 5th Avenue

Attendees: Patty Snow, Glen Hess, Rose Wallick, Jim O'Connor, Judy Linton; Phone: Jay Charland, Lori Warner-Dickason, Robert Lobdell, Chris Lidstone, Robert Elayer.

1. USGS update on Chetco River (Phase 1) and Umpqua River (Phase 2) studies:

a. Chetco River –

- GIS work is mostly done; bathymetric survey data collection is also mostly completed.
- Preparing to do bedload evaluation. This requires a sustained flow of 10,000 cfs. River has peaked at this level but needs to be for a long enough period to mobilize and do evaluation.
- Hydraulic model is being set up.

b. Umpqua River –

- Conducted three days of field work week of 11/3
- Looked at navigational accounts from Roseburg to the mouth. Early accounts describe a bedrock system.
- Phase 1 evaluation looks at factors affecting the system. Initially it does not appear as though gravel mining operations are affecting the system.
- Jim and Rose propose that the results of the Umpqua Phase 1 studies be discussed at the next Tech Team meeting proposed for December (dates suggested are 10, 22, or 23).
- Phase 1 report to the Corps will likely slip 2 to 3 weeks from the November 15 date originally estimated.

2. RGP/GP Public Review:

- DSL would like to do a joint notice with the Corps; DSL needs to include alternatives discussion in their notice so whether the joint notice is possible will depend on when DSL receives this information. Corps does not want to slip much on public notice date (originally scheduled to occur by 15 November).
- DSL may issue a second public notice as project information becomes more refined. DSL is initially thinking there needs to be a ceiling on volumes removed.
- Draft RGP sent to all on 11/12; please review and provide any comments by 11/21 – sooner if possible. Comments especially welcome on Adaptive Management discussion.

3. Meeting adjourned at 11:00.

Latcu, Misty M NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Wednesday, November 19, 2008 6:12 AM
To: Linton, Judy L NWP
Cc: tedf@hughes.net; kevin.moynahan@state.or.us
Subject: Re: RGP public notice

Hi Judy,

I believe that the Executive Team Meeting is scheduled on December 18th at your office. The first agenda item is a Congressional briefing for Karman Fore (Congressman Peter DeFazio), Molly McCarthey (Senator Ron Wyden), Terri Moffit (Senator Gordon Smith), hopfully a representative from Senator-Elect Jeff Merkley's office, and State Senator Wayne Krieger. As the date gets closer can I coordinate with you for the security passes and the meeting room location? Thanks for all of your help.

Bill

On Nov 18, 2008, Judy.L.Linton@usace.army.mil wrote:

Bill: As you may have noted in the meeting notes, I have requested tech team input on the draft RGP by 21 November. I have incorporated most of the comments provided by you and Robert and will include others as they come. My intent is to issue the notice by November 26 as I will be out on the 27th and 28th.

Give me a call if you have other questions. Judy

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Friday, November 21, 2008 11:06 AM
To: 'Bob Bailey'; 'David Pratt'; Evans, Lawrence C NWP; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'
Cc: 'Alex Cyril'; 'Bill Yocum'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'
Subject: Executive/Tech Team Charter
Attachments: Exec_Tech Team Roles_signed.pdf

Attached is final the signed charter.

10 July 2008

Regional Gravel Initiative

Gravel Executive Team/Technical Team Roles and Responsibilities, and Scope of Project Outline Related to a Watershed Evaluation of In-Stream Gravel Operations

Two interagency teams (the Gravel Executive Team and Gravel Technical Team) have been established in an effort to strategically evaluate, on a watershed basis, whether the mining of gravel from Oregon rivers can be supported. As permitting agencies charged under state and federal law with review and decision making related to applications for in-stream gravel mining operations in the State of Oregon, the U.S. Army Corps of Engineers, Portland District (Corps) and the Oregon Department of State Lands (DSL) act as co-chairs of both the Executive and Technical Teams (Teams).

In addition to the Corps and DSL, the Teams consist of representatives from the following: Oregon Department of Fish and Wildlife (ODFW); Oregon Department of Environmental Quality (ODEQ); Oregon Department of Land Conservation and Development (ODLCD); U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA); Oregon Concrete and Aggregate Producers Association (OCAPA); participating county planning departments; and current/prospective commercial mining operators based on the watershed being evaluated. Both the Executive and Technical Teams will be made up of one representative of the agencies/organizations listed above. The gravel industry will be represented on the Technical Team by a general technical representative/consultant. There can also be one OCAPA representative or operator from the watershed to attend Technical Team meetings as an "observer". That person will be present to listen only. They can provide information on gravel operations only at the request of the Technical Team. The Technical Team may also seek other appropriate expertise depending upon the issue being discussed by them.

The overall goal of this regional gravel initiative is for the Corps and DSL to consider developing regional general permits (RGP) and general permits (GP), respectively, for commercial gravel mining activities in various watersheds throughout Oregon. It is the role of the Executive Team to ensure progress continues, and to provide support and direction to the Technical Team.

It is the role of the Technical Team to scope, collect, review and analyze data and other information to present recommendations in a coordinated fashion to the Executive Team for the particular watershed being evaluated. Technical Team discussions will be restricted to technical issues and may include invitations to individuals with specific technical expertise on an as needed basis.

While this regional gravel initiative moves forward, it is understood the Corps and DSL must continue to process individual applications for gravel mining throughout the state. Although certain Technical Team representatives may also be responsible for evaluating these individual applications as part of their agency duties, the RGP specific Technical Team meeting times will not be used to discuss these projects.

In working through the regional gravel initiative, it is understood the criteria for permit and related decision making processes come from federal, state and local statutes, regulations, and codes. For example, there may be federal Endangered Species Act (ESA) and Magnuson-Stevens Act Essential Fish Habitat (EFH) consultations required as part of the permitting process. All appropriate laws, regulations, and codes will be followed.

River Specific Evaluations:

The Chetco River was chosen as the first study river for the regional gravel initiative. Phase 1 study efforts focused on evaluating existing information to determine vertical stability (i.e. whether the system was aggrading, degrading, or in equilibrium). Phase 2 study efforts will evaluate sediment transport and biological data requirements. A scope of work (SOW) for investigation of the Chetco River system has been completed by USGS and is expected to be implemented during the summer/fall of 2008 with a preliminary report available in January 2009 and a final report anticipated in April 2009.

I. Chetco River Operations

A. The Corps and DSL issued permits to Freeman Rock and Tidewater Contractors authorizing gravel extraction through the 2008 in-water work period on the portion of the Chetco from head of tide to just past the second bridge at approximately river mile 11. In support of these permitting decisions, NMFS issued a biological opinion, ODEQ issued Water Quality Certification, and ODLCD concurred the projects were consistent with the Oregon Coastal Management Program.

B. The Corps and DSL will work to develop a RGP and GP respectively, as the vehicle for authorizing continued mining on the Chetco River beyond 2008. The goal is to make a final decision on the respective permits by June 30, 2009. The Technical Team will provide scientific and technical input to the Executive Team and the Corps/DSL to develop the anticipated RGP/GP and inform the agency decision-making on these permits.

C. The agencies will continue to gather relevant information during development of the RGP/GP for the Chetco operations. In the event issues cannot be adequately addressed and more studies are needed to complete the RGP/GP process, the Corps and DSL may exercise the options listed below.

    1. Permit applications may be placed on hold or denied pending data collection and information gathering,
    2. Individual short-term permits may be granted, but with limited gravel volumes or other conditions to minimize impacts. This option includes all relevant permitting requirements being met, including re-initiation of ESA consultation with NMFS and evaluation for 401 Water Quality Certification by DEQ.

D. It is understood that evaluation of the Phase 1 and Phase 2 studies and all other relevant information will be used to determine final permitting decisions for gravel mining in the Chetco River system. The Technical Team will develop a document for presentation to the Executive Team summarizing their analyses and any recommendations regarding project permitting. The Corps and DSL will use this document as part of their respective agency decision making related to consideration of any future request for commercial gravel mining in the Chetco River.

E. Lower Tidewater project: The Tidewater location below head of tide will be included in the development of the RGP/GP for commercial gravel mining activities in the Chetco system. The Technical Team will continue to work with USGS in identifying and synthesizing any data gaps required to be addressed below head of tide on the Chetco to inform RGP/GP permitting decisions.

II. Operations on other river systems

A. The Phase 1/Phase 2 study process used on the Chetco River will serve as a model for evaluating other river systems. The Technical Team, in coordination with the gravel industry, will recommend the priority of future river systems to be studied. Presently, the Umpqua, Rogue, Tillamook, and Coquille systems have been identified as the next systems to be studied in the order listed.
B. The Technical Team will develop a list of information needs and recommend a process for obtaining and evaluating the information. This may involve an evaluation of existing data and a recommendation for additional data collection to fill information gaps.
C. The Executive Team will approve or revise recommendations made by the Technical Team, and will develop strategies to distribute informational materials to potential operators and to fund necessary studies and data collection in support of the development of the watershed specific RGP/GP.

This process is agreed to by the following members of the Executive Team:

U.S. Army Corps of Engineers

OR Department of State Lands

National Marine Fisheries Service

OR Department of Environmental Quality

U.S. Fish and Wildlife Service

OR Department of Fish and Wildlife

Environmental Protection Agency

OR Dept of Land Conservation & Develop

OCAPA

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Tuesday, December 16, 2008 9:48 AM
To: 'Bob Bailey'; 'David Pratt'; Evans, Lawrence C NWP; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'; 'Jay Charland'
Cc: 'Karmen Fore'; 'Molly McCarthy'; 'Bill Yocum'; Linton, Judy L NWP
Subject: EXECUTIVE TEAM MEETING - CANCELED!!!

Importance: High

Good morning all:

Another winter storm is forecast to hit the area late Tuesday evening and into Wednesday bringing snow, rain, and possibly freezing rain. Snow is also predicted for Thursday. All this will leave the roads in a mess. Given the distances some team members have to travel, the decision has been made to cancel the Executive Team meeting currently scheduled for Thursday (Dec 18). An attempt will be made to reschedule the meeting for mid to late January. Information on the new meeting date will come later.

If you have any questions about this cancellation or rescheduling the meeting, please contact Larry or Kevin. If I have missed anyone on this email please forward the message to them. Thanks and be safe. Judy

Latcu, Misty M NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Thursday, January 08, 2009 8:35 AM
To: isaacsjon@gmail.com; Karmen; Molly (Wyden) McCarthy; Rep. Wayne Krieger
Cc: Linton, Judy L NWP; Kevin Moynahan; Joy Smith; Ted Freeman
Subject: Fw: Next gravel meeting

Hi Karmen, Molly, Jon and Wayne,

The Corps of Army Engineers and Oregon Department of State Lands has rescheduled the Inter-Agency Executive Team meeting for February the 19th at the Corps office in Portland. Are you guys available to attend this meeting? The plan is to have the first agenda item that will explain the status of the Regional General Permit/General Permit for the Chetco Pilot Project and the Umpqua River dealing with sand and gravel removal above the low water level and below the high water mark to be used for infrastructure projects in the State of Oregon.

Hope your schedule will allow you to attend this important meeting.

Bill

----- Original Message -----
From: "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>
To: "Bill Yocum" <byocum@hughes.net>
Sent: Wednesday, January 07, 2009 3:21 PM
Subject: FW: Next gravel meeting

Bill: will you be coordinating with the congressional delegates regarding this new meeting date? Judy

-----Original Message-----
From: MOYNAHAN Kevin [mailto:Kevin.Moynahan@state.or.us]
Sent: Monday, January 05, 2009 11:43 AM
To: BAILEY Bob; bill yocum; CHARLAND Jay; Craig Tuss; David Pratt; Joe_Zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Next gravel meeting

As you will recall, the December Gravel Exec team meeting was cancelled due to weather and road conditions. In discussing dates with the Corps for a rescheduled meeting, it appears that February 19th is the next available date. The meeting would be in Portland at the Corps' offices - noon to 2. The meeting would hopefully include the federal delegation staff for the briefing that was to be given at the cancelled December meeting.

Please let me know how this date and time work for you.

Thanks, Kevin

Kevin Moynahan
Assistant Director
Oregon Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer Street NE
Salem, Or 97301
503-986-5259
503-378-4844 - fax
kevin.moynahan@state.or.us

Latcu, Misty M NWP

From: Fore, Karmen [Karmen.Fore@mail.house.gov]
Sent: Friday, February 06, 2009 11:01 AM
To: McCarthy, Molly (Wyden); Bill Yocum
Cc: Linton, Judy L NWP; Ted Freeman; Jon Isaacs
Subject: RE: Exec Team mtg - congressional attendance

Bill;

I have put this on my calendar. For now, I can attend. So you know, this is a congressional in-district work period. I might get called away at some point if called upon by the congressman. I will keep you and Judy posted. Thanks for rescheduling.

Sincerely,

Karmen Fore
District Director
Congressman Peter DeFazio
405 East 8th Avenue, Suite 2030
Eugene, OR 97401
541-465-6732

From: McCarthy, Molly (Wyden) [mailto:Molly_McCarthy@wyden.senate.gov]
Sent: Friday, February 06, 2009 10:30 AM
To: Bill Yocum; Fore, Karmen
Cc: Judy Linton; Ted Freeman; Jon Isaacs
Subject: RE: Exec Team mtg - congressional attendance

Hi Bill – Thank you again for setting this up. It is looking as if I won't be able to make it up there for the meeting. I am wondering, is there a way to be conference in by phone during the meeting?

****

Molly McCarthy Skundrick

Office of U.S. Senator Ron Wyden

Field Representative

Ph: 541-858-5122 Fax: 541-858-5126

From: Bill Yocum [mailto:byocum@hughes.net]
Sent: Friday, February 06, 2009 10:15 AM
To: Karmen; McCarthy, Molly (Wyden)
Cc: Judy Linton; Ted Freeman; Jon Isaacs
Subject: Fw: Exec Team mtg - congressional attendance

Hi Karmen and Molly,

The Congressional Briefing by the Corps, EPA, USFWS, NMFS, DSL, DEQ, ODFW, DLCD, OCAPA has been rescheduled for February 19th. This briefing focuses on the Chetco Pilot Project dealing with sand and gravel supply for the maintenance and improvement of our infrastructure while maintaining the ecological integrity of our environment.

This meeting is currently scheduled in Portland at the Corps Regional Office in the Duncan Plaza beginning at 10:00 am (333 S.W. First Ave. and is also accessed by the MAX Light Rail system which stops directly at the front entrance of Duncan Plaza "Oak Street/SW 1st Ave").

Judy Linton (Corps employee) needs to know if you can make this Congressional Briefing so she can inform Security. Security will make a temporary badge for accessing the meeting. I would be happy to meet you at the 1st Street Security Desk for directing you to the meeting room. If you are available to attend this meeting then please let Judy know. Her email address is Judy.L.Linton@usace.army.mil. Thanks you so much for your hard work in helping to balance our social economic effects with our environmental values. This is what makes us a great country.

Bill

----- Original Message -----

From: Linton, Judy L NWP <mailto:Judy.L.Linton@usace.army.mil>

To: bill yocum <mailto:byocum@hughes.net>

Sent: Tuesday, February 03, 2009 2:14 PM

Subject: Exec Team mtg - congressional attendance

Hi, Bill: wanted to check with you regarding congressional representation at the Executive Team meeting on Feb 19. I know someone from Merkley's office was going to attend but do not have a specific name. I found the message you forwarded to me from Jon Isaacs and will contact him to get the name of the person attending. Do you know if anyone from Wyden or DeFazio's office is confirmed? Thanks for your help - Judy

Latcu, Misty M NWP

From: MOYNAHAN Kevin [Kevin.Moynahan@state.or.us]
Sent: Wednesday, February 18, 2009 11:40 AM
To: BAILEY Bob; bill yocum; CHARLAND Jay; Craig Tuss; David Pratt; Joe_Zisa@fws.gov; GERMOND Jon P; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; szerlog.michael@epa.gov; Monty_Knudsen@fws.gov; PUENT Sally; Rich@OCAPA.net; relayer@twcontractors.com; ROSE Jennifer; SNOW Patty; tedf@hughes.net; Vallette.Yvonne@epamail.epa.gov
Subject: Tentative Agenda for Thursday Gravel Exec Team Meeting

The main focus of the meeting is going to be on where the current studies are on the Chetco and Umpqua systems as well as the status of state/federal permitting for operators on these systems.

- Status of USGS studies

- Discussion of timelines for completing tasks - (all agencies)

- Identification of specific info needed to complete reviews

Umpqua River

- Status of USGS studies

- Discussion of estimated timeline for completing end product

Other items you would like discussed - please feel free to bring those with you to the meeting.

Meeting is noon to 2pm at the USACE offices in Portland - as set forth in earlier mail from Judy Linton copied again here:

A reminder about the Executive Team meeting scheduled for February 19 at the Corps offices in Portland from 12 to 2. We will be meeting in the HDC Conference room on the 8th floor. After you have checked in at the security station for your visitor badge, take the elevators to the 8th floor, take a left off the elevators and then a right at the next hallway – the conference room is on the left side of the hall.

A teleconference line has also been set up for those unable to attend the meeting in person: (888) 296-1938; participant code 731944.

Kevin Moynahan
Assistant Director
Oregon Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer Street NE
Salem, Or 97301
503-986-5259
503-378-4844 - fax
kevin.moynahan@state.or.us

From: MOYNAHAN Kevin
To: Evans, Lawrence C NWP; Linton, Judy L NWP
Subject: Exec team meeting on gravel
Date: Wednesday, February 18, 2009 9:44:22 AM

Larry/Judy - it would seem the meeting Thursday is going to focus on 2 main issues that are interrelated: 1) the USGS studies on the Chetco and South Umpqua and; 2) status of state and federal permitting for those and other systems. Other items for discussion could include OCAPA's state legislative proposal concerning funding for studies and staff at DSL to manage gravel issues and the opportunity at the state/federal/industry level to provide funding for additional system studies.

Please let me know what you think so I can get the agenda out today.

Thanks, Kevin

Kevin Moynahan
Assistant Director
Oregon Department of State Lands
Wetlands and Waterways Conservation Division
775 Summer Street NE
Salem, Or 97301
503-986-5259
503-378-4844 - fax
kevin.moynahan@state.or.us

Latcu, Misty M NWP

From: MOYNAHAN Kevin [kevin.moynahan@state.or.us]
Sent: Wednesday, April 08, 2009 5:35 PM
To: bob.bailey@state.or.us; bob lobdell; bill yocum; Petersen, Erik S NWP; jay.charland@state.or.us; joe_zisa@fws.gov; jon.p.germond@state.or.us; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; monty_knudsen@fws.gov; Nina Deconcini; SNOW Patty; David Pratt; relayer@twcontractors.com; rich@ocapa.net; PUENT Sally; szerlog.michael@epa.gov; tedf@hughes.net; vallette.yvonne@epamail.epa.gov
Subject: Agenda for gravel meeting Thursday

As a reminder - the Exec team meeting will be held here at DSL from noon - 2 on Thursday 4/9.

For those needing to attend by phone - please send me your number - Monty - I have yours.

Here is an agenda - participants are free to add other items as they like. See you Thursday.

Kevin

1) Update on status of USGS Chetco and Umpqua investigations

2) - Discussion and reinforcement of agency commitments to work ahead using preliminary USGS phase two details on Chetco to make decision prior to 2009 in-water window

3) Discussion of where agencies are in relation to review and decision making on the other systems

4) - Bigger picture, what is next in terms of watershed priorities, and discussion about how parallel efforts might be funded - or how work might be resourced (other than USGS)

Kevin P. Moynahan
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http://www.oregonstatelands.us/

April 9, 2009

Gravel Meeting Exec Team 12pm –2:10pm

Attendees:

Name	Affiliation	Email Address
Nina DeConcini	DEQ	nina.deconcini@state.or.us
Col Steven Miles	COE	Steven.miles@usace.army.mil
Erik Peterson	COE	Erik.s.petersen@usace.army.mil
Kevin Moynahan	DSL Assistant Director	Kevin.moynahan@dsl.state.or.us
Bill Yocum	Freeman Rock	byocum@hughes.net
George Edwards	Freeman Rock	gvedwards@hughes.net
Bob Lobdell	DSL	Robert.lobdell@dsl.state.or.us
Kelly Guido	Umpqua Sand & Gravel	kelly@umpquasand.com
Joy Smith	Umpqua Sand & Gravel	joy@umpquasand.com
Judy Linton	COE	Judy.l.linton@usace.army.mil
Rich Angstrom	OCAPA	rich@ocapa.net
Sally Puent	DEQ	Sally.puent@deq.state.or.us

Attendees Telephone Conference:
Monty Knudsen: USFWS
Kim Kratz: NOAA/NMFS
Jay Charland: DLCD
David Pratt: Curry County

Introductions

Agenda:

1. Update on the status of USGS Chetco and Umpua Investigations:

Colonel Miles met with two different gravel operators at different sites on the Umpqua River. The meeting was very informative and provided insight to the process. The operators would like the state agencies to provide certainty for their projects. Colonel Miles appreciates the full collaboration among all the agencies.

Judy Linton from the COE discussed that Phase II study on the Chetco is now complete. The USGS draft release is scheduled for May 7, 2009. The final public study should be available by late May or early June 2009. Phase 1 of Umpqua study is complete and will soon be posted on USGS website. USGS data collection went smoothly for both the Chetco and the Umpqua studies.

→ draft report rec'd 8 May
final peer rev. cmts due 29 May; est publish of final rpt 19 JUN

- Phase 1 rept has been posted
- Phase 2 efforts underway; SOW to be prepared
  - provided late June or early July

2. Discussion and reinforcement of agency commitments to work ahead using preliminary USGS phase two details on Chetco to make decisions prior to 2009 in-water window.

Kevin Moynahan, DSL, proposes reviewing USGS data before the information is made public - doing this would allow the agencies to get a jump on reviewing the information before the in-water work period.

Rich Angstrom voiced concerns about USGS and the agencies being the only parties that can review the modeling and make the decisions while the industry is excluded on both the executive and technical teams from being involved. Rich thinks it would make sense for USGS to include Chris Lidstone, a technical expert, as a peer reviewer on the Chetco phase II study.

Joy Smith voiced concerns that Chris Lidstone (consultant), who is an expert on the modeling and the data set, is not being included in technical discussions.

Jay Charland voiced concerns about Chris Lidstone being able to keep the peer review process confidential and not disclose any information to the people who employ him - OCAPA.

David Pratt agreed with Jay Charland, regarding the possible conflict of interest that Chris Lidstone may face.

Nina DeConcini asked questions regarding if USGS would even allow Chris Lidstone as a peer reviewer.

Erik Petersen stated that this process is a partnership with state agencies and stakeholders and has worked well to this point. It is in the interest of all parties to continue working collaboratively.

Kevin Moynahan makes a motion that DSL and the COE representative; Erik Petersen will ask USGS at an April 10, 2009 meeting, if it would be acceptable to have Chris Lidstone sit on the peer review committee. Nina asked for an amendment of the motion, the members of the team supported, that would delegate Kevin and Erik to make the request to USGS to have Chris Lidstone sit on the peer review committee but also discuss with USGS the concerns of some members of the Exec Team related to that being a possible conflict of interest. Kevin and Erik will discuss the executive gravel teams concerns and also suggest that Janine Castro sit on the peer review group.

Joy Smith seconds the motion

Gravel Exec Team votes and everyone agreed.

Judy Linton said the Tech team would be discussing the result of their prior meeting on 4-22-2009.

Kevin Moynahan and Erik Peterson will attend the next Tech team meeting on 4-22-2009. They want to find out specific information and provide direction from the Exec Team so the teams can work together on meeting timelines.

3. Discussion of where agencies are in relation to review and decision making on the other systems.

Developing studies for other systems will depend on timing and money available. Kevin Moynahan said the funding for other studies is looking bleak this year.

DSL currently has 48 active in-water commercial gravel permits and it intends to continue to issue these permits unless other issues develop.

Erik Petersen talked about the COE developing a process here in Oregon that could be applied to other parts of the country. There is no certainty of additional funds available.

Kevin Moynahan and Rich Angstrom talked about a bill proposal by OCAPA for DSL to receive and use $$ for initial and annual sediment studies.

George Edwards suggests that since ODOT will be receiving funding from the government stimulus package to build and improve our roads, that gravel supply will also be needed for materials. George suggested asking ODOT if they have $$ to contribute to river studies. Kevin M said he would pursue this issue with ODOT.

Judy Linton said the USGS plans on completing fieldwork for the Umpqua study by the end of summer 2009 but the draft report won't be available until March 2010.

Meeting concludes: the next Gravel Exec team meeting will be tentatively held on May 14, 2009 from 12 pm –2 pm at the Portland COE office

Latcu, Misty M NWP

From: MOYNAHAN Kevin [kevin.moynahan@state.or.us]
Sent: Wednesday, April 15, 2009 7:07 AM
To: bob lobdell; bill yocum; Petersen, Erik S NWP; George Edwards; BAILEY Bob (Bob.Bailey@state.or.us); CHARLAND Jay (Jay.Charland@state.or.us); Jon Germond (Jon.P.Germond@state.or.us); SNOW Patty; joe_zisa@fws.gov; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; monty_knudsen@fws.gov; Nina Deconcini; David Pratt; relayer@twcontractors.com; rich@ocapa.net; PUENT Sally; szerlog.michael@epa.gov; tedf@hughes.net; vallette.yvonne@epamail.epa.gov
Subject: FW: April 9, 2009
Attachments: Gravel notes 4-8-09 (2).doc

Here are the final minutes from the Exec team meeting last week with edits submitted by reviewers integrated.

Kevin

April 9, 2009

Gravel Meeting Exec Team 12pm –2:10pm

Attendees:

Name	Affiliation	Email Address
Nina DeConcini	DEQ	nina.deconcini@state.or.us
Col Steven Miles	COE	Steven.miles@usace.army.mil
Erik Peterson	COE	Erik.s.petersen@usace.army.mil
Kevin Moynahan	DSL Assistant Director	Kevin.moynahan@dsl.state.or.us
Bill Yocum	Freeman Rock	byocum@hughes.net
George Edwards	Freeman Rock	gvedwards@hughes.net
Bob Lobdell	DSL	Robert.lobdell@dsl.state.or.us
Kelly Guido	Umpqua Sand & Gravel	kelly@umpquasand.com
Joy Smith	Umpqua Sand & Gravel	joy@umpquasand.com
Judy Linton	COE	Judy.l.linton@usace.army.mil
Rich Angstrom	OCAPA	rich@ocapa.net
Sally Puent	DEQ	Sally.puent@deq.state.or.us

Attendees Telephone Conference:
Monty Knudsen: USFWS
Kim Kratz: NOAA/NMFS
Jay Charland: DLCD
David Pratt: Curry County

Introductions

Agenda:

1. Update on the status of USGS Chetco and Umpua Investigations:

Colonel Miles met with two different gravel operators at different sites on the Umpqua River. The meeting was very informative and provided insight to the process. The operators would like the state agencies to provide certainty for their projects. Colonel Miles appreciates the full collaboration among all the agencies.

Judy Linton from the COE discussed that Phase II study on the Chetco is now complete. The USGS draft release is scheduled for May 7, 2009. The final public study should be available by late May or early June 2009. Phase 1 of Umpqua study is complete and will soon be posted on USGS website. USGS data collection went smoothly for both the Chetco and the Umpqua studies.

2. Discussion and reinforcement of agency commitments to work ahead using preliminary USGS phase two details on Chetco to make decisions prior to 2009 in-water window.

Kevin Moynahan, DSL, proposes reviewing USGS data before the information is made public - doing this would allow the agencies to get a jump on reviewing the information before the in-water work period.

Rich Angstrom voiced concerns about USGS and the agencies being the only parties that can review the modeling and make the decisions while the industry is excluded on both the executive and technical teams from being involved. Rich thinks it would make sense for USGS to include Chris Lidstone, a technical expert, as a peer reviewer on the Chetco phase II study.

Joy Smith voiced concerns that Chris Lidstone (consultant), who is an expert on the modeling and the data set, is not being included in technical discussions.

Jay Charland voiced concerns about Chris Lidstone being able to keep the peer review process confidential and not disclose any information to the people who employ him - OCAPA.

David Pratt agreed with Jay Charland, regarding the possible conflict of interest that Chris Lidstone may face.

Nina DeConcini asked questions regarding if USGS would even allow Chris Lidstone as a peer reviewer.

Erik Petersen stated that this process is a partnership with state agencies and stakeholders and has worked well to this point. It is in the interest of all parties to continue working collaboratively.

Kevin Moynahan makes a motion that DSL and the COE representative; Erik Petersen will ask USGS at an April 10, 2009 meeting, if it would be acceptable to have Chris Lidstone sit on the peer review committee. Nina asked for an amendment of the motion, the members of the team supported, that would delegate Kevin and Erik to make the request to USGS to have Chris Lidstone sit on the peer review committee but also discuss with USGS the concerns of some members of the Exec Team related to that being a possible conflict of interest. Kevin and Erik will discuss the executive gravel teams concerns and also suggest that Janine Castro sit on the peer review group.

Joy Smith seconds the motion

Gravel Exec Team votes and everyone agreed.

Judy Linton said the Tech team would be discussing the result of their prior meeting on 4-22-2009.

Kevin Moynahan and Erik Peterson will attend the next Tech team meeting on 4-22-2009. They want to find out specific information and provide direction from the Exec Team so the teams can work together on meeting timelines.

3. Discussion of where agencies are in relation to review and decision making on the other systems.

Developing studies for other systems will depend on timing and money available. Kevin Moynahan said the funding for other studies is looking bleak this year.

DSL currently has 48 active in-water commercial gravel permits and it intends to continue to issue these permits unless other issues develop.

Erik Petersen talked about the COE developing a process here in Oregon that could be applied to other parts of the country. There is no certainty of additional funds available.

Kevin Moynahan and Rich Angstrom talked about a bill proposal by OCAPA for DSL to receive and use $$ for initial and annual sediment studies.

George Edwards suggests that since ODOT will be receiving funding from the government stimulus package to build and improve our roads, that gravel supply will also be needed for materials. George suggested asking ODOT if they have $$ to contribute to river studies. Kevin M said he would pursue this issue with ODOT.

Judy Linton said the USGS plans on completing fieldwork for the Umpqua study by the end of summer 2009 but the draft report won't be available until March 2010.

Meeting concludes: the next Gravel Exec team meeting will be tentatively held on May 14, 2009 from 12 pm –2 pm at the Portland COE office

P:\Gravel notes 4-8-09.doc

Petersen, Erik S NWP

From: Petersen, Erik S NWP
Sent: Tuesday, May 12, 2009 8:31 AM
To: Ellis, Karla G NWP; MOYNAHAN Kevin; Linton, Judy L NWP
Subject: very draft agenda for thurs

Let's discuss today. Please apply your critical thinking on this. Thanks - esp

1) Welcome & introductions

2) Recap of last meeting notes

3) Technical team progress update

4) Overview of monitoring conditions based on USGS study

5) Comments on monitoring conditions

6) Current path forward milestones & schedule for GP decision — County permit reqs?

7) General discussion
→ Prioritization of River System studies
— priority of river systems for future study

8) Schedule next meeting - adjourn

Erik S. Petersen
Chief, Regulatory Branch
Operations Division
US Army Corps of Engineers, Portland District
333 SW 1st Av
Portland, OR 97204

503.808.4370 (w)
541.510.9024 (c)

erik.s.petersen@us.army.mil

- Kevin will not be @ mtg : Lori will attend

@ Tech Team mtg
- what are steps forward + critical dates

next mtg 6/11 or 6/18 @ DSL

Gravel Tech Team Mtg - Agenda
May 12, 2009 (2:00 – 4:00)
Corps Offices

1. Monitoring Conditions proposal – discussion and finalization

2. Agency steps to decision and critical dates
   - Water Quality Certification → Public meeting notice 2wks after mtg (35-day rev.)
   - Coastal Zone Concurrence → concurrent w/DEQ
   - ESA consultation
   - DSL public review of proposed GP → after USGS rept publish
   - Public Meeting announces rept. link + meeting
   ↳ 2wks after rpt published

3. Discussion of RGP/GP Requirements/Thresholds
   - need to very clearly spell out when mining can/can not occur
   - submittal requirements prior to mining
   - Adaptive Management process

4. Discussion of draft Sediment Transport Report
   - estimated schedule for final release
   - best case is 12 June
   - reality is 19 June

Linton, Judy L NWP

From: Linton, Judy L NWP
Sent: Wednesday, May 13, 2009 2:56 PM
To: 'Bob Bailey'; 'David Pratt'; Petersen, Erik S NWP; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'; 'Jay Charland'; 'byocum@hughes.net'
Cc: 'WARNER-DICKASON Lori'; Linton, Judy L NWP
Subject: Exec Team mtg particulars

Attachments: Chetco River Gravel_prelim monitoring req_final.doc

Chetco River Gravel_prelim mon..

Here is the draft agenda for the May 14 Exec Team meeting (noon to 2:00 at the Corps offices, 8th floor Regulatory Branch Conference Room).
Call in number is: (888) 285-4585; passcode 942219. Attached is the Tech Team's preliminary recommendation of monitoring requirements (agenda items 4 and 5).

Draft Agenda:

1) Welcome & introductions

2) Recap of last meeting notes

3) Technical team progress update

4) Overview of monitoring conditions based on USGS study

5) Comments on monitoring conditions

6) Current path forward milestones & schedule for GP decision

7) Prioritization of river system studies Tillamook, Rogue, Coquille Elk/Sixes

8) General discussion

9) Schedule next meeting - adjourn — frame-out priorities

Let me know if any questions - Judy

Erik proposing next Executive Team mtg
@ Public Info meeting
- would like separate USGS presentation of PRC.
for Exec. Team

13 May 2009

Chetco River Gravel: Technical Team Preliminary Concept of Monitoring Requirements/Data Needs – For Executive Team Consideration

Recently the Corps and DSL co-chairs of the Executive Team sent an email to the Technical Team regarding the pre-peer reviewed draft of the USGS Chetco Study. The email reiterated that USGS released this as a courtesy to the agencies, but that it was not to be shared publicly. While being sensitive to USGS policy, the email also encouraged the Tech Team to share with industry initial thoughts and preliminary recommendations on potential conditions for the RGP/GP currently under consideration.

In continuation of the cooperative approach, the Tech Team offers the following ideas from our on-going discussions as an update which industry may have interest in considering.

The RGP/GP concept offers a unique opportunity to revisit data needs and monitoring requirements on a broader, system-wide scale. Site specific surveys that occur multiple times per year have previously been required in individual permits as a mechanism for documenting removal volumes and interpreting potential impacts. Unfortunately, this site specific information is not adequate for detection of stream reach or system-wide changes, and is onerous on individual applicants both in effort and cost expended (applicants report annual costs of $15,000 to $20,000).

The USGS approach to the Phase II Chetco study has provided a useful overview of the Chetco River system. The Tech Team agrees that building on this study with similar data collection efforts over time will enable refinement of the interpretations and more effective future adaptive management. Additionally, the Tech Team believes that a shift away from individual surveys in favor of system-wide evaluations will reduce expense and effort on individual operators who can, instead, pool resources to acquire data. These data will provide better opportunity for interpretation of system-wide adjustments, while also being much less expensive.

Preliminary Tech Team discussions regarding on-going data acquisition include:

1. Annually conduct two LIDAR flights (one in June/July and one in Sept/Oct) along the entire lower Chetco system (~RM 0-12). If no material is removed from the system, conduct one flight in June/July.

- Purpose is to measure sediment recruitment and removal, and overall channel conditions.
- Relatively inexpensive, high quality topographic data – cost figures from the current DOGAMI LIDAR acquisition are ~$549/square mile, which translates to ~$6000/flight for the lower Chetco.

make sure clear that no profiles in extreme dry year

- At low water, LIDAR would capture riffle crests, but lack pool filling information and other habitat specific biological indicators.

2a. Conduct longitudinal profiles of the channel thalweg for the lower Chetco (~RM 0-12) after two years with peak flows of ~10,000 cfs (several years could pass before this occurs) or after any year with a peak flow of ~45,000 cfs.
2b. Conduct point bar analysis at locations from USGS study during the same years as longitudinal profiles are taken.

- Provision of more specific information on individual pools and other biological indicators, as well as ground-truthing of elevational changes.
- This could be accomplished over the course of a couple of days by a qualified contractor with costs ranging from ~$6000 to $15,000. — what are requirements of qualified contractor?

3. Annual stream flow analysis utilizing gage data and other applicable information to more accurately estimate annual sediment transport rates.

- Costs should be minimal given that the models are already constructed; data from the previous year can be input into the existing models to predict annual transport rates.

4. Annually conduct bedload sampling at the USGS streamflow gaging station (one site visit per year).

- Purpose is to evaluate reliability of the model and establish site specific bedload transport curve. Takes away the uncertainty of the model.

While the Tech Team agreed that a system-wide approach is both more desirable and economically feasible, we also recognize that there still must be a standard method for confirming actual volumes extracted at individual sites; whether this can be determined with sufficient accuracy from the proposed LIDAR data sets or another on the ground measure needs further determination.

Tech Team needs to refine

As noted in the Public Notice for the RGP/GP, Adaptive Management has been called out as an appropriate mechanism for making year to year determinations on potential gravel removal volumes and methods. Establishment and funding of an agency-led body to house and analyze the above data sets, so that adaptive determinations based on the collected body of data can be made, will be an important component of a successful RGP/GP.

→ Kevin, Erik + Rich to meet and discuss

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Wednesday, May 13, 2009 2:56 PM
To: 'Bob Bailey'; 'David Pratt'; Petersen, Erik S NWP; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'; 'Jay Charland'; 'byocum@hughes.net'
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8) General discussion

9) Schedule next meeting – adjourn

Let me know if any questions - Judy

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PRE-COORDINATION - VERY ROUGH DRAFT...

Updated Timeline for Chetco River Gravel Mining Regional General Permit Process - 13May09

Task	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct 09	Nov 09
Regional General Permit								
Continue Prep of RGP/GP								
COE/DSL Joint Public Notice			16-Jun	16-Jul				
Public Informational Meeting			week of 29 June					
Review Cmts/Revise RGP/GP				17-Jul	30-Aug			
Final Decision						1-Sep		
CZM Determination								
COE sends CZM letter to DLCD			19-Jun					
DLCD Prep Consistency Det			19-Jun	16-Jul				
DLCD Public Review Process				16-Jul	17-Aug			
Issue CZM Decision						1-Sep		
Water Quality Certification								
DEQ Prep WQ Decision								
DEQ Public Review (35 Days)				16-Jul	20-Aug			
Issue WQC Decision						1-Sep		
ESA Consultation								9 NOV 09 ISS BIOP
Initiate Formal Consultation			26 Jun					
NMFS Reviews BA/Preps BiOp			26 Jun					
NMFS Issues BiOp						1-Sep		NMFS wants 135 days no less
FWS Coordination Act								
Coordination Process								
FWS Comment on Public Notice			16-Jun	16-Jul				
Sediment Transport Study								
Draft USGS Report to COE		8-May						
Peer Review Cmts Due		29-May						
Final Report Published			19-Jun					
Tech Team Review								
review of USGS work								
Develop Prelim Recommendations*				10-Jul				
Develop Conditions/methods					20-Aug			

*Preliminary recommendation will be based on review of the USGS report.

PRELIMINARY INDICATION 15 JULY

DECISION SEP 1

14 MAY 2009

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Tuesday, July 14, 2009 4:20 PM
To: Petersen, Erik S NWP; 'Kim Kratz'; 'nancy.johnson@noaa.gov'; 'Kevin Moynahan'; 'Sally Puent'; 'deconcini.nina@deq.state.or.us'; 'Monty Knudsen'; 'Jon Germond'; 'Michael Szerlog'; 'Rich Angstrom'; 'Joy Smith'; 'Ted Freeman'; 'David Pratt'
Cc: 'Jay Charland'; 'WARNER-DICKASON Lori'; 'LOBDELL Robert'; 'Jim O'Connor'; 'J. Rose Wallick'; Linton, Judy L NWP; 'byocum@hughes.net'; 'Robert Elayer'
Subject: Next Executive Team mtg - Chetco River Gravel

Folks: An Executive Team meeting has tentatively been scheduled for August 13 from 12-2 at DSL offices in Salem. The agenda will focus on two items:

1) Presentation from USGS - results of Chetco Phase II Study
- An "openfile" version of the study is expected to be available by the first week of August. This document can be released to the public, but is not the final technical document - however content will not change between the openfile document and the official technical document.
- I'll make arrangements for all to get this document as soon as available.

2) Discussion on content and focus of a September workshop to discuss the Chetco River
- initial concept is to have a joint Executive-Technical team workshop to understand the USGS Chetco Phase II report, review issues and discuss means to avoid, minimize and mitigate impacts. Erik, Kevin and Rich initiated dialogue with facilitators (Gail Achterman) to help us through this process - the workshop is targeted for September 24-25. The workshop will be intended to produce an advisory document for the Technical Team in defining the action and conditions, and to build understanding among all Gravel Initiative members through dialogue.

Please mark your calendars for both the August 13 Executive Team meeting and the September 24-25 workshop. If you need to participate by phone on August 13 please let Kevin Moynahan or myself know.

Judy Linton (on behalf of Erik Petersen and Kevin Moynahan)
503-808-4382

Latcu, Misty M NWP

From: MOYNAHAN Kevin [kevin.moynahan@state.or.us]
Sent: Friday, July 17, 2009 9:22 AM
To: Petersen, Erik S NWP; GERMOND Jon P; Joy Smith; Linton, Judy L NWP; Kevin Moynahan; Kim Kratz; Monty Knudsen; nancy.johnson@noaa.gov; nina.deconcini@state.or.us; David Pratt; Rich Angstrom; Sally Puent; Michael Szerlog; Ted Freeman
Cc: LOBDELL Robert; byocum@hughes.net; CHARLAND Jay; WARNER-DICKASON Lori; Jim O'Connor; Robert Elayer; J. Rose Wallick
Subject: RE: Next Executive Team mtg - Chetco River Gravel

Good morning all - after consideration of Exec Team calendars, the date of the Exec Team meeting has been shifted to August 11th. Still here at DSL in the Mill Creek Room - noon - 2pm.

Two additional items to consider on the agenda: first, per Jay Charland at DLCD - should designated members of the public or interest groups be invited to participate in some fashion in the proposed workshop.
Second, per Ted Freeman, has adequate attention been given to considering the social, economic and habitat effects of a reduction or elimination of gravel extraction - particularly as that may impact the lower reaches of the Rogue and the Chetco where it appears large amounts of material have accumulated causing a choking effect and shallowing of the river in those areas.

Thank you and see you there.

Kevin

-----Original Message-----
From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Tuesday, July 14, 2009 4:20 PM
To: Petersen, Erik S NWP; Kim Kratz; nancy.johnson@noaa.gov; Kevin Moynahan; Sally Puent; deconcini.nina@deq.state.or.us; Monty Knudsen; GERMOND Jon P; Michael Szerlog; Rich Angstrom; Joy Smith; Ted Freeman; David Pratt
Cc: CHARLAND Jay; WARNER-DICKASON Lori; LOBDELL Robert; Jim O'Connor; J. Rose Wallick; Linton, Judy L NWP; byocum@hughes.net; Robert Elayer
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Judy Linton (on behalf of Erik Petersen and Kevin Moynahan)
503-808-4382

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Thursday, August 06, 2009 10:37 AM
To: Linton, Judy L NWP; 'CYRIL Alex'; 'Chuck Wheeler'; 'Patty Snow'; 'Yvonne Vallette'; 'LOBDELL Robert'; 'Janine Castro'; 'Jay Charland'
Cc: 'WARNER-DICKASON Lori'; 'J. Rose Wallick'; 'Jim O'Connor'
Subject: RE: Gravel Tech Team mtg
Attachments: Tech Team Mtg agenda 080509.doc; Chetco project specific issues 5Aug09.doc

Folks -

Two documents attached for our meeting on the 12th:
1. Agenda
2. Chetco River Issues document - this document is primarily a 'cut and paste' of extraction methods and potential conditions from the November 2008 Corps/DSL public notice and the 13 May 2009 Monitoring Requirements/Data Needs recommendation paper prepared by the Tech Team. This document also identifies some issues that need to be resolved regarding adaptive management and removal thresholds.

Please review document 2 and come to the meeting prepared to discuss the following:
a. Each agency identify methods of operation or other issues that are deal killers.
b. Each agency identify methods of operation or other issues that need revision.
c. Create a list of issues that need to be discussed related to adaptive management and gravel removal thresholds.

Here are the conference line particulars for those needing to participate by phone: USA Toll-Free: (888)296-1938; PARTICIPANT CODE: 333343

Do folks want to have a USGS presence at the meeting to assist in any questions we may have? Rose has indicated she is more than willing to participate if we would like - provided the baby stays put for awhile longer!

Let me know if questions. Judy

-----Original Message-----
From: Linton, Judy L NWP
Sent: Thursday, July 23, 2009 4:07 PM
To: 'CYRIL Alex'; 'Chuck Wheeler'; 'Patty Snow'; 'Yvonne Vallette'; 'LOBDELL Robert'; 'Janine Castro'; 'Jay Charland'
Cc: 'WARNER-DICKASON Lori'; Linton, Judy L NWP
Subject: RE: Gravel Tech Team mtg

Looks like the best day for the most folks is August 12th - let's plan on meeting from 1-3; I'll have a phone line for those needing to call in. Lori and I will prepare some info (proposed conditions, thresholds, etc) and provide to all before the meeting to get the discussions going. Judy

Tech Team Mtg
August 12, 2009
Agenda

1. Chetco Updates and old business:

    a. USGS Study

    b. Workshop

    c. RGP and GP status

    d. Public Meeting for USGS study briefing? Early September?

2. Specifics of the RGP and GP (identification of issues to address). Group review and discussion of Chetco specific issues (attached).

    a. Each agency identify methods of operation or other issues that are deal killers.
    b. Each agency identify methods of operation or other issues that need revision.
    c. Create a list of issues that need to be discussed at the workshop related to adaptive management and gravel removal thresholds.

3. Next steps, next meeting

5 Aug 09

CHETCO RIVER
Project Specific Issues to Address

EXTRACTION METHODS

- Bar Removal. Sand and gravel removal would be located on large gravel bar adjacent to the river channel. The width, depth, and cross section shape would be based on adjacent river channels. (A Typical Diagram of the Bar Removal Technique is shown on Figure 5).
    a. Head of bar. Protect the upper 1/3 of the bar from any excavation activities.
    b. Lateral Buffer. The area between the low flow channel and the active mining area would be one foot elevational difference. Buffer widths (horizontal distance) will be set based on site specific conditions.
    c. Excavated length. The lower 2/3 of the gravel bar would be shaped with a slope towards the river plus a slope towards the downstream direction of the river.
    d. Excavated head slope. This portion of the excavated area would be no steeper than 10:1 (horizontal to vertical).

- Horseshoe. Horseshoe construction would be located on large gravel bar adjacent to the river channel. The width, depth, and cross section shape would be based on adjacent river channels. (A Typical Diagram of the Horeshoe Construction method is shown in Figure 6).
    a. Head of bar. Protect the upper 1/3 of the bar from any excavation activities.
    b. Lateral buffer. The set-back area between the low flow channel and the active mining area will be set based on site specific conditions.
    c. Excavated backwater length. Maximum excavated backwater length is 2/3 of the total length of the bar feature.
    d. Excavated backwater area. The area of the excavated backwater would be constrained by the established buffers except on the lower end where it would be designed to breach with over-topping during the fall and winter freshets. The depth of the backwater bottom would be above the low water level except for a narrow deep channel. This narrow deep channel would have a width of less than 10% of the width of the bar. The maximum depth of the narrow deep channel would be the same as the deepest part of the active river channel. The length of the narrow deep channel would have a maximum excavated length of 1/2 of the bar feature.
    e. Excavated backwater head slope. This portion of the excavated backwater area would be no steeper than 10:1 (horizontal to vertical).
    f. Excavated side slopes. This portion of the excavated backwater area would be no steeper than 4:1 (horizontal to vertical).

- Alcove. Alcove construction would be located on the downstream end of the North Fork Chetco Gravel Bar (see the Freeman Bar Location Map, Figure 1). The purpose would be to increase vertical structure or diversity to this reach of the river while relieving the hydrologic pressures of the confluence from the North Fork of the Checto with the mainstem of the River. The width, depth, and cross section shape will be based on the adjacent river channel. The maximum depth will be the same as the deepest part of the active river channel. The excavated side slopes will be no steeper than 4:1 (horizontal to vertical); the shape would curve along the alignment of the old channel. The downstream buffer of the alcove will have a portion that is designed to breach when over-topping occurs during the fall and winter freshets.

- Backwater or trench construction. The width, depth, and cross section shape would be based on adjacent river channels. The maximum depth would be no deeper than the deepest part of the active river channel. (A Typical Diagram of the Backwater/Trench Construction Method is shown in Figure 7).
    a. Lateral buffers. The set-back area between the low flow channel and the active mining area would be no less than 20 feet from the active channel. Other lateral buffers may be set based on site specific conditions.
    b. Excavated backwater length. Maximum excavated backwater length would be within 20' of the head of bar.
    c. Excavated backwater area. The area of the excavated backwater would be constrained by the established buffers except on the lower end where it would be designed to breach with over-topping during the fall and winter freshets.
    d. Excavated backwater head slope. This portion of the excavated backwater area would be no steeper than 4:1 (horizontal to vertical).
    e. Excavated side slopes. This portion of the excavated backwater area would be no steeper than 4:1 (horizontal to vertical).

- Small ponds. Two small ponds of approximately three acres each could be constructed near the high-water mark on the south side of upper Freeman Bar (see Freeman Bar Location Map, Figure 1). Because of the elevation/location of these small ponds the location would be on lands where DOGAMI and DSL both have jurisdiction. Volume removed would be around 20,000 CY per pond.

  The intent is to use this method only during times of extreme drought periods, when the annual return of sand and gravel is not adequate to supply the needs of the local communities. The ponds would be constructed well away from the wetted channel and as such would not interfere with low flow habitat. The maximum depth would be the no deeper than the deepest part of the active river channel. The shape would curve along the alignment of the old channel. Excavated side slopes would be no steeper than 4H:1V and any vegetation cleared during construction of the ponds would be placed in the ponds.

- Pit Extraction behind Protective Berm. This method has been used at Tidewater's estuary site for over 35 years. The general procedure is to construct a protective berm during low tide events on the river side of the extraction site. The berm is at a height sufficient to keep water from flowing into the extraction area during high tide events. Once the berm is in place, the extraction process can take place safely, even during tidal fluctuations. The area behind the protective berm is dug to a depth no deeper than the deepest part of the river channel. After the extraction is complete and the turbidity in the pool settles, the berm is removed and the pit is opened to the river at both ends.

  This described extraction plan is similar to the backwater or trench construction method. The excavation is confined to the lower 2/3 of the gravel bar length where naturally occurring alcoves generally form. These alcoves provide a deep, slow water refuge for juvenile salmonids during moderate to high velocity flows.

MONITORING REQUIREMENTS

- Monitoring during construction.

1. Vehicle staging areas will be designated for cleaning, maintenance, refueling, and monitoring for petroleum leaks and repairs. This staging area will be no closer than 150' from any water. All equipment will be cleaned before starting the removal season. Daily inspection will be preformed on all vehicles for fluid leaks. Any leaks detected will be repaired before leaving the staging area to perform removal activities. Documented inspections will be logged in a record that will become part of the post-harvest report.

2. Established photo points with pictures being taken once a week during the removal season. The photo points with pictures will become part of the post-harvest report.

3. Turbidity monitoring will be conducted and recorded every four hours either visually or with a turbidimeter during the removal operations. (*Specific turbidity monitoring requirements will be developed as part of the RGP process and are expected to be contained in any water quality certification issued by the Oregon Department of Environmental Quality*).

4. A post-harvest report will be completed by the end of December following the removal season.

- Monitoring for Adaptive Management.

1. Annually conduct two LIDAR flights (one in June/July and one in Sept/Oct) along the entire lower Chetco system (~RM 0-12). If no material is removed from the system, conduct one flight in June/July.
(**Does this replace the following?** A pre-harvest (spring) and post-harvest (fall) survey will be conducted by the operator.)

- Purpose is to measure sediment recruitment and removal, and overall channel conditions.
- Relatively inexpensive, high quality topographic data – cost figures from the current DOGAMI LIDAR acquisition are ~$549/square mile, which translates to ~$6000/flight for the lower Chetco.
- At low water, LIDAR would capture riffle crests, but lack pool filling information and other habitat specific biological indicators.

2a. Conduct longitudinal profiles of the channel thalweg for the lower Chetco (~RM 0-12) after two years with peak flows of ~10,000 cfs (several years could pass before this occurs) or after any year with a peak flow of ~45,000 cfs.

2b. Conduct point bar analysis at locations from USGS study during the same years as longitudinal profiles are taken.

- Provision of more specific information on individual pools and other biological indicators, as well as ground-truthing of elevational changes.
- This could be accomplished over the course of a couple of days by a qualified contractor with costs ranging from ~$6000 to $15,000.

3. Annual stream flow analysis utilizing gage data and other applicable information to more accurately estimate annual sediment transport rates.

- Costs should be minimal given that the models are already constructed; data from the previous year can be input into the existing models to predict annual transport rates.

4. Annually conduct bedload sampling at the USGS streamflow gaging station (one site visit per year).

- Purpose is to evaluate reliability of the model and establish site specific bedload transport curve. Takes away the uncertainty of the model.

Adaptive Management and Removal Thresholds (Issues for resolution)

- Identify areas of degradation for monitoring. Determine the recovery goal in terms of streambed elevation or bar stabilization.
- Determine the target recruitment rates to achieve recovery.
- Using historical recruitment data or modeling information, determine threshold recruitment rates that would allow for some extraction.
- Determine the percentage of recruited material that could be extracted and still allow for recovery.
- Using annual bedload sampling make a determination the cubic yards of material that can be removed for any given year.

GENERAL CONDITIONS (keep a running list as discussions progress)

1. Removal operations will be limited to the daylight hours.

2. No removal of vegetation will occur outside the designated work area on gravel bars. The only removal of vegetation will be for operational reasons.

3. During removal operations, gravel bars will be constantly graded and sloped to avoid fish entrapment.

4. Pollution and Erosion Control Plans. Such plans may require following Best Management Practices to minimize pollution from being introduced into the river. Such BMPs may include:

- Sequence/Phasing of work – work will be scheduled so as to minimize potential turbidity in the water.
- Equipment control – all excavation and relocation of material by machinery will be completed so as to minimize turbidity.
- Machinery will not drive into the active flowing channel except for one crossing to place a temporary bridge and one crossing for the removal of the temporary bridge.
- Excavated material will be placed so that it is isolated from the water edge and not placed where it could re-enter the river or natural drainage to the river.
- Use of containment measures such as silt curtains, geoblocks, geotextile fabric, and silt fence will be implemented where needed and properly maintained to minimize instream sediment suspension and resulting turbidity.

5. Mitigation for anticipated adverse impacts?

Latcu, Misty M NWP

From: J. Rose Wallick [rosewall@usgs.gov]
Sent: Monday, August 10, 2009 5:36 PM
To: Linton, Judy L NWP
Cc: Jim O'Connor
Subject: handout for Executive Team meeting
Attachments: Chetco_summary_of_USGS_report_Aug102009.pdf

Hi Judy,

Attached is a handout that we will use when describing our Chetco River study. We will bring 40 copies of this handout to the meeting, but it'd be great if you could email the handout to folks who will be participating remotely.

Also, we will bring 10 printed copies of the report to the meeting.

Thanks,
-
Rose

****

Rose Wallick
Hydrologist
US Geological Survey
Oregon Water Science Center
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Portland, OR 97201
rosewall@usgs.gov
phone: 503-251-3219
fax: 503-251-3470
****

Summary document describing study methods and major findings from:

Channel Change and Bed-Material Transport in the Lower Chetco River, Oregon

USGS Open File Report No. 2009-1163, available at: http://pubs.usgs.gov/of/2009/1163/

For more information, contact: Rose Wallick (rosewall@usgs.gov) or Jim O'Connor (oconnor@usgs.gov)

Objective: The primary objective for this study was to characterize bed-material transport, in order to understand its relation to channel and floodplain morphology. A second objective was to develop a sediment budget for the lower Chetco River.

Study area: The study area for this project spans the lower 18 km of the Chetco River corridor, including the USGS streamflow gage at river kilometer 17.2 (RM 10.7; Figure 1).

Study components: There were four main components to the Chetco River study:

1. Detailed mapping of the valley floor was used to document spatial and temporal changes to the channel, gravel bars and floodplains.
2. Bed material sediments were characterized throughout the study reach.
3. Bed material fluxes were quantified, and spatial and temporal trends in bed material transport were evaluated.
4. Results from each of the analyses were compared against findings from studies conducted in nearby basins.

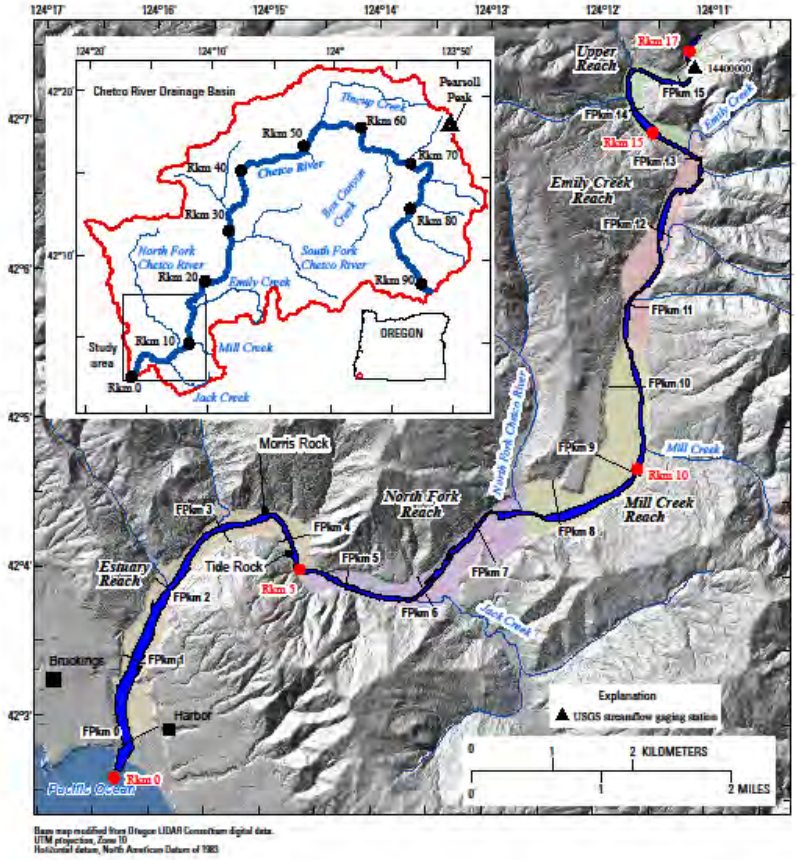

Figure 1. Chetco River study area in southwestern Oregon.

Findings: The four study components resulted in a mutually consistent and coherent understanding of the recent history of the active channel.

1. Repeat surveys and map analyses indicate an overall reduction in bar area and local decreases in sinuosity, mainly between 1965 and 1995.
2. Repeat topographic and bathymetric surveys indicate channel incision for significant portions of the study reach, with local values as high as 2 m (Figure 2). The specific gage analysis indicates that recent incision may have followed aggradation culminating in the late 1970s.
3. Mean annual flux of bed material into the study reach is approximately 40,000–100,000 m^3/yr (52,300 – 130,800 yd^3/yr) since 1970. The year-to-year flux varies tremendously, with some years probably having little or no bed material entering the study reach, but for some high-flow years, as much as 190,000 m^3/yr (248,500 yd^3/yr) enters the reach (Figure 3).
4. A sediment budget (Figure 4) shows that, in the absence of gravel extraction, most of the bed material entering the study reach is deposited near the North Fork confluence. Approximately 5-30% of the bed material is lost to attrition and breakdown. Very little bed material likely exits the Chetco River estuary.
5. The estimated annual volume of gravel extracted from the lower Chetco River for commercial aggregate has ranged from 5,000 to 90,000 m^3 (6,500-117,700 yd^3) and averaged about 59,000 m^3/yr (77,200 yd^3/yr) between 2000 and 2008. Mined volumes, probably exceeded 140,000 m^3/yr (183,100 yd^3/yr) for several years in the late 1970s, greatly surpassing likely replenishment rates.
6. The historical planform and vertical changes to the lower Chetco River, which almost certainly owe to a reduced sediment supply relative to transport capacity, have likely resulted from a combination of (1) bed-sediment removal and (2) transient effects as the river has adjusted to the probably large volume of sediment brought in by the 1964 flood.

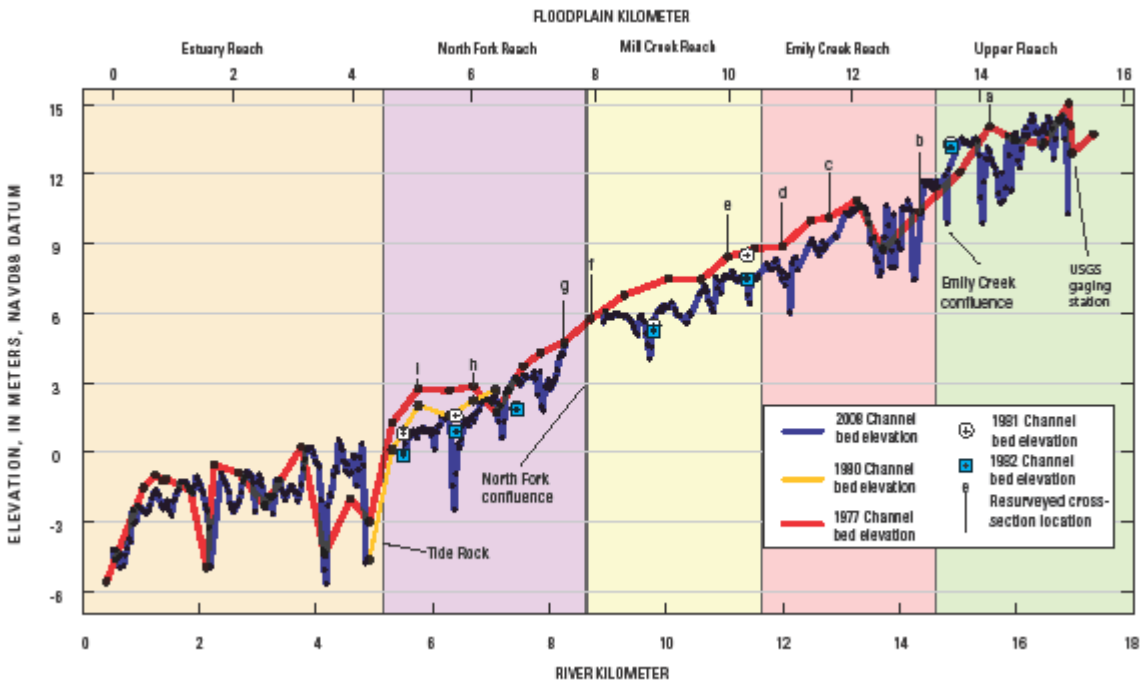

Figure 2. Graph showing channel thawleg profiles below river kilometer 18 (RM 12), Chetco River, Oregon.

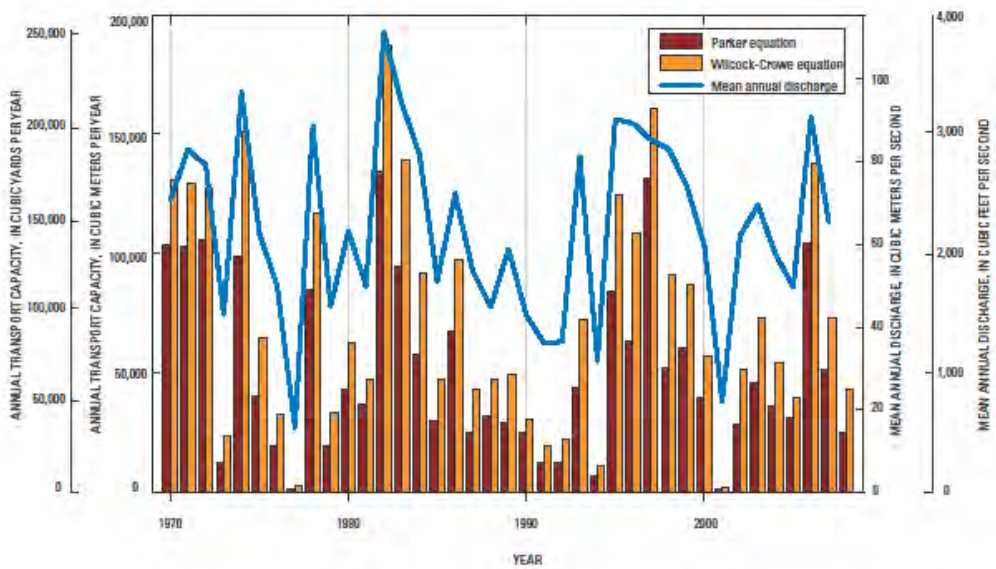

Figure 3. Annual bed-material transport capacity computed for a reference cross section at floodplain kilometer 15.3 (RM 11) for water years 1970–2008.

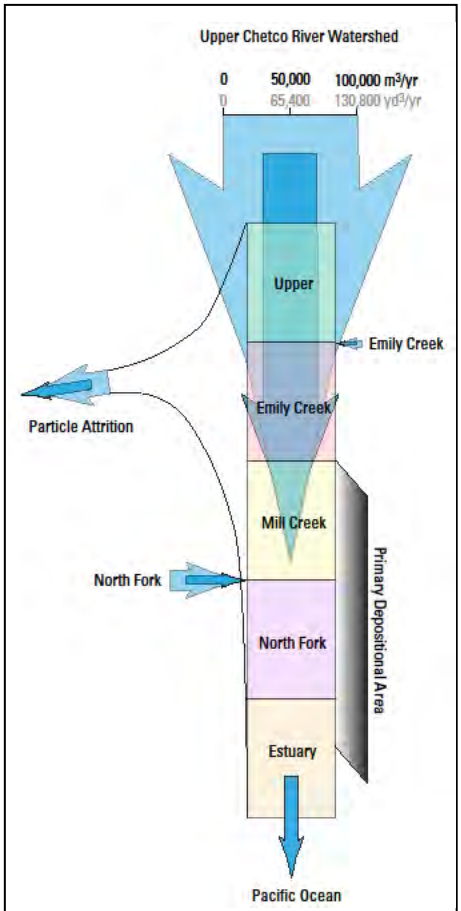

Figure 4. Schematic diagram of sediment budget for the lower Chetco River, Oregon. Arrow widths are proportional to annual flux; ranges indicate estimated uncertainty.

Latcu, Misty M NWP

From: MOYNAHAN Kevin [kevin.moynahan@state.or.us]
Sent: Monday, August 17, 2009 4:16 PM
To: bob lobdell; bill yocum; Petersen, Erik S NWP; George Edwards; BAILEY Bob (Bob.Bailey@state.or.us); CHARLAND Jay (Jay.Charland@state.or.us); joe_zisa@fws.gov; Jon Germond; joy@umpquasand.com; Linton, Judy L NWP; kevin moynahan; Kim Kratz; Evans, Lawrence C NWP; lori warner-dickason; marcella lafayette; monty_knudsen@fws.gov; Nancy Johnson; Nina Deconcini; SNOW Patty; David Pratt; relayer@twcontractors.com; rich@ocapa.net; PUENT Sally; szerlog.michael@epa.gov; tedf@hughes.net; vallette.yvonne@epamail.epa.gov
Subject: FW: Gravel Exec Team Minutes 8/11/09 (2nd attempt)
Attachments: Gravel Exec Team Meeting Minutes 081109.doc

Attached are draft minutes from the Exec team meeting last week. Please send me any edits - thanks, Kevin

Gravel Exec. Team Meeting Minutes

8/11/09 12:00 – 2:00 PM

Attendees: Kevin Moynahan (DSL), Bob Lobdell (DSL), Lori Warner-Dickason (DSL), Sally Puent (DEQ), Patty Snow (ODFW), Jay Charland (DLCD), Erik Petersen (COE), Bill Yocum (Freeman Rock), Ted Freeman (Freeman Rock) Terrence Conlon (USAS), Joy Smith (Umpqua Sand), Jon Germond (ODFW), Judy Linton (COE), Jim O'Connor (USGS), Rose Wallick (USGS), Richard Angstrom (OCAPA), Robert Elayer (Tidewater Contractors)

Teleconference Attendees: Janine Castro (FWS), David Pratt (Curry Co.), Kim Kratz (NMFS), Scott Clemans (COE-PA)

Primary Objective: Review the summary document findings from the USGS Chetco Phase 2 report.

1. **Review USGS Chetco Phase 2 Release Report:**
   - Main focus was on summary document of findings (handout).
   - Speaker Jim O'Connor drafted the report. Refer to Rose Wallick with questions.
   - Objective of study: to understand volume of gravel coming in and historic changes that occurred.
   - Study components: area spanned lower 18 km of Chetco River corridor and USGS streamflow gage station, primarily upstream (RM 10.7, Fig. 1).
   - Study 1) mapped valley floor and changes to the channel, gravel bars, and floodplains, 2) throughout the study bed material sediments were characterized, 3) bed material fluxes were quantified and transport trends were evaluated, and 4) results were compared against from studies in nearby basins.
   - Findings: Results were consistent, decrease in area of active gravel bar areas from 1965 to 1995. Approximately no change since 1995. Low flow channel has dropped (pg. 35).
   - Coast is made up of a variety of rock types making a gravel rich system.
   - 20,000 years ago sea level was 400 ft lower. After ice age the water level rose drowning the mouths of rivers faster than the rate of gravel coming in.
   - Sediment budget shows flux rates are consistent with other studies. In absence of gravel extraction, most bed material entering is historically deposited near North Fork of Chetco River (50,000 – 130,000 cubic yards per year). Approximately 80,000 cubic yards per year is extracted. 5-30% is lost to attrition and breakdown. Very little gravel exports thru Chetco River estuary of natural causes. USGS is confident numbers are accurate by factor of 2.
   - Incision estimated to have occurred in late 70's. (pg. 36, Fig. 20 shows trends of bed elevation).
   - Other finding: Gravel bar's texture coarsens toward North Fork surface. Increase of sediment in supply, decrease of sediment transport in lower. Biggest changes were years 1965 to 1995. Two factors: 1) 1964 flood increased sedimentation in lower river; 2) gravel extraction (rates higher 70's - 80's). Both likely play a part.

- USGS estimate was done around Christmas to New Years ’08. Recorded second highest rate ever measured in literature of sediment influenced per feet.
- River is not supply limited. Measured each of 39 years since.
- Jim brought in a 15 lb. sample of Quartzite rock (approximately 8”x5”x3”) found by 6”x12” opening in collection box. Quartzite resists breakdown due to density.
- Purpose: Sediment transport model will help to determine future years using USGS gage and flow data.

Q: If we monitor year to year, what would increase confidence level?
A: more than 2, track with time.
Q: Do studies/findings transfer to other river systems?
A: With steep coastal rivers, yes. With larger Umpqua & Cascades, no. Supply limited. Will vary, though same approach can be applied.
Q: What triggers “limited supply”?
A: Enough sediment depends on movement, usually how much is produced, steep drainage ditch breaks up, quick increase flow can transport.

- Look at incoming vs. spending, about even. Incoming amount is @ 0 – 100,000 cubic yards per year so have to decide if we measure every 1 year, 3 years, etc.

Q: Material down river is incoming? If all activity were ceased would the river spread back to normal? Does down river transport effect estuary?
A: Transport equation looked at 7 places: down river had small amount of sediment transport (1/5 or 1/10 of upstream). Studies of other estuaries (Redwood Creek, Alsea, and Nestucca) are looking at type of sediment, most dredging from Marine sources.

- No resolution of data where dredging was occurring, can’t say what part of estuary. At RM 2.1, annual basis did replenish 100%.
- Concern: reduces habitat quality (less oxygen available)
- Issue: With increased bed level also increased water level. Area has been channel incized since 1967. Some pools/bars move, some areas now vegetated trailer parks. Residents are worried about possible flooding.
- There is no current scale or way to classify river.
- (Kevin & Erik) Thanks to COE, USGS for report, attendance at meeting, effort, and explaining report findings in simple terms.
- (Erik) Responsible extraction can be met with the help of the study. No answers yet but we have a process of moving forward.
- Umpqua schedule: report coming out (hopefully) Spring 2010, draft possibly in February? Drafts are internal (not public info). Would like to know of other deadlines ahead of time if something may be affected.
- Survey data and extraction records help speed up the process. Technical team spoke about using Lidar (high priority), OGAMI is coordinating.
- Annual flow data & Lidar survey will not be enough. Flow data is broad scale of river interest. Repeat measurements, sediment texture measurement. Surveys might not be accurate. Upside to Lidar is it’s high quality and done by one person.

- Approaching post 1964 condition of flood vs. impact would be a mute point. Don't know income of 1964. Track balance of in vs. out. If we continue a program of measuring and it balances, overall changes will be small.
- (Rose) Formatting of report will be complete when goes to SIR but public report is available on Chetco's website including data, aerial photos, GIS, etc. Rose can email info if requested.
- (Kevin) Will want to gather direct conversations and info shared. More structure is needed to answer permit questions.
- (Kevin) Tech team will take USGS Report and permit questions to be resolved (for General permit & Regional Permit) to meeting 8/12/09.
- (Judy) Meeting 8/12/09 to discuss extraction methods (any defined should be off table?), monitoring conditions (add any? Suggested conditions?), other types of adaptive management (what's involved, etc?).
- Defining parameters for permitting extraction framework removal.
- (Lori) Will discuss annual discharge measurement, flow, input, and how much recovery will be needed with Tech team and get ideas.
- (Kevin) educated best professional judgment required to set structure for workshop working from Tech team questions and issues.
- Important: effects of mining on Habitat of Fish & Wildlife, in-water work period. Can we avoid? If not, need directions how to seek to avoid or seek to mitigate.

<u>Represented at South Slough workshop in September:</u>
COE: Judy Linton & Erik Petersen
DSL: Kevin Moynahan, Lori Warner-Dickason, Bob Lobdell
OCAPA: Rich Angstrom and others
Umpqua Sand: Joy Smith
Freeman Rock: Ted Freeman; Bill Yocum
ODFW: Patty Snow, Todd Confer, 2 others
DEQ: Sally Puent, Alex, (others from region)
NOAA: Kim Kratz, Chuck Wheeler
USFW: to be determined (Janine Castro won't be there)
DLCD: Jay Charland

ACTION: Janine will contact Brian Clure with NOAA - he will be a good addition to the meeting); Dennis Halligan will also be contacted.

2. **<u>Next Steps:</u>**

Discuss later: NOAA to consider factors if cease operations, not only impacts due to extraction

- Next meeting September 24th & 25th at South Slough. (Not open to the public).
- Objective: Identify challenges, questions, etc. and come together to find answers. Prioritize important issues down the road and impact. Bring info and critique 1) substance, 2) right people are present, 3) drive to results. **Gail Achterman will be chair**

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Wednesday, September 23, 2009 11:28 AM
To: 'Bob Bailey'; 'David Pratt'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Sally Puent'; 'Ted Freeman'; 'Alex Liverman'; 'Bill Yocum'; 'Bob Lobdell'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Robert Elayer'; 'Yvonne Vallette'
Subject: Joint Exec/Tech Team meeting (9/24)
Attachments: Chetco Gravel Mining Workshop questions and edits #3.doc; Chetco River Gravel_prelim monitoring req_final.doc

Good morning to all –

A reminder of the joint Executive and Technical Team meeting scheduled for Thursday September 24 starting at 1:00p. The meeting will be held at the Corps offices in Portland in our HDC Conference Room (left off the elevators then right at the next hallway). A conference line has been set-up for those needing to participate by phone – (888)285-4585; participant code 585150

One focus of the meeting will be the questions being prepared for the Chetco Gravel workshop – attached is a slightly revised version from the last document Erik provided to you all. Concepts are mostly the same but wording in some of the questions may have changed. Also, question 5 references Tech Team proposed conditions relative to data acquisition and monitoring; a copy of those conditions are attached as well.

If you have not done so already, please confirm your physical attendance so I can get your name in the visitor system. REMINDER: if you haven't been here in awhile, non-federal folks will be subject to a search (including bags) so please allow extra time.

Let me know if questions – Judy (503-808-4382)

Chetco Gravel Mining Workshop
September 24-25, 2009

Discussion Questions for the Group

Introduction and purpose: The purpose of this workshop is to gather input from experts to assist the agencies in making a sound decision on future gravel removal on the Chetco River. The agencies have before them applications for a GP (DSL) and RGP (Corps) and are considering whether commercial gravel removal may continue in the Chetco system.

DSL, the Corps and other agencies are reviewing and assessing information to make informed decisions on the GP/RGP applications. The agencies have been working collaboratively with the gravel industry (OCAPA and individual operators) in this effort. The intent of the process is to determine if gravel removal from the system is permittable based on recruitment of material into and through the system and any impacts to habitat, water quality, or other resources from material extraction. If gravel extraction is permittable, the agencies will be determining appropriate permit conditions, monitoring requirements, and adaptive management approaches to govern removal activities.

The regulatory agencies will not be making final permit decisions at this workshop. The workshop is an opportunity to discuss and investigate scientific, policy and other supported concepts to better inform permit decisions.

The agencies are using a number of sources for permit review and determinations. The US Geological Survey Open File Report 2009-1163 will be used as the best available science to evaluate current conditions on the Chetco. Other sources of information will be used as relevant to this process. Although the USGS report focuses on the physical conditions of the river, the agencies will be using this information as indirect indicators of the biological characteristics.

The Tech Team developed the following questions:

1. What does the USGS report tell us about the current condition of the Chetco?

2. The Tech Team interprets the USGS report as setting forth the following indicators to be used to evaluate if gravel extraction is appropriate on the Chetco:

    a. The degree of incision
    b. The degree of bar armoring
    c. The degree of coarsening of bed material

DRAFT

d. The degree of sinuosity of the channel (especially at the Mill Creek/North Fork reach)
e. The rate or frequency of channel migration
f. Size and location of the gravel bars

What other indicators need to be considered in this process?

3. Relative to the USGS report findings on material recruitment into the system and proposed gravel extraction out, as well as other removal activities on the Chetco –
    a. Does the system require a “recovery period” to restore a balance to the system?
    b. If so, can gravel extraction and other removal activities continue during this period?
    c. If so, at what level and under what conditions?

4. The USGS study indicates the Chetco is flow limited (as opposed to supply limited) with respect to gravel recruitment, which ranges from 3,000 cubic yards at very low flow years to over 150,000 cubic yards in high flow years.
    a. Is there a method that can be used to reliably estimate annual recruitment and develop a process allowing extraction of some percentage of that volume?
    b. What percentage would be appropriate?

5. The agencies are considering employing adaptive management to determine whether gravel can be extracted and how much extraction should be allowed in any given year. Adaptive management would involve evaluating physical and or biological indicators to confirm that the river is moving toward recovery.

    a. Potential indicators include:
    - Recurrence of transporting flows (via stream gauges and rainfall)
    - The degree of incision
    - The degree of bar armoring
    - The degree of coarsening of bed material
    - The degree of sinuosity of the channel (especially at the Mill Creek/North Fork reach)
    - The rate or frequency of channel migration
    - Size and location of the gravel bars
    - Loss or gain of pool/riffle complexes
    - Loss or gain of overhanging vegetation
    - Presence/absence of target species
    - Improvement or degradation of local water quality (e.g., temp, sedimentation, turbidity, DO, pH)

DRAFT

Are there other physical or biological indicators would assist the agencies in determining, whether and what level gravel may be extracted from the system?

b. The technical team developed several proposed conditions related to data acquisition and monitoring (see attached). Please comment on the effectiveness of these conditions in evaluating the physical and/or biological indicators identified in question 5a.

6. Are there any active management techniques (e.g., mechanical movement of existing sediment at specific locations) that could be employed to enhance or accelerate recovery?

7. What extraction techniques and conditions could be employed that would conserve habitat/water quality and support the health of the system?

8. What is the effect on the system if gravel and other removal activities are not permitted? The USGS report indicates the potential for aggradation at points in the system, especially at the wide, flat reaches near Millcreek/No. Fork. How would this benefit or impact habitat, water quality, flooding, recreational fishing and navigability? Can adaptive management address both benefits and impacts?

DRAFT

13 May 2009

Chetco River Gravel: Technical Team Preliminary Concept of Monitoring Requirements/Data Needs – For Executive Team Consideration

Recently the Corps and DSL co-chairs of the Executive Team sent an email to the Technical Team regarding the pre-peer reviewed draft of the USGS Chetco Study. The email reiterated that USGS released this as a courtesy to the agencies, but that it was not to be shared publicly. While being sensitive to USGS policy, the email also encouraged the Tech Team to share with industry initial thoughts and preliminary recommendations on potential conditions for the RGP/GP currently under consideration.

In continuation of the cooperative approach, the Tech Team offers the following ideas from our on-going discussions as an update which industry may have interest in considering.

The RGP/GP concept offers a unique opportunity to revisit data needs and monitoring requirements on a broader, system-wide scale. Site specific surveys that occur multiple times per year have previously been required in individual permits as a mechanism for documenting removal volumes and interpreting potential impacts. Unfortunately, this site specific information is not adequate for detection of stream reach or system-wide changes, and is onerous on individual applicants both in effort and cost expended (applicants report annual costs of $15,000 to $20,000).

The USGS approach to the Phase II Chetco study has provided a useful overview of the Chetco River system. The Tech Team agrees that building on this study with similar data collection efforts over time will enable refinement of the interpretations and more effective future adaptive management. Additionally, the Tech Team believes that a shift away from individual surveys in favor of system-wide evaluations will reduce expense and effort on individual operators who can, instead, pool resources to acquire data. These data will provide better opportunity for interpretation of system-wide adjustments, while also being much less expensive.

Preliminary Tech Team discussions regarding on-going data acquisition include:

1. Annually conduct two LIDAR flights (one in June/July and one in Sept/Oct) along the entire lower Chetco system (~RM 0-12). If no material is removed from the system, conduct one flight in June/July.

- Purpose is to measure sediment recruitment and removal, and overall channel conditions.
- Relatively inexpensive, high quality topographic data – cost figures from the current DOGAMI LIDAR acquisition are ~$549/square mile, which translates to ~$6000/flight for the lower Chetco.

- At low water, LIDAR would capture riffle crests, but lack pool filling information and other habitat specific biological indicators.

2a. Conduct longitudinal profiles of the channel thalweg for the lower Chetco (~RM 0-12) after two years with peak flows of ~10,000 cfs (several years could pass before this occurs) or after any year with a peak flow of ~45,000 cfs.
2b. Conduct point bar analysis at locations from USGS study during the same years as longitudinal profiles are taken.

- Provision of more specific information on individual pools and other biological indicators, as well as ground-truthing of elevational changes.
- This could be accomplished over the course of a couple of days by a qualified contractor with costs ranging from ~$6000 to $15,000.

3. Annual stream flow analysis utilizing gage data and other applicable information to more accurately estimate annual sediment transport rates.

- Costs should be minimal given that the models are already constructed; data from the previous year can be input into the existing models to predict annual transport rates.

4. Annually conduct bedload sampling at the USGS streamflow gaging station (one site visit per year).

- Purpose is to evaluate reliability of the model and establish site specific bedload transport curve. Takes away the uncertainty of the model.

While the Tech Team agreed that a system-wide approach is both more desirable and economically feasible, we also recognize that there still must be a standard method for confirming actual volumes extracted at individual sites; whether this can be determined with sufficient accuracy from the proposed LIDAR data sets or another on the ground measure needs further determination.

As noted in the Public Notice for the RGP/GP, Adaptive Management has been called out as an appropriate mechanism for making year to year determinations on potential gravel removal volumes and methods. Establishment and funding of an agency-led body to house and analyze the above data sets, so that adaptive determinations based on the collected body of data can be made, will be an important component of a successful RGP/GP.

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Wednesday, October 07, 2009 3:36 PM
To: 'Alex Liverman'; 'Bob Lobdell'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Rich Angstrom'; 'Todd Confer'; 'Yvonne Vallette'
Cc: 'Jim O'Connor'; 'byocum@hughes.net'; 'Robert Elayer'
Subject: Tech Team mtg Oct 9 - Reminder
Attachments: Chetco RGP scheduleOct09.xls

Hi, folks: reminder of our Tech Team meeting scheduled for 1-3p on October 9. Physical meeting location will be at the Corps offices (8th floor Regulatory Conference Room). Call-in number is (877)322-9654; code 665230.

Items on the agenda include:
1) Discussion of schedule – attached is my infamous gantt chart. Information for the CZM and WQ pieces were taken from the previous schedule. The ESA schedule was based on information provided by Kim Kratz (i.e. what are normal timelines in a consultation process) – assumes the package is complete when submitted.

2) Workshop questions – review of industry comments on draft questions and preparation of final draft for submittal to Exec Team. Rich, can you forward the comments to the group by Thursday – noon at the latest please?

3) Strategy for the next public notice. Also should think ahead as to how this will meld into the next public hearing which will be necessary for DEQ and DLCD purposes.

Let me know if other items. Jim: probably no discussion on Friday relative to the study, but you are always welcome.

Thanks – Judy

** DRAFT** Timeline for Chetco River Gravel Mining Regional General Permit Process - 2 Oct 09 **DRAFT**												
Task	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	
Regional General Permit												
Continue Prep of RGP/GP												
COE/DSL Joint Public Notice (30dy)												
Public Informational Meeting		Joint interagency meeting										
Review Cmts/Revise RGP/GP												
Final Decision										1-Jul		
CZM Determination												
COE sends CZM letter to DLCD					mid mth							
DLCD Prep Consistency Det						30 days						
DLCD Public Review Process		DLCD participates in interagency public mtg					30 days					
Issue CZM Decision									30-Jun			
Water Quality Certification												
DEQ Prep WQ Decision												
DEQ Public Review (35 Days)	public review period includes time for public meeting											
Issue WQC Decision									30-Jun			
ESA Consultation												
NMFS Review of BA				15-Jan	15-Feb							
Initiate Formal Consultation					15-Feb			15-May				
NMFS Issues BiOp								15-May	30-Jun			
FWS Coordination Act												
Coordination Process												
FWS Comment on Public Notice												
Tech Team Review												

Latcu, Misty M NWP

From: Rich Angstrom [rich@ocapa.net]
Sent: Thursday, October 08, 2009 1:03 PM
To: Linton, Judy L NWP; Alex Liverman; Bob Lobdell; Chris Lidstone; Chuck Wheeler; Janine Castro; Jay Charland; Jodi Fritts; Lori Warner-Dickason; Patty Snow; Todd Confer; Yvonne Vallette
Cc: Jim O'Connor; byocum@hughes.net; Robert Elayer
Subject: RE: Tech Team mtg Oct 9 - Reminder
Attachments: Yocum Comments.htm; lidstone comments.htm

Judy,

I have attached comments by Bill Yocum and Chris Lidstone for your review and discussion for tomorrow. By and large we think that the proposed paper asks the appropriate questions, with a few caveats. Chris emphasizes that an important question for the panel to consider is the establishment of a baseline for year to year comparisons in determining the percentage of available gravel for the industry. This is more of a mechanical point on how we would make the regional permit work. But it is a question that the geomorphic panel should discuss.

Bill and Chris both emphasized that the panelists need to grapple with the nexus between the geomorphic condition and habitat issues to a greater extent then what is expressly apparent in the proposed questions. This is the area where there is a lot of guess work going on with some basis in opinion as well as studies from other river systems that may or may not be applicable to the Chetco. I continue to be interested why we don't discuss how the present permit conditions address some of those water quality and habitat concerns expressed by some members of the Technical Team.

My general, thought is that the proposed questions allow the panelists enough room to discuss the Chetco in a manner that doesn't point them to an answer but allows for scientific exchanges and contemplation. I am still concerned that we have not thoroughly flushed out the water quality and habitat issues for the Chetco. I believe we should put more thought into those questions to make sure they are complete.

Richard Angstrom

President

Oregon Concrete & Aggregate Producers Association

737 13th St. SE, Salem, OR 97301

Phone: 503-588-2430 ext.8

Fax: 503-588-2577

From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Wednesday, October 07, 2009 3:36 PM
To: Alex Liverman; Bob Lobdell; Chris Lidstone; Chuck Wheeler; Janine Castro; Jay Charland; Jodi Fritts; Linton, Judy L NWP; Lori Warner-Dickason; Patty Snow; Rich Angstrom; Todd Confer; Yvonne Vallette
Cc: Jim O'Connor; byocum@hughes.net; Robert Elayer
Subject: Tech Team mtg Oct 9 - Reminder

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Let me know if other items. Jim: probably no discussion on Friday relative to the study, but you are always welcome.

Thanks – Judy

<<Chetco RGP scheduleOct09.xls>>

From: Bill Yocum [byocum@hughes.net]
Sent: Tuesday, September 29, 2009 8:22 AM
To: Rich Angstrom; tedf@hughes.net; jabar40@dishmail.net; joy@umpquasand.com
Subject: Comments to Tech Team Questions

Hello Rich,

Below are my comments on the Tech Team questions that they suggested to the last Exec Team meeting for the Chetco Gravel Workshop. Thanks for taking a positive lead with this important endeavor.

Bill

1. What does the USGS report tell us about the current condition of the Chetco?

Comment: This is a very general question that should set the stage for the meeting. I hope that the response will be directed towards the attributes discussed within the five different reaches.

2. The Tech Team interprets the USGS report findings to be used to evaluate if gravel extraction is appropriate on the Chetco to be derived from the following indicators:

a. The degree of incision
b. The degree of bar armoring
c. The degree of coarsening bed material
d. The rate or frequency of channel migration
e. Size and location of the gravel bars

What other indicators need to be considered in the process?

Comment: The above five indicators are physical characteristics of all coastal rivers with or without gravel mining and exist with different degrees within the five reaches. When these physical characteristics are out of balance then water quality and habitat can degrade. Maybe the more important question would be what reaches have a higher risk of being out of balance and how much impact has past gravel mining affected these characteristics?

3. Relative to the USGS report findings on material recruitment into the system and proposed gravel extraction, as well as other removal activities on the Chetco-

a. Does the system require a “recovery period” to restore a balance to the system?
b. If so, can gravel extraction and other removal activities continue during this period?
c. If so, at what level and under what conditions?

Comment: The USGS study covers only a snapshot of time dealing with material recruitment into the system. Again the question is whether the Chetco is gravel deficient to a point where it degrades to water quality and habitat? A safeguard for this concern is with the DSL permit condition stating that removal cannot exceed site specific recruitment. The question I think the Tech Team is eluding to is whether the any of the reaches are gravel deficient or possibly what reaches have an excess of gravel and what reaches are in risk of degrading water quality and habitat.

4. The USGS study indicates that the Chetco is flow limited (as opposed to supply limited) with respect to gravel recruitment, which ranges from 3,000 cubic meters at very low flow years to over 150,000 cubic meters in high flow years.

a. Is there a method that can be used to reliably estimate annual recruitment and develop a process allowing extraction of some percentage of that volume? What percentage would be appropriate?

Comment: The 3,000 to 150,000+ aggregate volume is the what is moving past the gauging station. The report indicates that the material moves at different rates within the different reaches. This leads to the question on how gravel removal would affect water quality and habitat in the different reaches. The Tech Team question dealing with removal of a percentage of the volume moving from the upper river past the

second bridge makes an assumption that the lower river is gravel deficient and by degrading water quality and habitat. I have seen no data that supports that assumption.

5. The agencies are considering employing adaptive management to determine whether gravel can be extracted and how much extraction would be allowed in any given year. Adaptive management would involve evaluating physical and or biological indicators to confirm that the river is moving toward recovery.

a. Potential indicators include: Recurrence of transporting flows (via stream gauges and raninfall), the degree of incision, the degree of bar armoring, the degree of coarsening of bed material, the degree of sinuosity of the channel (especially at the Mill Creek/North Fork reach0, the rate or frequency of channel migration, size and location of the gravel bars, loss or gain of pool/riffle complexes, loss or gain of overhanging vegetation, presence/absence of target species/improvement or degradation of local water quality (e.g., temp, sedimentation, turbidity, DO pH).

Comment: This is a loaded question that makes assumptions about the permitting/management agencies (DSL and the Corps). Adaptive management includes trial-and-error learning for improving land management[1]. It is not a decision making tool to determine whether gravel can be removed by evaluating physical and/or biological indicators.

---

[1] http://www.ecologyandsociety.org/vol7/iss1/resp10/

From: Chris Lidstone [CDL@lidstone.com]
Sent: Wednesday, October 07, 2009 5:49 PM
To: Rich Angstrom
Subject: RE: gravel workshop questions
Discussion Questions for the Group:

Rich:

Please review and forward to Judy. I will be at a hearing tomorrow morning.

Question 2: I think and based on my review of the USGS report, the question should be reworded as follows:
The Tech Team interprets the USGS report as setting for the following indicators to be used to evaluate the ongoing and future trends of the Lower Chetco River system. These indicators coupled with future monitoring and efforts to quantify bed material transport can be used to establish the appropriateness and degree of permitted gravel extraction.

An inherent assumption associated with the USGS report is that if gravel extraction exceeds bed material influx, decreased bar areas and channel incision will ensue. I don't think there is any debate on this. However I may have missed it, but I don't see a nexus with the change in geomorphic behavior and loss or gain of habitat. I think this question should be added to assist the agencies in permitting and/or AMP decisions. Finally I think the following points
Degree of incision
Degree of bar armoring
Degree of coarsening
Degree of sinuosity
The rate and frequency …
Size and location of gravel bars

All have an important temporal and quantification question. Is one year of incision enough to trigger a decision to cease and desist on " gravel extraction"? Is bar armoring from D50= 2inches to D50=2.5 inches significant and merit a change in policy?

I think the Tech team needs to make some effort at defining the nexus between maintaining the geomorphic status quo and the habitat issues that each agency must face. This can possibly be addressed under the Adaptive Management discussion.

Question 3 begins to touch on some of these complex questions. I think the USGS answer to the question may be more and continued data collection as identified in their last section of the report. We now have a sediment transport model, but sounds like continued calibration (verification and sensitivity analysis) is warranted.

Question 4b. Needs to be expanded to define a "basis" for the determination of a percentage.

Question 5. is pretty heavy on geomorphic indicators that have been addressed in all of the previous questions. Again I think it would benefit the RGP analysis to begin to define the biological (habitat) indicators and Question 5 begins to touch on that.

- Is channel complexity important?
- Large Woody Debris in the channel?
- Undercut banks and local scour?
- Deeper narrower channel

Number and type of fish?
Macroinvertebrates?

Christopher D. Lidstone
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970 223 4705 office
970 223 4706 facsimile
970 420 5257 cell

From: Rich Angstrom [mailto:rich@ocapa.net]
Sent: Tuesday, October 06, 2009 9:36 AM
To: Joy Smith; Chris Lidstone
Subject: FW: gravel workshop questions

Where you able to review the Scientific Questions?

Richard Angstrom
President
Oregon Concrete & Aggregate Producers Association
737 13th St. SE, Salem, OR 97301
Phone: 503-588-2430 ext.8
Fax: 503-588-2577

From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Monday, October 05, 2009 1:12 PM
To: Rich Angstrom
Subject: gravel workshop questions

Rich – wanted to check in and see where you were with the review of the questions for the gravel workshop. My understanding is that following your review the Tech Team is to work on a final draft to be completed on or about 9 Oct. I thought we would go over this at our Tech Team meeting Friday. Thanks - Judy

Linton, Judy L NWP

From: Petersen, Erik S NWP
Sent: Monday, December 14, 2009 1:35 PM
To: Ellis, Karla G NWP; Linton, Judy L NWP
Subject: Fw: follow-up to conversation last Friday

FYSA - more talk available if needed.

Message sent via my BlackBerry Wireless Device

From: MOYNAHAN Kevin <kevin.moynahan@state.or.us>
To: Petersen, Erik S NWP
Cc: LOBDELL Robert <bob.lobdell@state.or.us>; WARNER-DICKASON Lori <lori.warner-dickason@state.or.us>
Sent: Mon Dec 14 13:10:35 2009
Subject: FW: follow-up to conversation last Friday

Erik - I will discuss the approach with Lori and Bob and know you will do the same with Judy and Karla.

Regards, Kevin

From: MOYNAHAN Kevin
Sent: Monday, December 14, 2009 1:09 PM
To: rich@ocapa.net
Cc: 'Petersen, Erik S NWP'
Subject: follow-up to conversation last Friday

Rich - Erik and I thought it appropriate to memorialize DSL/Corps commitment to continuing to work collaboratively with OCAPA and the operators even though industry has been asked to take a step back from the Tech Team during the permit condition drafting process. See the following:

In the interest of moving the permit condition discussions forward in a timely manner, in protecting the ultimate permit decisions from contest, and in line with the ultimate goal of having permit decisions made in time for the in-water work season on the Chetco for 2010, DSL and the Corps have asked OCAPA to temporarily stand down from the Tech Team meetings where permit conditions are being drafted. DSL and the Corps recognize the critical importance of these conditions to the operators and value industry's contributions to the Tech Team process. DSL and the Corps believe the operators' contributions of knowledge of the system as well as information regarding their methods of operation have been and will continue to be critical to appropriate conditioning of the permits.

DSL and the Corps will provide OCAPA timely and substantive updates on the Tech Team considerations related to the drafting of conditions for the GP and RGP. DSL and the Corps also commit to proactive leadership on the Tech Team in managing the permit condition drafting process. If issues arise during the Tech Team meetings requiring input from industry, DSL and Corps representatives on the Tech Team will ensure appropriate and timely follow-up and discussion with OCAPA and/or the individual operators to obtain feedback.

Industry will continue to remain a full and valued partner on the Exec Team during this period.

Kevin Moynahan and Erik Petersen for DSL and the Corps respectively.

Kevin Moynahan
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kevin.moynahan@state.or.us
www.oregonstatelands.us <http://www.oregonstatelands.us/>

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Tuesday, December 15, 2009 2:17 PM
To: 'LIVERMAN Alex'; 'Chuck Wheeler'; 'LOBDELL Robert'; 'WARNER-DICKASON Lori'
Cc: Linton, Judy L NWP
Subject: Tech Team workgroup mtg-draft agenda
Attachments: Tech Team Workgroup Meeting_23 dec 09.doc

Hi all - attached are my initial thoughts for agenda items for our workgroup meeting on Wednesday 23 Dec. Please let me know of comments, etc. We'll meet at the Corps offices (Regulatory Conference room, 8th floor) or by phone (877)807-5706; PARTICIPANT CODE: 895140. Meeting time is 9:30 to 12:30. I'll send this information in a reminder next week.

Also my plan is to send out a request to the rest of the agencies on the tech team to check potential dates to meet during the first week of January. This would allow us an opportunity to present our proposals on adaptive management, etc to the larger group for input. Judy

Tech Team Workgroup Meeting
December 23, 2009 (9:30-12:30)
Agenda

1. What is our objective for the system?

2. Discussion of draft RGP
    a. Excavation methods
        - methods to eliminate? Why?
        - methods to modify?

    b. Equipment and access

3. Opportunities for Mitigation/Restoration
    a. Include a section in the RGP describing mitigation/restoration proposals
    b. Detailed required for draft RGP/BA?

4. Adaptive Management/Annual Decision-making process
    a. Trigger/frequency of extraction
    b. Survey requirements
    c. Other

5. Conditions
    a. General
    b. On-site BMPs (if not specified in description of excavation methods)

6. Other items, Next Steps & set next meeting date (week of Jan 4?)

From:	Achterman, Gail
To:	Linton, Judy L NWP; Petersen, Erik S NWP; kevin.moynahan@state.or.us; richangstrom@ocapa.net
Cc:	Ewing, Amy Anne - ONID; Kleibacker, Megan; Giannico, Guillermo - FW
Subject:	draft report on Gravel Workshop
Date:	Monday, December 21, 2009 12:17:52 PM
Attachments:	Regional Gravel Initiative Workshop Report2.doc

All-

Attached is the draft report on the Gravel Workshop (just in time for Christmas). After discussing it with our team, we think it would be a good idea to send the document out to review by at least the panelists so that they can correct/clarify what is included in the report.

We also wonder whether you'd like a summary section. Frankly, I didn't write one because I thought you wanted it to be your report and I am reluctant to make judgements. See what you think.

I don't want to spend more time just doing editing, but I want to make sure we've captured the full discussion.

Gail Achterman

Director, Institute for Natural Resources

Oregon State University

210 Strand Ag Hall

Corvallis, Oregon 97331

541-740-3190 (cell)

503-725-9677 (Portland)

Regional Gravel Initiative Workshop
South Slough National Estuarine Reserve
Charleston, Oregon
November 30-December 1, 2009

Summary Report

This report summarizes the presentations and discussions at the Regional Gravel Initiative Workshop. The Workshop was designed and conducted by the Institute for Natural Resources (INR) and Oregon Sea Grant (Sea Grant) on behalf of the U.S. Army Corps of Engineers (COE), the Oregon Department of State Lands (DSL) and the Oregon Concrete and Aggregate Producers Association to support and further the work of the Regional Gravel Initiative (RGI). The Workshop centered on a USGS report presented by Dr. Jim O'Connor and two scientific panels. The geomorphology panel was composed of Dr. Brian Cluer (NMFS), Dr. Pete Klingeman (OSU Department of Civil Engineering), Chris Lidstone (Lidstone and Associates) and Dr. Desiree Tullos (OSU Department of Biological and Environmental Engineering), The biological panel was composed of Todd Confer (Oregon Department of Fish and Wildlife), Dennis Halligan (Stillwater Sciences), Jim Waldvogel (Sea Grant), and Chuck Wheeler (NMFS). A complete list of participants is attached as Attachment A. The report is organized to follow the Workshop Agenda which is attached as Attachment B.

The report was prepared by Gail L. Achterman of the Institute for Natural Resources based upon notes taken by Amy Ewing, INR, Megan Kleibacker, Sea Grant and several agency staff members who shared their notes. In the portions presented in conversational format, the text represents summary - rather than exact - quotations. For convenience moving forward, the report incorporates the discussion questions developed for the workshop by the RGI Technical Team. The questions and other material from the discussion question paper are italicized in the report. The Discussion Questions paper is attached as Attachment C.

Welcome: History of the process and expectations for the future.
Erik Petersen, COE and Kevin Moynihan, DSL

Kevin Moynihan
Kevin reviewed the highlights of the RGI charter and the reason for working on the Chetco River system first. He noted that gravel extraction activities from South Coast streams produce about 8% of Oregon's aggregate. Extraction is an historic use of the rivers and it is important to local economies in terms of both jobs and raw materials. Extraction raises concerns, however, related to water quality, habitat, land use and impacts on aquatic species, especially coastal Coho salmon, which are listed as threatened under the Endangered Species Act (ESA). Since Coho salmon were listed, permits issued by the COE have required consultation with the National Marine Fisheries Service (NMSF) and water quality certification by the Oregon Department of Environmental Quality (DEQ). Local land use approvals are also required.

The goal of the workshop was to provide information to all of the permitting and regulatory agencies in hopes of developing a process that can be replicated collaboratively to other South

DRAFT

Coast river systems. After NMFS issued a "jeopardy" opinion under the ESA in July 2006, a meeting was held in Coquille between local, state and industry representatives to develop a collaborative process to address the issues and concerns about gravel mining, balancing economy and environment. The resulting RGI charter sets forth the responsibilities of the policy-oriented Executive Team and the science-oriented Technical Team. The teams have worked for three years in collaboration with the industry operators. The workshop is the culmination of work done to date.

Erik Petersen
By bringing together additional technical resources from the university system and outside consulting firms for the workshop, the Executive Team's desired outcomes are to:

- foster understanding;
- where possible, build consensus by bridging geologic and fish interests;
- manage risks; and
- provide clarity on necessary conditions for permit development by understanding opportunities and constraints for permit conditions.

Through a collaborative process that combines the right people with the right resources, our hope is that the workshop will move the RGI process forward.

Goals: Overview of workshop expectations; introduction of technical questions; identification of workshop goals
Gail L. Achterman, INR

The purpose of this workshop is to gather input from experts to assist the agencies in making a sound decision on future gravel removal on the Chetco River. The intent of the process is to determine if gravel removal from the system is permittable based on recruitment of material into and through the system and any impacts to habitat, water quality, or other resources from material extraction. The workshop is an opportunity to discuss and investigate scientific, policy and other supported concepts to better inform permit decisions.

The focus will be on developing a common information base and understanding among all participants. We want to have a full information exchange between the scientists, the regulators and the industry representatives. We will try to address all of the questions posed by the Technical Team so that we discuss:

- Fact finding - what do we know?
- Concerns - what don't we know?
- Strategies for addressing concerns
- Monitoring and adaptive management processes
- Schedules or milestones for moving forward

Background: The Chetco River
Frank Burris, Oregon Sea Grant
See Attachment D for presentation slides.

DRAFT

Frank Burris provided an overview of the Chetco River System. Discussion with the participants occurred throughout the presentation, particularly on fish species and management.

There are two major tributaries to the Chetco River, the South and North Forks. The river discharge ranges from 85,000 cfs in the winter to nearly dry (82 cfs or less) in the summer. The basin is primarily owned by the federal government (70%) and managed by the Forest Service and the Bureau of Land Management. Private industrial forest land (South Coast Lumber) and private non-industrial forest land account for most of the rest of the land ownership, along with local and state governments. Land is managed primarily for forest use, with some agricultural land. Only about 1% of the basin is urban.

The river is very flashy with short duration high discharge periods during the winter. Summer flows go way down. Rain comes in events from 3-6 inches to 10-12 inches. In the summer, the South Fork provides cooling water to the main stem. The river opens up as it comes out of the canyon.

Most gravel comes from headwater reaches. There is very little hard material suitable for gravel in the upland areas on the coast around Brookings. The basalt canyon walls in the upper basin are dark and absorb a lot of heat. The Upper Chetco, as it comes out of the wilderness area, exceeds temperature water quality standards. The entire Chetco River is listed as water quality limited for temperature.

Much of the upper basin was burned by the Biscuit fire in 2002. Sediment loading has increased since the fire due to the lack of understory vegetation. Some areas, like Pearsoll Peak, were burned so intensely they still look like the surface of the Moon with no vegetation. Soils are serpentine in the headwaters and little grows on them.

Gravel forms in the river channels and side channels. Gravel mining has taken place along the lower river since the mid- to late 1800s using draglines and pits. Permits were required in 1967 and mining switched to bar scalping. The peak of gravel removal occurred in the 1970s and 80s when up to 170,000 cubic yards per year were extracted. In 1994 it was determined that the river is navigable, and companies entered into leases with DSL and paid royalties. On slide __, "Chetco River Gravel Removal 1993- 2008" green bars show extraction from the river and blue bars show material dredged from mouth. Some of the dredged material may be material that moved back in from the ocean. Three companies, Tidewater, Freeman Rock, and South Coast Lumber, historically mined gravel.

The Steelhead population is strong with habitat fully seeded Chinook salmon are reduced from their historic number to about half of the all-time highs. There was a hatchery program for Chinook salmon between 1968 and 1996. Lack of estuary habitat limits Chinook salmon populations. There has been a downturn recently in Chinook salmon due to ocean conditions. Chinook salmon spawn between the North and South Forks. The estuary is the primary rearing area. The needs of Chinook salmon and Steelhead populations must be addressed when considering any management changes to address the needs of the Coho salmon population.

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Coho salmon are present in the Chetco, but they are not seen very often. The historic high is estimated at 1,000 fish. The technical recovery team identified the Chetco as an independent recovery population, but no one knows if there is a viable population now. ODFW is not sure whether there ever was an independent population based upon the amount of habitat. ODFW sees strayed fish from other populations in the Chetco and is uncertain about whether there is a distinct genetic legacy. ODFW's data started about the same time as the hatchery data. No sampling has been done specifically for Coho salmon; Coho salmon are counted incidentally when sampling for Chinook salmon. There is no data on Coho salmon spawning. There is some data from the late 1940's, and sampling in the early 1970's picked up some Coho salmon. ODFW finds a high proportion of fish from other populations and does not know if the population sustains itself or is maintained by fish from other populations.

NMFS is developing a Coho salmon Recovery Plan. It is currently scheduled for release in February 2010. NMFS agrees that there is some evidence of Coho salmon now. Modeling analysis of habitat potential indicates that Coho salmon may have been there historically, but there is no data. The Smith River and Winchuck populations are viable, and Chetco Coho salmon could be a bridge between the southern Oregon and northern California populations.

What do we know about historical off-channel and side channel habitat? Suspect the availability of these habitats is not high because most land-use related changes in the watershed have occurred in its lower portion.

Jack Creek and the North Fork are likely to contain suitable coho salmon habitat. Further up in the system the channel gradient is higher than what Coho salmon prefers. It is possible that the lowermost ten miles of the main stem were historically utilized by Coho salmon. Todd Confer indicated that the limiting factor for Coho salmon is lack of habitat due to the nature of the Chetco River as a high energy, low gradient system. There is plenty of spawning and summer rearing habitat, but a shortage of winter-rearing low-gradient off channel habitat. This habitat may have been more common historically
Rich Angstrom commented that it is puzzling that we know so little about the limiting factors for the Coho salmon, yet we regulate around the population fairly aggressively. He wanted to try and get a handle on Coho salmon habitat issues related to the gravel industry. Knowing so little makes it difficult to understand the regulatory aspects. As we get into adaptive management discussions, he suggested that there is work that needs to be done on Coho salmon. An agency representative noted that while work does need to be done on coho salmon, there are other species and other habitat issues that have to be addressed, too, such as Essential Fish Habitat under the Magnuson-Stevens Act.

Rich specifically asked whether there are opportunities for active management approaches to create new side channels. Frank responded that several areas could be used to create side channels, noting that there is an historic fill area in the estuary above the Highway 101 Bridge that could probably be removed and provide some habitat for Coho salmon smolts. There's virtually no aquatic vegetation in the boat basin because the sides are so steep. The estuary is missing low gradient, photic zone habitat for salmonids.

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A question was asked about the role of urban development. Frank answered that the lower area is surrounded by houses. The boat basin occupies much of the estuary. Construction of the jetties in 1956 now keep the bar open, thus reducing estuary habitat.

Pacific Lamprey may be listed under the ESA and more information is needed about their presence in the Chetco system. They are present, but little is known about how many there are or where they are.

USGS Findings: USGS Open-File Report 2009-1163, Channel Change and Bed-Material Transport in the Lower Chetco River, Oregon
Jim O'Connor, USGS

See Attachment E for presentation slides and http://pubs.usgs.gov/of/2009/1163/ for report.

Dr. Jim O'Connor presented an overview of the USGS Report. Participants asked questions throughout the presentation. The Geomorphology Expert Panel then joined Jim and posed additional questions for him.

The Technical Team question addressed by the presentation and discussion was, "*What does the USGS report tell us about the current condition of the Chetco overall and of the 5 reaches specifically? The purpose of this question is to set the stage for the workshop and discuss the physical attributes of the Chetco overall and of the 5 reaches specifically.*"

The Study Area included RM 12, near the Freeman Bar operation, and lower. It was divided into five reaches for analysis (Upper, Emily Creek, Mill Creek, North Fork, and Estuary). The Reaches are geomorphic, based on the location of major tributaries and other geomorphic aspects.

Geologic history is important to understanding fate and transport of gravel. The Chetco is still recovering from last ice age, with the river filling up the lower valley with sediment. The estuary, with time and under natural conditions, would be filling up and shrinking. The system is dynamic with uplift and sea level rise.

The goals of the study were to learn about how the river has changed and estimate bed-material influx and transport. The bed-material, when transported, is bouncing along the bottom, not suspended. The bed-material generally makes up the gravel bars. The information came from seven sets of photos dating back to 1939, LIDAR, soil, bathymetric, channel, and navigational surveys and USGS cross sections. The thalweg profile was done with a canoe. Dr. O'Connor commented that LIDAR may be a key aspect of future monitoring.

A question was asked about the effect of the 1964 flood. Dr. O'Connor responded that between 1962 and 1965 the expanse of bare gravel increased due to flood. Since then bare gravel has been colonized by vegetation. The woody shrubs are willows. What was the difference between 62 and 65 in terms of plan view? It would be interesting to see what effect the 64 flood had on the plan view of the river.

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There is less shallow habitat in the estuary now than there was in 1939. On average, the elevations in the estuary in 2008 are half a meter deeper than in 1939. There are more deep spots in now. No sampling has been done of the discharge to the ocean, but similar systems do not show discharges.

A question was asked about a large side channel evident on the lower river in earlier periods. The channel is known as Snug Harbor. It was natural but has filled in with sediment. Ted Freeman said that he swam in it as a child. Later the owner spent money to dredge it, but it filled back in with silt.

The channel bed is lower by 1-1.5 meters since 1977. Much of the lowering may have occurred shortly after the 1977 survey. Gauge analysis was also used to measure the vertical change. Sometimes records are biased because gauging stations are put at the most stable place in the river. The general trend with time has been slightly downward indicating that the elevation of the water surface for each discharge has declined with time, as a result of both lowering of the streambed and decreasing channel width. Both have happened. Aggradation during the 1970s could be due to the 1964 flood. In summary regarding channel change:

- bar area has been reduced;
- the channel is lowering;
- there is channel aggradation at the second bridge; and
- planform changes in the North Fork reach are consistent with channel incision.

The bed-material flux analysis was done with information from flow records at the Second Bridge and other sources. The sampling equipment misses some material so it underestimates transported material. Most of the gravel transport occurs over a very short period of the year. The reach-by-reach gravel transport analysis is consistent with channel change and filling of the estuary. There is a lot of gravel in the upper reaches and little coming out in the lower reaches. The river is focusing its deposition around RM 8, just north of the confluence of the North Fork. The Chetco River bars are relatively less armored than bars in other rivers because transport events are more frequent and transport rates are high. There is no chance for the material to sift out.

In summary, flux into the lower river is 40,000-100,000 m^3 per year which is about the rate gravel has been removed from the river. Flux varies from year to year. Under natural conditions gravel would accumulate between Mill Creek and North Fork reaches.

Two issues are raised regarding the sediment budget: (1) particle attrition (bed-material being broken off and becoming suspended load) and (2) amount of sediment coming in from the tributaries. The USGS tried to quantify the amount coming in. Tributaries also contribute to the sediment budget. Particle attrition also influences deposition

A question was asked about what caused the incision and straightening and bar armoring downstream. Dr. O'Connor said that a case could be made that because of the volume of gravel extraction in the 1970s there was channel incision and perhaps straightening. One could also build the case that the 1964 flood brought in a tremendous amount of gravel. The USGS Study has not tried to make this judgment or make predictions. In most rivers, the 1964 flood led to

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aggradation. In the late 70s, the river incised through that gravel. Attributing specific changes to the things that are going on there will never be clear. Channel lowering occurred since 1977.

The panelists' questions and responses follow.

What are data gaps and uncertainties? What are agency needs? What timeline is required for action?

Dennis Halligan: I am curious about incision and loss of bar area, which may have been due to colonization of vegetative species. Does stabilization of vegetative flood plain surfaces constrict higher flows somewhat in a high flow spot perpetuate incision?

Jim O'Connor: Due to the channel being straighter now, bar growth often requires the channel to start to wiggle around. Irrespective of the causes of incision and straightening, part of the loss is because the channel is straighter now in that reach.

Chris Lidstone: Part of Dennis's question is what's a natural process? As bars stabilize, the channel is going to stay in place. A period of major channel forming events blows out the situation followed by a re-entrenchment phase.

Brian Cluer: What was the straightness of the river over the period of time 1965-1995?

Jim O'Connor: Bar growth is key for sinuosity development. As long as we haven't cut off sediment supply, sinuosity will come back. See figures 13 & 34.

Desiree Tullos: If we're interested in timelines, what is the appropriate timescale for asking these types of questions? You can't write a permit on a storm by storm basis.

Jim O'Connor: Influx varies tremendously from year to year. It depends on the physical issues one is interested in. Permitting must be concerned with the critical issues of concern (physical characteristics, fish habitat?) For example, incision could cause dewatering of side channels. What are the actual physical issues that interest you in the river? This study explains what will happen at the reach scale, but it's not going to address the resource of concern (fish habitat). It seems to me that the permitting has to think about what are the key resource issues of critical concern, and what are the timescales associated with those issues.

Brian Cluer: Related to time scale, do we think that 10 year events are most influential in changing the physical characteristics of the river? The big bed mobilizing events really need to be considered for management of the system. Any extraction of material will disturb a bar for a long time.

Gail Achterman: This suggests that the regulators need to think about time scale and spatial scale both. What is the appropriate timescale or spatial scale associated with management of the permit? Storm events? Annual?

Brian Cluer: It is important to not disturb geomorphic forms that you expect to return to their natural condition quickly.

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Chris Lidstone: When you get close to a 1.5 – 2 year event and above, those are more important. Gravel changes with time, but the bar form doesn't. 200 cfs mobilizes gravel transport. The 100 year events don't influence the development of the system that much.

Jim O'Connor: Big discharges can lead to avulsion, rearrangement of the channel bottom. There are very specific concerns about responses if you have a biological condition or place you are trying to protect. It comes back to the issue of identifying resources of concern and how you prioritize those.

Kim Kratz: If bed load flux is in dynamic equilibrium, and aggradation or incision represents departure, is there a way to evaluate that?

Jim O'Connor: The integrity of equilibrium as a concept is overrated.

Kim Kratz: Couldn't you decide on a system basis whether incision is significant enough to be a problem? What is the logic?

Gail Achterman: How would you define a trigger for allowing gravel extraction?

Kim Kratz: What's the metric, and the standard to measure it?

Jim O'Connor: Depends on how you define the problem. On the Chetco, if you have aggradation in certain places, that's going to change the flood hazard. That's something you can define quantitatively. With biological resources, I can't say "This incision is a trigger for a bad biological problem".

Desiree Tullos: Those are questions that geomorphologists/hydrologists can't answer.

Jim O'Connor: If we're concerned about a specific side channel, we can tell you how to keep it wet. We can make predictions about changes in flux rates. I don't think many biologists can point fingers at systematic changes. Relating the biology to the system habitat is something that is in its infancy.

Rich Angstrom: That's a theoretical discussion. Look at the vertical channel change.

Jim O'Connor: The key question is, is there a certain place we want to shoot for in the future, and on what basis? These profiles show where the river has been.

Rich Angstrom: To me, because there are natural and man made processes incising the river, regulators need to come to grips with some level of incision that is unacceptable. As a practical way of looking at this, the river seems to be in equilibrium.

Pete Klingeman: River systems can be in stable or dynamic equilibrium. You will find there are periods of time with high water events moving a lot of sediment. Some parts are left deeper than before. The data suggests we have some kind of aggradation. What is the time scale? That's a

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tough question. Sometimes the river rebuilds itself over decades. If we had good data… What are the consequences if it really is a degradation? What if some reaches are behaving better than others? You can't treat the whole thing the same way because it isn't acting the same way.

Is it possible that one reach can behave differently than other reaches? Shall we treat reaches differently?

Questions were raised about whether incision occurred in the late 1970s and then stopped. Jim. O'Connor responded that the only thing that can be said is that the incision occurred between the late 1970s and 2008. There is no evidence that supports a conclusion that incision is not continuing. It could be said that much of the incision occurred early during that period. Rather than focus on the cause of the incision, we should focus on a target. Do we want to shoot for that pre-late 70s elevation?

Todd Confer asked about the estuary reach and gravel recruitment, noting that the study seemed to show that there is little recruitment downstream of the North Fork reach, yet, in his experience, the Tidewater Bar recruits gravel rapidly every year. That seems inconsistent with a finding of little recruitment. Jim O'Connor responded that there is gravel recruitment to the lower reach. The capacity predictions suggest 10,000-20,000 m^3 per year getting into the Estuary reach. That's not trivial. He noted, however, that the study of the estuary is weaker than the rest of the study.

Concluding the session, Gail asked whether the panelists agreed with Jim O'Connor's summary conclusions.

- Multiple analyses indicated an average annual influx of 40,000-100,000 m^3 of bed-material into the lower Chetco River. The yearly amount varies tremendously, however, depending on discharge.
- Under natural conditions, much of this material is deposited near the North Fork confluence
- Since 1939 (and 1977) the estuary and channel have incised, in places up to 2 m; and there has been a large reduction in bar area—mainly between 1965 and 1995.
- These historic changes probably owe to a combination of bed-material removal (especially in the late 1970s) and transient river responses to large sediment volumes brought in by the 1964 flood.

All panelists agreed, noting however, the need to gather additional empirical data to refine the model.

Biological Panel: General Discussion of Technical Questions
Jim Waldvogel, Dennis Halligan, Todd Confer, Chuck Wheeler

Note: Concerns were expressed that the Biological Panel originally was intended to be solely outside experts. Due to scheduling conflicts, Dr. Stan Gregory of OSU could not attend and Dr. Guillermo Giannico with Oregon Sea Grant at OSU did not hear the presentation and discussion

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of the USGS report. Dr. Giannico attended the workshop on the second day only, but did not participate as a panelist during this session. As a result, with the exception of Dennis Halligan, the biologists were all local agency staff.

Fish Life History Summary. The Chetco River system has four species of salmonids: anadromous cutthroat, winter steelhead, coho salmon, and chinook salmon. Pacific lamprey are also present. **Todd Confer** summarized the life histories.

Coho salmon: Adults return in late fall, early winter, moving rapidly to 1st, 2nd, and 3rd order tributaries to spawn. Eggs and fry are in the gravel until early spring, emerging in April –May. Fish reside in freshwater (mostly in the tributaries) for a year. At one year and with a length of 100-110 mm, they migrate to the estuary in April-June. Juveniles don't generally live in the main stem.

In response to a question from **Guillermo Giannico** regarding life history variability, **Todd Confer** mentioned that some coho salmon do rear in the estuary, however, ODFW does not think that is a primary life history for coho salmon in the Chetco River. The NMFS representative agreed, but mentioned that the population is so small that the significance of the estuary is difficult to determine. NMFS does not discount the potential of the estuary for the rearing of steelhead and coho salmon. The Chetco has a relatively small area of tidal influence (2 miles). Coho salmon tend not to hang out in the tidal areas until they need to, then they make the adjustment to salt water and go out to the ocean.

Steelhead: Adults come in late fall-early winter, spawning from February to April. Juveniles stay in 1-3 years, primarily utilizing the tributaries. Steelhead are larger than other species when they migrate, 150-200 mm. Juveniles move between the tributaries via the main stem.

Cutthroat: The life history of Cutthroat trout is similar to Steelhead, but they tend to return to freshwater earlier, as early as August, moving up into spawning regions as early as November. Anadromous runs return to the river earlier in the season and move up when the water comes up in the fall and winter.

Fall Chinook salmon:

Adults return from October-December. Peak spawning is in mid December both in the main stem and larger tributaries. Juveniles emerge in spring and migrate down main stem quickly into estuary, spending little time in freshwater. This species spawn in areas where gravel removal occurs in the Chetco River. They depend on the estuary for summer rearing. They leave for the ocean from Aug-Sep at 90-100 mm. Chetco fish are more dependent on the estuary because the system is small and less productive than other coastal systems. They need to spend more time in the estuary to bulk up before they go to the ocean.

Rich Angstrom asked what it meant that the limiting factor was **estuary habitat**. The panelists responded that for a small river like the Chetco the limiting factor for all species is the estuary. There is a lot of spawning habitat and not much rearing habitat. All of the fish are funneled through the estuary at some point and need to spend time there, putting on some weight before they enter the open ocean. **Chuck** thinks that the upper estuary and lower river are significant

for rearing. He reported that he snorkeled from RM2 in the estuary and saw coho salmon. That small a population could be significant. They don't know. From RM5 to the estuary is probably completely stocked with Steelhead and also has chinook salmon. Lots of steelhead rear in the main stem.

Before addressing the Technical Team questions, several questions were asked about habitat needs: ***What are the habitat needs for fish – what physical features must be present? What structure is missing from the river? Question: Historically, were a lot of side channel habitats available in the system? Can the habitats be developed? Is armor habitat for small fish, or is it non-embedded substrate (non-sorted mixture)?***

Jim Waldvogel: The Smith and Chetco systems are nearly identical. Coho salmon love lots of instream structure and are less amenable to open areas. They are smaller and need protection from heavy discharges. Coho salmon like to hide under rootwads and logs laid in the stream. Chinook salmon will use rootwads, but that use is more limited. Steelhead are much more abundant and when older can use reaches with heavy discharges and less structure. Cutthroat trout will wander everywhere. They'll feed on anything, often on the juveniles in the estuary. Steelhead like running water. Chinook salmon get in schools and move using grassy areas for feeding.

Dennis Halligan: Winter habitat is a limiting factor for Coho salmon. They need woody structure and off channel habitat with overhanging vegetation which provides access to winter feeding, and nice, quiet water. They need access to low-gradient, off-channel habitats. Recreating those habitats is necessary for Coho salmon restoration. Any given year, 3-4 days of high discharges are when that habitat is needed. They need complex channel edges at these times. Channel edge structure (alcoves, oxbows) is the key. Old oxbows or abandoned channels with lots of cover would be beneficial to Coho salmon. The more simplified the channel edges are, the less likely they provide suitable overwintering habitat. Cobble edge waters are also important. If there is some overwintering habitat in the main stem between the Mill Creek reach and downstream, Coho salmon could survive.

Was there habitat for Coho salmon historically? There were some back water areas in the past. This may be significant if there are only a couple of places. Those habitats are still there and are capable of being restored either naturally or mechanically.

Guillermo Giannico: *What is the value of gravel as habitat for fish?*

Dennis Halligan: In winter, the value of gravel bars is that they provide a continuum of slower velocity of water. Fry like edge water habitat and cobble rich substrate where they can dive in or come out as needed.. Juvenile Steelhead also like un-embedded coarse substrate. Juvenile Steelhead will dive into cobble to escape high discharges. They like 6-15 cm of cobble to dive into to avoid high discharges.

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Chuck Wheeler: Channel complexity is also needed at the reach level, a bigger spatial scale than the size of the rock, to maintain sinuosity for channel complexity. You can find juvenile Coho salmon in the main stem during the summer months.

Guillermo Giannico: *How about the role of gravel in food production?*

Chuck Wheeler: Yes – gravel is also important for fish food production, e.g. aquatic invertebrates.

Todd: From the Mill Creek reach down there used to be more complex structure.

Jim Waldvogel: There used to be more Coho salmon habitat, more backwater areas, especially in the confluence areas like the mouth of Jack Creek. Everything has flattened out. The two to three miles from Jack Creek to Highway 101 are key.

Dennis Halligan: Figure 13 in the USGS Report showed channel migration, so you should expect that. Those habitats that were there are capable of being formed naturally or mechanically. Snug Harbor seems to be a restoration opportunity even though the silt in there is not good for commercial gravel purposes. Lamprey would like that habitat, too. There may be opportunities for public-private partnership with cost-sharing and perhaps operators donating equipment. Another opportunity would be to install structures in Jack Creek.

Brian Cluer: Space between gravel particles is used for hiding and cover. *Is an armored surface or an unembedded surface better habitat for fish?* Young fish need slow flow and low turbidity. Armored surfaces mean the fines are winnowed out and void spaces exist between cobbles. Un-embedded means that there is a mixture of particle sizes that are mobile.

Dennis Halligan: At the early life history stage, edge water habitat is needed where turbidities are less. Having armor on gravel bars, especially at the head of bars, helps to maintain channel steerage for meandering and pool formation. It maintains high velocity zones against the higher bank. Armor is necessary for winter survival and habitat formation.

Jim Waldvogel: Creating currents is important, not necessarily substrate. As you get into spring and summer, it is important.

Joy Smith: Can you develop a scheme that creates a win-win for habitat and industry?

Chuck Wheeler: Biologists can tell us generally what fish need. They cannot tell us how to recreate it. In general, the higher the sinuosity the better. The more overhanging vegetation and the more large wood the better. But if that can be effectively created is not a question he is comfortable answering.

A question was asked about particle size. The panelists answered that large woody debris (LWD) is transitory in the Chetco main stem. It was also pointed out that LWD in the main stem gouges holes in the substrate which can trap fish. Other structure, like rooted vegetation, are more important and stable.

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2. What indicators are most important for assessing the health of the river and its habitat for fish? (Indicators to consider are things like the degree of incision, bar armoring, coarsening of bed-materials, channel sinuosity and rate of frequency of channel migration and size and location of the gravel bars.)

Dennis Halligan: All of the suggested indicators are physical; none are biological. An approach being used in Northern California is to **map all fish habitat** with aerial photos. Polygons can be coded for spawning, holding, winter alcoves, etc. This is really forensic mapping. The office analysis can be ground truthed. Enough data sets over time will give you trend information and an indication of whether mining will have a positive or negative effect.

Desiree asked how many years of data are needed for the analysis. Dennis responded that as long as you have a historical photo sets and semi-regular photo sets leading up to present conditions you can make some basic determinations. Yearly photo sets after that are probably not necessary- maybe photo sets every 5-10 years.

Chuck Wheeler: Another indicator could be to develop a **measurement of channel complexity**, using the variance of bed elevations to get at channel complexity and adding in other measurements such as variance in velocity, overhanging vegetation, large wood and high flow refuge areas. The complexity indicator would somehow blend these data. Use the complexity "index" to create a base line for each reach. Then evaluate every 5 years or so and look at trends. Jay Charland asked about on how many different spatial scales those measures of variance would work? Chuck responded with a quick answer that they would work on the same scale as our study reaches, but noted he would have to think this through with more time.

Jim Waldvogel: Look at **densities of fish and species before and after extraction** each year for 5 years+ and use this information to help determine extraction effects on fish populations. **Measuring invertebrates** may be another option. Their population levels (density and species) would be another indicator on how extraction is affecting the biota in the system.

Todd Confer: He agrees with Chuck and would like to see a meandering channel in the North Fork where there is some opportunity for this. Measurement of habitat complexity would be ideal. Measurements of biota (as suggested by Jim Waldvogel) would be challenging to pinpoint changes in population due to extraction because of so many contributing factors.

Two other potential indicators might be **backwater areas in the main stem** and **structure in the tributaries.**

a) Are there specific indicators that would be more relevant to the Estuarine reach?

Dennis Halligan: Length of the salt wedge. Cover for hiding.

Chuck Wheeler: Indicators for the Estuarine reach are the same as those for the river, specifically a measurement of complexity (i.e. logs, algae, overhanging woody vegetation, alcoves).

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Jim Waldvogel: Level of predation increases in the estuary, so the structure to hide under becomes more important. This estuary is also dredged on an annual basis

What is the effect on the system if gravel and other removal activities are not permitted? The USGS report indicates the potential for aggradation at points in the system, especially at the wide, flat reaches near Mill Creek/North Fork. How would this benefit or impact habitat, water quality, flooding, recreation fishing and navigability?

What would happen if gravel extraction stops?
With gravel operations, there is an opportunity to create more structure. However, anytime the channel is manipulated it affects the river form. Below the North Fork and Jack Creek happens to be the lower gradient areas of high habitat value and also the area of high gravel recruitment. Without gravel operations, these features will naturally be formed and recover.

Dennis Halligan: Oxbows and alcoves are transient features, just like riparian vegetation. If we mechanically create these things that would be naturally occurring we will have to maintain them every so often. If the river was left alone, these features would eventually naturally form and change in location occasionally. It's not just the number of gravel bars that are mined, but the location of the bars that is important. Lower gradient areas have more habitat use throughout the year.

Someone in the audience interpreted what was being said as meaning that rivers in their natural state are bad for fish and asked if that was the case.

The answer from Dennis and Jim was "no."
Jim added that a pulse of gravel from 1950s and 1960s floods is still in the lower system. That may be one reason why the complexity has reduced in the lower reaches.
Chuck said that he does not agree.

Are there any active management techniques (e.g. mechanical movement of existing sediment at specific locations) that could be employed to enhance, maintain, or restore system health?

Chuck Wheeler: Yes. A BiOp addresses the proposed action relative to the baseline. The poor state of the habitat and of the population makes the question difficult. An action which leads to recovery of habitat and species is good. What those actions might be is a separate question.

Dennis Halligan: There could be active management. Creation of habitat connectivity and cover, etc. Any extraction plan should mix getting the gravel out with habitat restoration. Extraction techniques that could be used include avoiding the top 1/3 of the bar, creating low flow channels, elevational flow offsets, and grooming to avoid stranding fish. Low flow channels and secondary channels can also be created. All brush can be kept on site for brush piles. Large wood can be salvaged and used in restoration. Alcoves and backwater areas can be created.

Should Water Quality be used as an indicator?

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Note: The discussion of water quality focused on high-flow conditions. Water quality measures in those periods are not valuable. Water quality standards will be applied, however, during the summer months when gravel extraction activities have the potential to significantly alter water quality parameters.

Dennis Halligan: Turbidity, DO, pH are not good to look at. Temperature is also not valuable. The essentials would be pool/riffle ratios, overhanging vegetation, bar armoring, coarsening of bed-material, rather than degree of incision, pool elevation vs. riffle crest elevation.

Chuck Wheeler: Complexity, complexity, complexity. Biology doesn't happen in a year. Year to year extraction decisions may not work. You are left with a couple of things: recurrence of transporting discharges, something tied to flows and recruitment. Maybe armoring. An annual decision will have to be done based on physical parameters.

Jim Waldvogel: Not water quality.

Todd Confer: Not water quality. On the same page as Chuck, a measure of complexity is needed. Sinuosity is useful.

Guillermo was asked for his summary comments on what we know/don't know, what indicators you'd be looking for, etc.

Guillermo: In addition to what was highlighted by Dennis and Jim, we need to understand the use of gravel by juveniles, in the lower reaches where gravel extraction would be occurring. Additional indicators to consider could include: overhanging vegetation in side-channels, invertebrate assemblages in the estuary, mean bed elevation as it relates to riffle crest elevation, seasonal inundation levels, instream LWD, movement and distribution of salt water wedge, and marsh habitat conditions. In the lower reaches of the system is important to monitor and try to improve degree of connectivity between active channel and adjacent floodplain areas. Shorter term monitoring should focus on species that are less mobile (such as invertebrates), overall output of fish can only provide a measurable signal over much longer periods of time.

If you had a magic wand, what would you change?

Jim Waldvogel: Land development has probably been the biggest factor degrading water quality in the estuary. Eliminate houses in the estuarine watershed, change land development, building, and stormwater codes.

Dennis Halligan: Boat buy-out. Get rid of the harbor, get the jetties out.

Chuck Wheeler: Get rid of the jetties, return the system to a bar-bound state. Monitoring Coho salmon when they were originally listed 10 years ago would have provided data to discuss today. The only thing we agree on is that the population is low. Differences of opinion stem from the differences in how agencies look at the issues based on their responsibilities.

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Geomorphology Panel: General Discussion of Technical Questions
Peter Klingeman, Desiree Tullos, Chris Lidstone, Brina Cluer, Jim O'Connor

1. ***What does the USGS report tell us about the current condition of the Chetco overall and of the 5 reaches specifically? The purpose of this question is to set the stage for the workshop and discuss the physical attributes of the Chetco overall and of the 5 reaches specifically.***

Is the current level of incision part of an incising trend, or is it part of the natural variation? *Do we want to arrest this process or encourage this process of incision and channel widening?*

Brian Cluer: Using the words incision implies the river is in the first stage of transformation. Are there indicators of the next stages?

Joy Smith: Has the system degraded (become worse)?

Jim O'Connor: There has been incision, but whether there is degradation of habitat is less clear. What we are seeing in the Chetco is areas of local incisions that extend across a couple of meanders. What we look for in a degrading system is a trend away from this state of going up and down and back and forth. One way to see if there is a degrading situation is to look at the particle size distribution. The coarser material is left behind.

Janine Castro: Is the incision within the range of natural variability? We don't know enough about the channel.

Pete Klingeman: Figure 18 in the USGS Report raises the questions: Did some things happening in the 1970s that caused the system to become full of gravel? How much removal took place thereafter? Could we look at rates of extraction compared to other factors? There are missing pieces to deciding about incision.

Desiree Tullos: Is it possible to think about resupply rates in terms of storm events? Is there a one year or two year event that would resupply a gravel bar? What kind of event would resupply the system? An equation which related supply to storm event would be helpful to the regulators.

Erik Petersen: Yes, from a quantity standpoint that's a piece of the puzzle.

Jim O'Connor: There are timescale issues. All transport occurs between October and April/May. Extraction occurs in August/September. In May we have flow records already and can determine how much gravel has come in during the preceding winter, which could help determine extraction volume.

Is two meters of degradation within the acceptable range of degradation for that stretch of stream? With only two data points it is hard to determine an answer to this question.

Can we calculate a resupply event, such as a storm event, and can that be useful towards permit generation?

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Erik Petersen: Yes, but the question remains open because we have only limited data.

2. What indicators are most important for assessing the health of the river and its habitat for fish? (Indicators to consider are things like the degree of incision, bar armoring, coarsening of bed-material, channel sinuosity and rate or frequency of channel migration and size and location of the gravel bars)

Pete Klingeman: Look at the plan form of the river to indicate the river condition: Transect the bar to get a good sense of shape/size. A pool/riffle analysis; how the flow has maintained depth, does the system carve deep pools as it turns sharp corners. Looking for a high variety of water depth, and sinuosity and the ability to develop a secondary current or spiraling action. This builds the bar in the downstream direction. He would want to see that we don't have too much homogeneity. Shape of gravel bars (longitude, transect) and channel adjacent to bars to understand how flow has maintained depth. Variety of water depth. Bank Vegetation. Large wood in the system

Question from Kim. Would you expect the planform of the river to be different given the assumed effects of recent floods? Not necessarily. As the river winnows through a deposit, the deposit can be there for a long time. The same hydrologic processes will be at work. So there should be the same types of sinuous morph features (but not the same as without the pulse).

Chris Lidstone: Geomorphic indicators can be used to address habitat issues. Confluence of tributaries provide important spawning areas, estuary refugia plan form review for backwater areas. Armoring and coarseness of gravel are not as important as biological indicators such as woody debris and overhanging vegetation. Is there some other way to provide quiet water?

Jim O'Connor: There are two ways of looking at this 1) what are needs the river has to improve fish habitat conditions (back water requirements, etc.) or 2) system wide look – things that may be attributable to what we are permitting that may indicate the overall state. Both are measurable. Channel bed elevation and variability and bar textures (coarsening, becoming more armored). Those things go hand in hand with other changes that are ecologically important and are measurable. We have to be able to measure our indicators in a meaningful way.

Desiree Tullos: Measurability. Degree of incision is a red flag (from what baseline, from what point? and what is the context?) We need indicators that are measureable, and translatable to our context. Frequency and duration of…..instead of trying to look at connectivity or complexity, which aren't specific enough. Connectivity: describe in terms of frequency and duration; complexity: variability of depth, velocity. There's lack of linkage between geomorphic changes and biological significance. There needs to be a conceptual map linking geomorphologic processes and biological significance. It might start with lists and linkages as shown below:

Geomorphic Processes	**Biological Processes**	**Indicators**

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Brian Cluer: Use of Plan form analysis through aerial photographs and annual windshield tours. Tributary connectivity is biologically relevant. Tributary mouths are now a long way from the river. Previously the tributaries were right next to the main stem. This is significant from a systems perspective. From a systems perspective, resiliency to natural disturbance is key. We compromise a system's resiliency when we continually interfere with natural processes by skimming, removing layers, not allowing a channel to evolve into a sinuous system.

3. Considering what the USGS study indicates about gravel recruitment on the Chetco and the proposal to extract gravel,

- ***a) Does the system require a "recovery period" to restore a balance to the system?***
- ***b) Are there any specific reaches that might require a "recovery period" to restore a balance to the system?***
- ***c) If so, should gravel extraction activities be authorized and, if so, under what conditions.***

The purpose of this question to obtain opinions about whether gravel removal should occur given the current condition of the river.

Chris Lidstone: Reading question 3a you have to assume there is no balance to the system. The USGS report does not say the system is out of balance. I don't think the system is out of balance. The system is adjusting, as most systems do. It is a sediment rich system with high production in the upper system. Transport occurs through the upper study reaches, deposition below. My opinion is you have opportunities and constraints. Looking at the system historically, it has not had great habitat and it was made worse by the jetties and boat basin. The opportunities to improve are the ones that won't get ruined by a 2 year event. The greatest opportunity for the system recovery is probably through operators, identifying restoration opportunities that private-public partnerships can address.

Jim O'Connor: I'm not sure there ever was a balance. Cannot say if a recovery period is required. But, if you take more out than is coming in, then meandering will not proceed. Need to have more coming in than going out. It would be good for meandering to occur on the North Fork and Mill Creek reaches with improved connectivity to the floodplain.. Whether that requires a recovery period, or not, I don't know. With more gravel coming in, aggradation and connectivity to the floodplain will occur faster.

Brian Cluer: We can let the system evolve on its own or encourage it. That could be done through active management measures.

Pete Klingeman: There are things that are part of a long term cycle of events. Dealing with issues, we can't deal with a question like recovery period. They're beyond the relevant reality to address.

Dennis Halligan: Recovery applies some desired future or past condition that we want to achieve. There are no data out there telling us where we want to go. The desired condition needs to be explicitly spelled out for a responsible management plan to be developed for the system.

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4. The USGS study indicates the Chetco is flow limited (as opposed to supply limited) with respect to gravel recruitment, which ranges from 3,000 cubic yards at very low flow years to over 150,000 cubic yards in high flow years. The Tech Team is considering using flow data and the model to estimate annual recruitment. If flows are of a certain minimum velocity (tbd), a percentage (also tbd) of the recruited material may be removed from the system.

a) Does this seem like a reasonable approach to address extraction volumes for the entire system?
b) If so, how might we derive the percentage that is available for extraction?
c) LIDAR would be used to assess where the material is deposited and each operator will be allowed a certain volume based on this distribution. Does this seem like a reasonable approach to address the allocation of extraction volumes for each location on the river?
d) Is there another method that can be used to reliably estimate annual recruitment and develop a process allowing extraction of some percentage of that volume?
e) The purpose of this question is to get feedback from the experts about our approach to determining how much and where material may be extracted on an annual basis.

Pete Klingeman: Regulation should be based on discharge, not velocity.

Jim O'Connor: The statement is twisted, but the concept should be apparent.

Desiree Tullos: The general concept works, but you would need to be conservative given the prediction error. Need more bed-material data collection. LIDAR would be interesting, but not cost effective. A key question is, how do you remove gravel in a way that increases complexity?

Brian Cluer: Sediment budgets are a pretty good general planning tool, but they shouldn't be the only tool. Sediment budgets have to be used in the context of the system and the cycle. The focus should be on on-site habitat and action. High resolution topographic mapping, digital terrain map once a year would be useful.

Chris Lidstone: You've got a management tool, which is the equation that has been developed by the USGS. Additional bed-material samples will improve the model and expand understanding. The attrition part of the analysis needs more work. The model produces good conservative numbers but there needs to be more bed material data collection. A collaborative year to year process to address the issues could be developed. A base level is needed to work with year to year for operations.

Jim O'Connor: A sediment budget is a point of departure. If we take more gravel out of the river than comes in, then bad things happen. The best way to know what's coming in is the model at the gauging station.

Pete Klingeman: Figure 37 of the USGS Report. There needs to be a tighter definition of the bed load transport curve. More attention to particle attrition is also needed. Water discharge v. Sediment transport. Figure 30. More measurements would make people feel more comfortable in extrapolating that information. Also needs all inputs, outputs, and changes of storage for a total mass balance. A mass balance should be one of the pieces of the overall plan.

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Jim O'Connor: LIDAR could be used to estimate how much material is deposited on the beds each year. LIDAR is such a valuable monitoring tool in so many ways; it will tell us where the gravel is ending up. It is probably the most thorough way of attaining this information. LIDAR now can also see through water and tell us what is happening in the channel.

Desiree Tullos: The turn around time for LIDAR data analysis is too long to be applicable within the year. LIDAR would be an effective tool for monitoring long-term changes in the river, but impractical for annual permit decisions.

5. The agencies are considering employing adaptive management to determine whether gravel can be extracted and how much extraction should be allowed in any given year. In addition to employing the flow data and LIDAR above, this would involve evaluating physical and or biological indicators to assess the condition of the river and the potential for extraction activities. Some of the indicators to consider are listed below.

a) Which ones may be appropriate to consider for the annual extraction decision?
b) Which ones may be more appropriate for a periodic (5 year) review?
c) Are there other physical or biological indicators that would assist the agencies in determining whether, how much and from what location gravel may be extracted from the system?

Potential indicators include:

- ***Recurrence of transporting flows (via stream gauges and rainfall)***
- ***The degree of incision***
- ***The degree of bar armoring***
- ***The degree of coarsening of bed-material***
- ***The degree of sinuosity of the channel (especially at the Mill Creek/North Fork reach)***
- ***The rate or frequency of channel migration***
- ***Size and location of the gravel bars***
- ***Loss or gain of pool/riffle complexes***
- ***Loss or gain of overhanging vegetation***
- ***Presence/absence of target species***
- ***Improvement or degradation of local water quality (e.g., temp, sedimentation, turbidity, DO, pH)***

Brian: High resolution topographic mapping is needed. LIDAR is one method of doing it. DTM (digital terrain map) could be considered versus cross-sections.

Chris: A complexity measure is needed. Loss or gain of pool/riffle complexes, the degree of bar armoring, degree of incision, mean bed elevation as it relates to riffle crest elevation Annual surveys and developing trends must be analyzed relative to events that have occurred so that you can interpret trends relative to flow events. A panel of experts reviewing things annually would help to make intelligent decisions. This has worked in the CHERT process.

Desiree Tullos: Think about what you're evaluating for: year by year you're evaluating how much gravel can come out. Every 3-5 years you're evaluating programmatic and process questions such as: is the channel incising, is this permitting system program working?

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For example the amount of extraction needs to be monitored annually for permit compliance. Longer term analysis, for example 5-years, is needed for programmatic questions.

Jim O'Connor: Monitoring should focus on critical issues. We're focusing on the Chetco but the answer to this question will vary from river to river and potentially tributary to tributary. The degree of bar armoring and the degree of coarsening of bed-materials should be monitored every 5 years or less. On system health attributes, for many rivers, it could be done on a less frequent basis. The concept of resiliency has to come into this. The Chetco has a high sediment yield, so it has a higher level of resiliency. If it gets messed up over a few years, it can be left alone for a few years.

Pete Klingeman: Take top diagram in Fig. 13 (USGS Report), and use this to help determine if the system has enough resiliency in any given year. A 5-year moving mean of sediment transport could be developed. Transects could be selected for each reach based on an overlay of plan views at fairly stable locations. At a given discharge, measure in detail to get the transect shape. Do a width averaged depth of the water. Each year you would have a tracking of the elevation at a given discharge (hydrologic condition). Then you would have a good idea of the longer term state of the system.

Brian Cluer: A set of indicators is needed. A flag raised by one indicator could lead to increased scrutiny. Several flags could lead to a yet higher level of analysis. It could go all the way to stopping mining. In California, these indicators are used as triggers for various actions, including more information and ceasing operations. The indicators could be a set of riffle crest elevations, residual pool depth, pool volume, and bar to pool relief as an indicator of habitat quality. Edge complexity measure- taking sinuosity to a finer scale.

Desiree Tullos: Doubts that edge complexity can be determined with conventional air photos.

6. Are there any active management techniques (e.g., mechanical movement of existing sediment at specific locations) that could be employed to enhance, maintain, or restore system health?

Dennis Halligan: There could be extraction techniques that have a restorative component. The way the extraction is set up in Humboldt, there are standard practices and those with a restorative component. Enhance meandering. Recreate side channels in bars and in other areas.

Chris Lidstone: Concentrate in the Mill Creek reach. The estuary could be holding ground for fish. The goal is to improve habitat, since we don't know the historical conditions. Good opportunity to use extraction and habitat improvement techniques. Taking out more of the lower bar might enhance meandering.

7. What extraction techniques and conditions could be employed that would conserve habitat/water quality and support the health of the system?

Brian Cluer: Lots of opportunity to use strategic extraction techniques.

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8. What is the effect on the system if gravel and other removal activities are not permitted? The USGS report indicates the potential for aggradation at points in the system, especially at the wide, flat reaches near Millcreek/No. Fork. How would this benefit or impact habitat, water quality, flooding, recreational fishing and navigability? Can adaptive management address both benefits and impacts?

Jim O'Connor: The long term history of the Chetco is aggradation in the lower 12 miles of the river. The locus is in the Mill Creek/North Fork reaches. Without extraction, expect aggradation. Even with extraction, that area would continue to aggrade. Aggradation may be associated with good habitat effects, but also associated with negative social effects (flooding, navigability, etc).

Technical Team Questions to Science Panelists

After a break the Science Panelists assembled at the front of the room to address questions and/or unresolved issues raised by the Technical Team. The panelists included:
Todd Confer, Chuck Wheeler, Brian Cluer, Pete Klingeman, Dennis Halligan, Chris Lidstone, Guillermo Giannico, Desiree Tullos and Jim O'Connor.

Alex Liverman provided an overview of the remaining questions. She noted that the Team's proposal is to annually determine whether removal can occur based on a volume threshold for any given year. (The system threshold). The volume threshold would be based on the flows for that year being plugged into the model. If the threshold was met, and gravel removal is appropriate, we would then need to consider how much gravel (what percentage) could be removed and from where. Some reaches appear to be the target places for extraction. If we could map habitat potential, could we prioritize the places where adaptive management strategies would work?

A **general discussion** addressed these issues.

Jim O'Connor: A certain volume of gravel should enter into a reach before extraction is considered. A volume threshold could be set in terms of a gravel recruitment amount. It would have to be determined on a reach scale with given methods and locations. Calculating volumes extracted from bars relies on pre- and post- surveys. Before and after information on the sites is needed.

Jay Charland: Volume is a function of overall flow, plus the periods of maximum flow. The volume of gravel is what we will make our determination on.

Jim O'Connor: Is there a volume of gravel we want to ensure gets into the region?

Lori Warner-Dickason: Volume or discharge threshold?

Jim O'Connor: Volume of gravel threshold.

Pete Klingeman: Having a velocity discharge is discouraged. If you have a threshold discharge, you also need to know for how long. The floor isn't just going to go up and then stop.

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Gail Achterman: Doesn't this mean that in any given year it could be simple luck that determines which operator gets to extract how much, depending upon the deposition pattern?

Dennis Halligan: Yes, the amount allowed to be minded would be set up to a particular volume at specific sites. Some years someone may get something and someone else could get nothing. Do field work. Determine the volume that has settled out on the extraction surface. Not all recruitment settles on the extraction areas, and not all that does settle will be taken.
Instead, could remove material down to a specific final bar configuration, down to a baseline elevation.

Rich Angstrom: The current system's risks and rewards have been worked out by the three operators.

Brian Cluer: Moving to a system of using the model and setting a percentage of extraction allowed, doesn't change the risk to the operators.

Gail Achterman: So, the panelists suggest using the model USGS developed, then taking the next step to fine tune the threshold determination in order to determine what came in and where.

Erik Petersen: Are all bars created equal? Should enhancement opportunities or impact avoidance considerations drive allocation? Do we know enough to engage a process that tries to optimize the system for the operators and the resource?

Response: All bars are not equal.

Discussion on systems approach.

Janine Castro: When several bars are mined, we want to take a system approach.

Alex Liverman: We're moving to the regional approach

Gail Achterman: Has the group considered unitizing the sand and gravel industry like the oil and gas industry. Both systems are very fluid, unlike a commodity like coal. Oregon doesn't currently have the legal framework for this.

Brian Cluer: There is an example of this on the Russian River in Northern CA. That new plan is adaptive to make the best habitat through the tool of gravel management

Discussion on LIDAR and survey methods:

Jim O'Connor: Requiring LIDAR for the entire system can be resource intensive. Doing it on a 3-5 year basis but having permits with restrictions regulating take to some site-measured specifications that are a function of local recruitment might be a compromise: scaled down annual surveys and LIDAR done 3-5 years. LIDAR is expensive, but the cost for existing survey crews is also expensive (Freeman Bar $7-14K a year).

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Chuck Wheeler: We go back to LIDAR because the annual monitoring has to occur anyway.

Desiree Tullos: LIDAR has issues – it won't get anything underwater, and seasonally can be difficult.

Brian Cluer: System wide LIDAR is overkill because you can get the information you need with other topographic mapping.

Chris Lidstone: Use DTM on the bars in place of cross sections.

4b: If so, how might we derive the percentage that is available for extraction? Do you want to frame how much in terms of specific sites or in terms of the system?

Janine Castro: What percent change do you need to see before you can say something about it? What is the volume threshold for detection? How much change do you need to see in storage?

Jim O'Connor: Vertical accuracy is within ten centimeters. Gravel deposits don't occur on top of the bar, instead they occur laterally, making them easier to detect. LIDAR timing could be determined by hydrologic events. For example, LIDAR could be done after every 10 year storm event, etc. Pre- and post- surveys would continue to be required on all bars to maintain the data sets.

Volume determinations can be modeled after water rights, user A gets X amount, user B gets X amount and X amount remains for in-stream use.

Jim O'Connor suggests treating the Chetco as an experiment, try say 50% for a five year span. Measure the affects of taking 50% a year and then evaluate this level compared to other possible percentages.

Ted Freeman (Freeman Rock): What if the operators don't want to take that much? What if we only want to take 20% for one of those years?

Janine Castro: There may be benefit in taking more material one year, then allowing a recovery period for 3-5 years. She asked the panel for their ideas on benefits/costs of taking 10 cubic yards a year for four years versus taking 40 cubic yards one year and none for the next four?

Dennis Halligan: I think it would cause problems.

Guillermo Giannico: Too hard to tell. Things in the river shift year to year- it may matter one year to have things left in the river and not matter the next year. Hence, long term monitoring as part of a controlled management approach would be one way to answer that question. The objective over the long term should be to maintain or improve current conditions.

Removal Methods:

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Pete Klingeman- How are we going to integrate new habitat notions into the removal methods of the past?

Brian Cluer: Removal guidelines he wrote in 2004 laid out an ideal strategy to retain the form and function of a gravel bar while still extracting volume.

Janine Castro: If we know exactly what the habitat needs are we can design/recommend removal methods to give us our desired outcome.

Rich Angstrom recommended that agency folks talk to operators and hear their on-the-ground experience while determining the removal methods covered by the permits. "Don't do this from your desk." The operators have a good handle on what works and doesn't work on the ground.

Alex Liverman: Assuming some threshold and some quantity, we heard discussed accounting for throughput, what was deposited on various areas of the bar, to account for the error in the predicted model, to account for extraction area that's acting as a trap, to account for attrition, to account for some amount of instream or bar building process. Were there other factors?

Chris Lidstone: Tributary input.

Factors to consider in setting an extraction percentage: Throughput Amount deposited on the bars, Errors in the model, Extraction area acting as traps, Attrition (loss to small size particles and suspended load), Bar building process material.

Can we develop a shared vision of what we want the river to look like?

Monty Knudsen: Is that something the tech team and the operators can decide?

Chris Lidstone: Look for off-channel habitat opportunities and restoration in the tributaries, like enhancement of Jack Creek

Bob Lobdell: You cannot design habitat improvement on the bars themselves since they will be under several feet of water during high flow events.

Rich Angstrom: Supports a joint operator/agency meeting on developing a vision for the river. He says the agencies know what it needs to look like.

Alex Liverman: We shouldn't discount the possibility that allowing sinuosity will enhance connectivity, provide habitat, etc.

Chris Lidstone: The system will adjust. Try to force it… We may lose meanders. Nature will have to take care of it.

Agency folks all brought up flexibility, and the need for the permit(s) to be written to allow for flexibility in removal methods.

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Chuck Wheeler: All discussions have focused on riverine portion and all issues there. What about section below river mile two, in the tidal area. One of the USGS diagrams shows great loss in the photic zone there. Given that:
1. Is it viable to even expect extraction at that site in the near future?
2. While it has similar form as the riverine bars, what are the appropriate removal methods and volumes for that location, accounting for tidal influences?

Dennis Halligan: 1. Yes, you should contemplate it. 2. How? Not sure.

Brian Cluer: It needs more estuary bed elevation to support vegetation and restore shallow water habitat.

What are the impacts of the annual dredging on the estuary/system?
Chuck Wheeler: Not many impacts. According to the equipment operator, the material is mostly marine origin.

Key Discussion Issues **(in lieu of breakout groups)**

1. Extraction for Enhancement

2. Indicators/Monitoring

- With what we know of the Chetco, is a year to year indicator appropriate?
- We need to differentiate between monitoring and indicators for *permit compliance* and indicators/monitoring for *program management.*

3. Adaptive Management

Are there any remaining (show-stopper) issues we have yet to address?

Judy Linton: Timeline and process questions

Alex Liverman: Funding and staffing levels

Frank Burris: Biophysical processes, significant water temperature issues during low flow times of year, and exposed banks contribute to that greatly. Food webs are really important in estuaries and riparian vegetation contributes to food webs greatly.

Jim Thrailkill: Lack of information on coho salmon

Gravel Representative from Umpqua River: Until we get the Chetco going, we're not going to get anything done on the Umpqua. Who's in charge? How can we get our questions answered so we can really move forward? Who is ultimately in the lead to help push to the next stage?

Joy Smith: Concern about the group taking the next steps. Jim Waldvogel had a lot of good ideas and good vision on local restoration opportunities and solutions.

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Sally Puent: Make sure the agencies have their questions answered so we can move to the next step.

Ted Freeman: Encourage the agencies to really consider adaptive management approach, learn from the CHERT process.

Bill Yocum: Would like to finalize the side boards and get the ecological concerns addressed. Concerned process will stall until next year.

Tom Gruszczenski(?): Need more information on Lamprey, in addition to Coho salmon

Monty Knudsen: What is the common vision of the river?

Robert Elayer: Hope technical team continues to communicate with operators about this process. Allocation (across operators).

Rich Angstrom: Need to be active in how we look at the river and manage it. The industry has heavy equipment and is in a position to be able do work that can help the river in the long run. He also encouraged the panelists and others (tech team) to come up with a percentage- to him this is the one big outstanding issue.
Need to work on the process so that it can be replicated. This will require information and research.

Janine Castro: Reminder that we have more information through this process than any other stream system she's worked on. So, we may have holes, but in general we're in a better place to make decisions on this project compared to others. Important new thought has been "How can we use mining to accomplish goals, as opposed to a more traditional, confrontational avoid-minimize-mitigate."

Next Steps

Rich Angstrom: An action item should be discussion between operators and agents to determine what opportunities for enhancement there are.

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Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Wednesday, December 23, 2009 2:37 PM
To: 'WARNER-DICKASON Lori'; 'LOBDELL Robert'; 'LIVERMAN Alex'; 'Charland, Jay'; 'SNOW Patty'; 'Chuck Wheeler'; 'Castro, Janine'; Linton, Judy L NWP; 'Yvonne Vallette'; 'Todd Confer'
Subject: Tech Team meeting - January 5

A tech team meeting for the agency folks has been scheduled for January 5 starting at 10:00a and running no later than 2:00. Purpose is to discuss potential adaptive management options developed at a smaller workgroup meeting this morning and other items as they relate to the 'proposed action' of the RGP/GP. The adaptive management concepts will be provided prior to the meeting.

So here are the specifics at a glance:

What: Tech Team Meeting
When: January 5, 2010
Time: 10:00 to 2:00
Where: COE office, Regulatory Conference Room 8th floor (assumption is everyone will be coming and Chuck is calling. If you can't participate or will be late please let me know)
Call-in information: (877)322-9648; participant code 373187 Important things to bring:Your lunch

If there are questions send a shout-out to the group - I'll be out of the office next week and likely checking email infrequently.

See you then - Judy

From:	WARNER-DICKASON Lori
To:	LIVERMAN Alex; Chuck Wheeler; CHARLAND Jay; Linton, Judy L NWP
Cc:	LOBDELL Robert; MOYNAHAN Kevin; WARNER-DICKASON Lori
Subject:	Chetco, draft options for adaptive management-revised
Date:	Thursday, December 31, 2009 4:34:53 PM
Attachments:	Options for adaptive management.doc Option chart for the RGPGP.doc

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I took the notes from the last tech team meeting and created two documents: a narrative that describes the three options and a chart that shows an example. I also tried to incorporate the information that Chuck obtained from Jim. I may have gotten the numbers confused, so please check this, Chuck.

Please review and provide edits. Note that I am sending this only to the folks that attended the tech meeting last week. I wanted you folks to review it to make sure I captured the conversation before we sent to a wider audience.

I also sent to Kevin Moynahan and Bob Lobdell to keep them in the loop.

Happy New Year all!

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Notes from the Tech Team Mtg
December 23, 2009

The Tech Team discussed three options for adaptive management of the gravel extraction operations on the Chetco.

Concepts
A Recruitment volume ("Rv") trigger will be established based on flow velocity and duration that will likely result in bar forming activity. After looking at information pertaining to water discharge, flow elevation, bar heights, and annual gravel influx, and relating it to the processes that result in building gravel bars, the most appropriate trigger for extraction to protect bar building processes is an annual gravel influx of at least 26,000 cubic yards (20,000 cubic meters) as calculated from the Parker equation using the past winter's discharge. This appears to happen in 32 out of 40 years.

1. If flow and duration data for a specified time period indicate that recruited volume is greater than the Rv, gravel extraction can be conducted.
2. The percentage of the Rv that will be allowed for extraction for the entire system will be established at 25%. That percentage will be further adjusted based on deposition (+), suspended load (-), tributary inputs (+) and volume for the river (-).

Option 1: Annual Review Option

1. Flow data is evaluated on an annual basis to determine if the Rv trigger is met.
2. If met, then 25% of the volume that is recruited may be extracted from the river. If not, no extraction can occur for that year.
3. The volume is allocated equally among the three operations. [1]
4. Surveys are conducted to confirm that the allocated volume was recruited for each location.

Advantages:
    A. Operators could remove material more frequently
Disadvantages:
    A. Less certainty for operators
    B. More intensive management

Option 2: Multi-year Review Option
1. Extraction occurs on a repeating cycle: no extraction for three years, extraction on the 4th year.

[1] The tech team recommends distributing the total volume of extraction equally at all locations in an effort to minimize impacts at any one location.

2. Flow data is collected and recorded annually.
3. If the Rv is met on any given year, then 25% of that volume is “banked” for extraction.
4. The accumulated volume is allocated equally among the three operations for extraction in the 4th year.
5. Surveys are conducted to confirm that the allocated volume was recruited for each location.

Option 3: Flow Event Option

1. The trigger for whether extraction can occur is established as the 5-year flow event.
2. Extraction can occur if the 5-year event occurs that year.
3. The volume available for extraction will be established in one of three ways:
    a. The volume is based on what can be removed and still retain the bar form (no upper limit), or
    b. The volume of extractable material is based on the amount of material that has accumulated since the last extraction (cumulatively), applying the 25% limit, or
    c. The volume of extractable material is based on some other rationale (ask Janine)
4. Surveys are conducted to confirm that the allocated volume was recruited for each location.

Advantages:

- Operators could obtain a large volume of material from a high flow event.
- Extraction can occur when the river is in an already disturbed state and the impacts would be less. This approach is most protective of the resource.

Disadvantages:

- Less certainty for operators.

Example Chart Illustrating the Extraction Volumes for the Three Adaptive Management Options for the RGP/GP

		2009	2010	2011	2012	
	Rv (cubic meters) (measured)	75,000	80,000	102,000	18,000	
Options		Amount of Extractable Material				
Annual Review		18,750	20,000	25,500	0	
Multi-year Review		Rest	Rest	Rest	64,250	
Flow Event		0	0	TBD based on surveys and final bar configuration	0	

For the purpose of this example, the established Rv is 20,000 cubic meters and the 5 year event is 100,000 cy.

Latcu, Misty M NWP

From: Charland, Jay [jay.charland@state.or.us]
Sent: Monday, January 04, 2010 9:24 AM
To: LIVERMAN Alex; Chuck Wheeler; CHARLAND Jay; Linton, Judy L NWP; WARNER-DICKASON Lori
Cc: LOBDELL Robert; MOYNAHAN Kevin; WARNER-DICKASON Lori
Subject: RE: Chetco, draft options for adaptive management-revised

What do we do if there is insufficient gravel at any one location? Are we leaving that to the operators to work out?

Also, with respect to the footnote, should we allocate gravel based on relative size of the bars (eg, total area)? So, for example, if the bars were 1, 2, and 3 acres in size, the 3 acre bar would get ½ the Rv, the 2 acre bar 1/3, and the 1 acre bar 1/6.

Jay Charland | Coastal State-Federal Relations Coordinator Oregon Coastal Management Program Oregon Dept. of Land Conservation and Development
635 Capitol Street NE, Suite 150 | Salem, OR 97301-2540
Office: (503) 373-0050 ext. 253 | Cell: (971) 239-9460 | Fax: (503) 378-6033 jay.charland@state.or.us <mailto:jay.charland@state.or.us> | www.oregon.gov/LCD <http://www.oregon.gov/LCD>

From: WARNER-DICKASON Lori [mailto:lori.warner-dickason@state.or.us]
Sent: Thursday, December 31, 2009 4:35 PM
To: LIVERMAN Alex; Chuck Wheeler; CHARLAND Jay; Linton, Judy L NWP
Cc: LOBDELL Robert; MOYNAHAN Kevin; WARNER-DICKASON Lori
Subject: Chetco, draft options for adaptive management-revised

I took the notes from the last tech team meeting and created two documents: a narrative that describes the three options and a chart that shows an example. I also tried to incorporate the information that Chuck obtained from Jim. I may have gotten the numbers confused, so please check this, Chuck.

Please review and provide edits. Note that I am sending this only to the folks that attended the tech meeting last week. I wanted you folks to review it to make sure I captured the conversation before we sent to a wider audience.

I also sent to Kevin Moynahan and Bob Lobdell to keep them in the loop.

Happy New Year all!

Lori Warner-Dickason, Western Region Manager

Wetlands and Waterways Conservation Division

Oregon Department of State Lands

(503) 986-5271

(503)378-4844 (fax)

lori.warner-dickason@state.or.us

Latcu, Misty M NWP

From: Chuck Wheeler [Chuck.Wheeler@noaa.gov]
Sent: Wednesday, January 06, 2010 11:53 AM
To: WARNER-DICKASON Lori
Cc: LIVERMAN Alex; CHARLAND Jay; Linton, Judy L NWP; LOBDELL Robert; Carl Dugger
Subject: Table
Attachments: tech team table.xls

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Red Category

Everyone, Jim got me the real data for 1970 to 2008. I did not see the point of just parsing out the last 10 years, so I did the analysis on all 39. I am sending this to everyone because it is worth looking at and thinking about. Some results were unexpected. Also, you will see I made an estimate of volume available under option 3, justification below.

I left this in Excel in case anyone wants to check the calculations and formulas. If you see any errors, or have questions, give me a call.

My random observations:
Option 1:trigger A (25% harvest in years exceeding 35k influx)

* There were many more years with no extraction than I guesstimated on the conference call, including a period of six straight years where no harvest would occur.
* Our rules do not say to accumulate volume from year to year, this has positive and negative effects to our resources: (1) It is beneficial because there is no disturbance at all in poor years; (2) it is negative because it can extend the deficit period during long spells of low influx (If the volume was cumulated over years, the trigger would be cumulative. Thus if no extraction occurred one year the trigger next year would be 70k cumulative. This is demonstrated by the period following 1987, a long low spell followed by a year that is just over the trigger. Harvest in 1993 perpetuates the deficit situation.)
* This option results in by far the least amount of material extracted.

Option 1:trigger B (Reserve 26k, 50% harvest of rest)

* This option appears to allow harvest in more years than trigger A, but the volume is so low in those years I doubt the operators would mobilize, particularly since that volume is equally split 3 ways.
* There were many more years with no extraction than I guesstimated on the conference call.
* This option results in quite a bit more extraction, it has to do with getting much more during the high influx years.

Option 2:trigger A (30% cumulative harvest when the cycle exceeds a yearly average of 37k, at least 3 winters between harvest)

* The trigger is 37k/year because of the increase in % harvested from 25% to 30%, to protect the 26k baseline.

* The trigger is much harder to meet than I expected. There are three periods where extraction does not occur for at least 7 years. This has to do with making up the deficit for prior years before harvest can occur. Look at 1978, 85k recruited, but the prior two years were so low that cumulatively they did not trigger 111k.

Option 2:trigger B (Reserve 26 per year, harvest cumulative 60% of rest, at least 3 winters between harvest)

* This option provides the most stable cycle.

Option 3 (Harvest all available material available after a five year influx event (90k), while retaining bar form)

* I estimated the volume harvested by looking at the operators' monitoring reports. Freeman extracted 61k in 2007 (they extracted less in 2008, but the influx was pretty low that year and the bar was likely not rebuilt from 2007). Tidewater extracted 11k in 2008, the only year they implemented the bar form retention design. I assumed SLC could take 8k from their bar to give us a total of 80k. I think these numbers are likely low considering theses numbers were generated when the bars had ongoing effects from previous harvests and were likely not built up to a fully developed state.

* As expected, the interval between harvest is highly variable, one interval is 14 years.

* There would likely be stockpile issues during the 5 year period where 4 events occurred.
* This option resulted in the most gravel being removed (and would likely be higher, see first bullet)

Final thought: I like the way the numbers work out in the end, but there will likely be operational issues with 4 of the 5 options. I do not propose to change any triggers or harvest%, despite my expectation that industry will dislike at least 3.

I would not mind a quick conference call if anyone has difficulty understanding the table or has any other insight they want to share.

Chuck

Year	Parker Equation Prediction	Option 1		Option 2		Option 3
		Trig A (35k) P*.25	Trig B (P-26,000)*.5	Trig A (111k) .3*(Pn+Pn-1+Pn-2)	Trig B [(Pn+Pn-1+Pn-2)-78,000]*.6	90k
1970	103,545	25,886	38,773	n/a	n/a	80,000
1971	102,794	25,698	38,397	n/a	n/a	80,000
1972	105,544	26,386	39,772	93,565	140,329	80,000
1973	12,734	-	-	n/a	n/a	
1974	98,840	24,710	36,420	n/a	n/a	80,000
1975	40,070	10,017	7,035	45,493	44,186	
1976	19,226	-	-	n/a	n/a	
1977	1,408	-	-	n/a	n/a	
1978	84,662	21,165	29,331	-	16,377	
1979	19,386	-	-	-	n/a	
1980	42,910	10,727	8,455	-	n/a	
1981	37,077	9,269	5,538	-	12,824	
1982	134,180	33,545	54,090	101,654	n/a	80,000
1983	94,805	23,701	34,402	n/a	n/a	80,000
1984	57,493	14,373	15,747	n/a	125,087	
1985	29,949	-	1,974	54,674	n/a	
1986	67,438	16,860	20,719	n/a	n/a	
1987	25,304	-	-	n/a	26,815	
1988	31,871	-	2,936	37,384	n/a	
1989	29,044	-	1,522	n/a	n/a	
1990	24,602	-	-	n/a	4,510	
1991	12,790	-	-	-	n/a	
1992	12,228	-	-	-	n/a	
1993	43,383	10,846	8,691	-	-	
1994	7,207	-	-	-	-	
1995	84,362	21,091	29,181	64,085	49,182	
1996	63,018	15,755	18,509	n/a	n/a	
1997	131,608	32,902	52,804	n/a	n/a	80,000
1998	51,805	12,951	12,903	73,929	101,059	
1999	60,191	15,048	17,096	n/a	n/a	
2000	39,661	9,915	6,830	n/a	n/a	
2001	1,067	-	-	-	13,752	
2002	28,631	-	1,316	-	n/a	
2003	45,794	11,448	9,897	-	n/a	
2004	36,354	9,089	5,177	-	19,668	
2005	31,461	-	2,731	-	n/a	
2006	104,425	26,106	39,212	104,275	n/a	80,000
2007	51,684	12,921	12,842	n/a	65,742	
2008	25,121	-	-	n/a	n/a	
Total	1,993,671	420,410	552,299	575,060	619,530	640,000

Latcu, Misty M NWP

From: Linton, Judy L NWP
Sent: Thursday, January 28, 2010 10:16 AM
To: Linton, Judy L NWP; 'Bob Bailey'; 'David Pratt'; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'; 'Nancy Johnson'; Petersen, Erik S NWP
Cc: 'Alex Liverman'; 'Bill Yocum'; 'Bob Lobdell'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jodi Fritts'; 'Lori Warner-Dickason'; 'Patty Snow'; 'Todd Confer'; 'Yvonne Vallette'; 'Jim O'Connor'
Subject: RE: Joint Executive/Technical Team meeting
Attachments: Options for allowable extraction012810_final.doc

Here is the latest information regarding the joint Executive/Technical team meeting. Please note the change in date.

Date: February 3rd
Time: 9:00a to 12:00p
Place: Corps offices in Portland (Regulatory Conference Room, 8th floor) Teleconference info: (888)422-7128; passcode 592795

Purpose: Review and make decisions regarding the Tech Team recommendation for Gravel Extraction from the Chetco River. See attached document for details regarding this proposal (this is the most current version). The proposal will be presented at the meeting with plenty opportunity for discussion.

Attendees: These are the people that will be attending the meeting in person. If your name is not listed please let me know for visitor badge purposes.

Kim Kratz, NMFS
Chuck Wheeler, NMFS
Joe Zisa, USFWS
Sally Puent, DEQ
Alex Liverman, DEQ
Kevin Moynahan, DSL
Lori Warner-Dickason, DSL
Patty Snow, ODFW
Jay Charland, DLCD
Rich Angstrom, OCAPA

Let me know if any questions. Thanks - Judy

-----Original Message-----
From: Linton, Judy L NWP
Sent: Thursday, January 21, 2010 3:47 PM
To: Linton, Judy L NWP; 'Bob Bailey'; 'David Pratt'; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'; 'Nancy Johnson'; Petersen, Erik S NWP
Cc: 'Alex Liverman'; 'Bill Yocum'; 'Bob Lobdell'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jodi Fritts'; 'Lori Warner-Dickason'; 'Patty Snow'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'; 'Jim O'Connor'
Subject: RE: Joint Executive/Technical Team meeting

The joint Exec/Tech Team meeting has been rescheduled for Thursday February 4th from 9:00 to 12:00 at the Corps offices (room location and agenda to be provided later). Executive Team members that are not able to participate in the meeting are asked to send an agency representative with decision-making authority. A teleconference line will be set up for those needing to participate by phone.

Information relative to agenda items will be provided prior to the meeting. Judy

-----Original Message-----
From: Linton, Judy L NWP
Sent: Tuesday, January 19, 2010 3:50 PM
To: 'Bob Bailey'; 'David Pratt'; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; 'Kevin Moynahan'; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'; 'Nancy Johnson'
Cc: 'Alex Liverman'; 'Bill Yocum'; 'Bob Lobdell'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jodi Fritts'; Linton, Judy L NWP; 'Lori Warner-Dickason'; 'Patty Snow'; 'Rich Angstrom'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'; 'Jim O'Connor'
Subject: Joint Executive/Technical Team meeting
Importance: High

Hi, folks -

This message is being sent on behalf of Erik and Kevin. It is very important that we schedule a joint Executive and Technical Team meeting soon to discuss some key issues related to the development of the RGP/GP for the Chetco River. The main issue for discussion is a proposed option for gravel extraction (based on volume and time), which has been prepared by agency representatives of the tech team. The specific details and basis of this option will be presented by the Tech Team.

The proposed meeting date is January 27 from 1:00 to 3:00 at the Corps offices in Portland. Please let me know if you are available on that day. Thank you for your attention to this meeting request.

Judy

Tech Team Recommendation for Gravel Extraction from the Chetco River
January 28, 2010

The Tech Team (TT) explored many adaptive management strategies for gravel extraction from the Chetco River. This document describes an overall strategy for adaptive management, the establishment of a "reserve volume", the options for "triggers" to determine when material can be extracted, and percentages to determine the volume of extractable material. The document concludes with a recommendation to the Executive Team on an option that the TT believes would result in maintenance and recovery of habitat of the Chetco River while providing aggregate to the industry.

The Overall Strategy for Allowable Extraction

As the TT evaluated when and how much gravel should be extracted, an overall strategy emerged. This strategy is described in the paragraphs below and is applied to each of the options described later in this document.

Using flow data to predict annual recruitment volume: Flow data collected between November and March of each year will be evaluated to derive the annual recruitment volume. The Parker equation will be used to estimate the annual recruited volume (the "Parker Equation Prediction"). That annual recruitment volume will be used to determine if the appropriate trigger (see trigger options below) has been met.

Determining the amount of material that can be extracted from each bar: Based on the recruitment volume and the trigger option, the total amount of material that could be extracted from the system will be established. The total amount of extractable material will be allocated between the three bars as follows:

- 47% for the Freeman bar
- 47% for the Tidewater bar
- 6% for the South Coast Lumber bar

Once the volume of extractable material for each bar has been established, pre-extraction surveys will be conducted to confirm that the allocated volume was actually recruited at each bar. The last post removal survey is used as a baseline to estimate recruited amounts. The amount of extractable material for each bar is limited to the lesser of (1) that which can be extracted and still retain the desired bar form for that location, or (2) that which was recruited to the bar.

Prior to each extraction event, agencies will conduct site visits to establish the desired bar form retention required for each location. The agencies will adjust the bar form retention based on the current status of each reach and the need to protect or avoid certain habitat features.

Development of Alternatives

During development, the TT found inclusion of three factors essential to each alternative: the requirement to maintain a "reserve volume" of recruited material in the river, the trigger used to determine when mining may occur, and the frequency of disturbance.

The reserve volume (V_r): An annual bar maintenance reserve recruitment volume ("V_r") should be established based on flow volume and duration that will likely result in maintenance of the current state within the lower Chetco River. The TT consulted with Jim O'Connor (USGS) to determine an influx rate, derived from available data and based on geomorphic principles, that we are confident will at least maintain the current state of gravel bars in the lower Chetco River. After looking at information pertaining to water discharge, flow elevation, bar heights, and annual gravel influx, and relating it to the processes that result in maintaining gravel bars, the most appropriate minimum V_r to protect bar maintenance processes is an annual gravel influx of at least 26,000 cubic yards, as calculated from the Parker equation using the past winter's discharge. The TT has determined that it is in the best interest of resource protection to reserve 26,000 cy/yr of material in the river to maintain the current state of the Chetco River.

The trigger: The TT explored three options for development of the triggers. The first two (trigger options A and B) directly incorporate the 26,000 cy/yr reserve volume. The third does not include V_r directly, but the TT believes under this scenario the reserve volume will be met.

A. Trigger option A: Allow a percentage of the total recruited material to be extracted, as long as at least 26,000 cy/yr is left for the river (extraction=total*percentage).
B. Trigger option B: Allow a percentage of the recruited material exceeding the 26,000 cy reserve to be extracted (extraction=[total-26,000]*percentage.
C. Trigger option C: Extraction only occurs after a large influx event. Extraction is limited by maintaining bar form.

Frequency of extraction: The literature is clear that frequent disturbance increases adverse effects on the environment. For gravel extraction this is important because disturbance breaks down bar armoring which allows bed mobilization and bar destabilization to occur more frequently and to a higher degree than would occur naturally. To address this, the TT developed two alternatives to annual extraction to minimize frequent disturbance and incorporated rest years to increase recovery potential. The first is a multi-year cyclical approach in which extraction would occur at most every three years, allowing recruited material to accumulate during the rest years. The volume trigger would be cumulative over the three years to meet the reserve requirement. If the trigger was not met in three years, it would be re-evaluated each year until the cumulative trigger was met. Upon extraction, the cycle would reset. The second alternative is based on masking anthropogenic disturbance by extracting after a large influx event. The TT believes a 5-year influx event (approximately 90,000 cy) is adequate to "reset" all gravel bars in the lower Chetco River, thus extraction would only occur when the system is already disturbed. This alternative was developed in concert with Trigger option C above.

Development of Percentage Available to Extract

Because the current state of the Chetco River gravel bars is degraded, maintaining them at this level has negative physical and biological consequences. The TT developed a strategy whereby a percentage of the influx is allotted to extraction and the rest is left to function in the river. Deriving a percentage was difficult because there is little scientific literature or regulatory guidelines establishing allotments for this type of resource. In developing the percentages, the TT reviewed the recommendations of NMFS in California,[1] analyzed river discharge data and predicted historical volumes of sediment influxes from the USGS study, and incorporated the information gathered at the November gravel workshop. Because little precedent exists, the TT took a conservative approach to minimize risk with the understanding that the percentages could be increased in the future if the monitoring data indicated the risk was low.

Percentages of recruited material available for extraction, adjusted for frequency of extraction: Because of the potential adverse effects of frequent disturbance and the benefits of leaving aggregate in the river during rest years, the percentages of extractable material are lower if annual extraction is allowed and higher if periods of rest are employed, as follows:

- Trigger option A percentage: If annual extraction is employed, the percentage of extractable material is 25%. If a multi-year cycle is implemented, the percentage is established at 30%.
- Trigger option B percentage: If annual extraction is proposed, the percentage of extractable material is 50%. If a multi-year cycle is proposed, the percentage is established at 60%.
- Trigger option C, no percentage: When extraction coincides with a large flow event, the anthropogenic effects are "masked" by the disturbance caused by the natural event. Therefore, the TT did not establish a percentage if extraction occurring after a 5-year event, but rather is recommending that the bar form retention be the sole limiting factor in determining the volume of extractable material.

Future adjustment of the percentages under trigger options A and B: The percentages could be further adjusted based on 5-year review of information pertaining to deposition (+), suspended load data (-), tributary inputs (+) and volume of aggregate necessary for the river (-), as well as refined information on throughput, attrition, and error (modeling).

The Options Table

To assess and compare the amount of material available for extraction under the different alternatives, the TT developed Table 1. Table 1 utilizes the real Chetco River discharge data and the Parker Equation predictions of recruited volumes from 1970 to 2008. This table represents what could have been extracted if these alternatives would have been implemented over the last 39 years. It is for discussion purposes only and is not to be interpreted as what the TT thinks will

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[1] SEDIMENT REMOVAL FROM FRESHWATER SALMONID HABITAT: Guidelines to NOAA Fisheries Staff for the Evaluation of Sediment Removal Actions from California Streams. Available online at: http://swr.nmfs.noaa.gov/hcd/policies/April19-2004.pdf. For properly functioning streams, this document recommends "that proposed extraction plans allow for pass-through of 50% of the unimpaired incoming coarse sediment load to maintain downstream habitats."

be available in the future because the future discharge of the Chetco River is unpredictable. The table provides a comparison of the extractable volumes that would have been available annually, on a multi-year cycle, or after a 5-year influx event. The annual and multi-year options were calculated using both Trigger options A and B.

Estimating the amount of material available under Trigger option C is difficult because it is bound only by the amount of material which accumulates on the bars. The TT estimated the volume harvested by looking at the operators' monitoring reports. The first year Freeman Rock used the bar form retention method (2007) they extracted 61,000 cy in 2007 (they extracted less in 2008, but the influx was low that year and the bar was likely not substantially rebuilt from 2007). Tidewater extracted 11,000 cy in 2008, the only year they implemented the bar form retention design. The TT assumed SLC could take 8,000 cy from their bar to give us a total of 80,000 cy. These numbers are likely low considering they were generated when the bars had ongoing effects from previous harvests, were likely not built up to a fully developed state, and did not benefit from a five-year event occurring.

Table 1. Volume of material that would have been available under the alternatives, 1970-2008.

	Parker	Annual		Three Year Cycle		5yr event
Year	Prediction	Trig A (35k)	Trig B (Vr 26k)	Trig A (111k)	Trig B (Vr 78k)	(90k)
1970	103,545	25,886	38,773	rest	rest	80,000
1971	102,794	25,698	38,397	rest	rest	80,000
1972	105,544	26,386	39,772	93,565	140,329	80,000
1973	12,734	-	-	rest	rest	
1974	98,840	24,710	36,420	rest	rest	80,000
1975	40,070	10,017	7,035	45,493	44,186	
1976	19,226	-	-	rest	rest	
1977	1,408	-	-	rest	rest	
1978	84,662	21,165	29,331	-	16,377	
1979	19,386	-	-	-	rest	
1980	42,910	10,727	8,455	-	rest	
1981	37,077	9,269	5,538	-	12,824	
1982	134,180	33,545	54,090	101,654	rest	80,000
1983	94,805	23,701	34,402	rest	rest	80,000
1984	57,493	14,373	15,747	rest	125,087	
1985	29,949	-	1,974	54,674	rest	
1986	67,438	16,860	20,719	rest	rest	
1987	25,304	-	-	rest	26,815	
1988	31,871	-	2,936	37,384	rest	
1989	29,044	-	1,522	rest	rest	
1990	24,602	-	-	rest	4,510	
1991	12,790	-	-	-	rest	
1992	12,228	-	-	-	rest	
1993	43,383	10,846	8,691	-	-	
1994	7,207	-	-	-	-	
1995	84,362	21,091	29,181	-	17,982	
1996	63,018	15,755	18,509	-	rest	
1997	131,608	32,902	52,804	122,473	rest	80,000
1998	51,805	12,951	12,903	rest	101,059	
1999	60,191	15,048	17,096	rest	rest	
2000	39,661	9,915	6,830	45,497	rest	
2001	1,067	-	-	-	13,752	
2002	28,631	-	1,316	-	rest	
2003	45,794	11,448	9,897	-	rest	
2004	36,354	9,089	5,177	-	19,668	
2005	31,461	-	2,731	-	rest	
2006	104,425	26,106	39,212	74,320	rest	80,000
2007	51,684	12,921	12,842	rest	65,742	
2008	25,121	-	-	rest	rest	
Total	1,993,671	420,410	552,299	575,060	588,330	640,000

A dashed line indicates inadequate influx to support aggregate removal that year.

Tech Team Recommendation

The TT recommends extraction from the Chetco River following a 5-year influx event, while including a three-year cycle utilizing Trigger option B. In this recommendation, extraction would occur after any 5-year influx event. All aggregate up to the amount that still maintains the appropriate bar form could be extracted. If a 5-year influx does not occur within a 3-year period, Trigger option B would be implemented. If the trigger is met after three years (78,000 cy), 60% of the recruited volume over V_r could be extracted. If Trigger option B is not met in three years, it would be re-evaluated each year until the cumulative trigger was met. The cycle resets after each extraction event whether it is a 5-year event or Trigger option B. Table 2 represents what could have been extracted if this alternative would have been implemented over the last 39 years.

Advantages of the recommended option:

- More certainty for operators than Trigger A options, annual extractions, or 5 year event trigger by itself.
- More material can be extracted at one time resulting in less cost for operators due to reduced mobilization and survey needs.
- Reduced cost to reviewing agencies in staff time and travel.
- When a 5-year event occurs, extraction occurs when the river is in an already disturbed state and the anthropogenic impacts are masked by the natural disturbance.
- When no 5-year event occurs, at least three winters of rest will allow for aggregate to function undisturbed in the river.
- Less frequent disturbance in the river would maintain a more natural regime of bar armoring and stability.
- Operators could obtain a large volume of material from a high flow event to stockpile for years to come.
- Allows for the greatest predicted amount of extraction to occur, while still maintaining less frequent disturbance.

Table 2. Volume of material that would have been available under recommended alternative, 1970-2008. A dashed line indicates inadequate influx to support aggregate removal that year.

Year	Parker Prediction	5yr event (90k) and Trig B (Vr 78k)
1970	103,545	80,000
1971	102,794	80,000
1972	105,544	80,000
1973	12,734	rest
1974	98,840	80,000
1975	40,070	rest
1976	19,226	rest
1977	1,408	-
1978	84,662	24,819
1979	19,386	rest
1980	42,910	rest
1981	37,077	12,824
1982	134,180	80,000
1983	94,805	80,000
1984	57,493	rest
1985	29,949	rest
1986	67,438	46,128
1987	25,304	rest
1988	31,871	rest
1989	29,044	4,931
1990	24,602	rest
1991	12,790	rest
1992	12,228	-
1993	43,383	-
1994	7,207	-
1995	84,362	17,143
1996	63,018	rest
1997	131,608	80,000
1998	51,805	rest
1999	60,191	rest
2000	39,661	44,194
2001	1,067	rest
2002	28,631	rest
2003	45,794	-
2004	36,354	4,068
2005	31,461	rest
2006	104,425	80,000
2007	51,684	rest
2008	25,121	rest
Total	1,993,671	794,107

Tech Team Recommendation for Gravel Extraction from the Chetco River
January 28, 2010

The Tech Team (TT) explored many adaptive management strategies for gravel extraction from the Chetco River. This document describes an overall strategy for adaptive management, the establishment of a "reserve volume", the options for "triggers" to determine when material can be extracted, and percentages to determine the volume of extractable material. The document concludes with a recommendation to the Executive Team on an option that the TT believes would result in maintenance and recovery of habitat of the Chetco River while providing aggregate to the industry.

The Overall Strategy for Allowable Extraction

As the TT evaluated when and how much gravel should be extracted, an overall strategy emerged. This strategy is described in the paragraphs below and is applied to each of the options described later in this document.

Using flow data to predict annual recruitment volume: Flow data collected between November and March of each year will be evaluated to derive the annual recruitment volume. The Parker equation will be used to estimate the annual recruited volume (the "Parker Equation Prediction"). That annual recruitment volume will be used to determine if the appropriate trigger (see trigger options below) has been met.

Determining the amount of material that can be extracted from each bar: Based on the recruitment volume and the trigger option, the total amount of material that could be extracted from the system will be established. The total amount of extractable material will be allocated between the three bars as follows:

- 47% for the Freeman bar
- 47% for the Tidewater bar
- 6% for the South Coast Lumber bar

Once the volume of extractable material for each bar has been established, pre-extraction surveys will be conducted to confirm that the allocated volume was actually recruited at each bar. The last post removal survey is used as a baseline to estimate recruited amounts. The amount of extractable material for each bar is limited to the lesser of (1) that which can be extracted and still retain the desired bar form for that location, or (2) that which was recruited to the bar.

Prior to each extraction event, agencies will conduct site visits to establish the desired bar form retention required for each location. The agencies will adjust the bar form retention based on the current status of each reach and the need to protect or avoid certain habitat features.

Development of Alternatives

During development, the TT found inclusion of three factors essential to each alternative: the requirement to maintain a "reserve volume" of recruited material in the river, the trigger used to determine when mining may occur, and the frequency of disturbance.

The reserve volume (V_r): An annual bar maintenance reserve recruitment volume ("V_r") should be established based on flow volume and duration that will likely result in maintenance of the current state within the lower Chetco River. The TT consulted with Jim O'Connor (USGS) to determine an influx rate, derived from available data and based on geomorphic principles, that we are confident will at least maintain the current state of gravel bars in the lower Chetco River. After looking at information pertaining to water discharge, flow elevation, bar heights, and annual gravel influx, and relating it to the processes that result in maintaining gravel bars, the most appropriate minimum V_r to protect bar maintenance processes is an annual gravel influx of at least 26,000 cubic yards, as calculated from the Parker equation using the past winter's discharge. The TT has determined that it is in the best interest of resource protection to reserve 26,000 cy/yr of material in the river to maintain the current state of the Chetco River.

The trigger: The TT explored three options for development of the triggers. The first two (trigger options A and B) directly incorporate the 26,000 cy/yr reserve volume. The third does not include V_r directly, but the TT believes under this scenario the reserve volume will be met.

A. Trigger option A: Allow a percentage of the total recruited material to be extracted, as long as at least 26,000 cy/yr is left for the river (extraction=total*percentage).
B. Trigger option B: Allow a percentage of the recruited material exceeding the 26,000 cy reserve to be extracted (extraction=[total-26,000]*percentage.
C. Trigger option C: Extraction only occurs after a large influx event. Extraction is limited by maintaining bar form.

Frequency of extraction: The literature is clear that frequent disturbance increases adverse effects on the environment. For gravel extraction this is important because disturbance breaks down bar armoring which allows bed mobilization and bar destabilization to occur more frequently and to a higher degree than would occur naturally. To address this, the TT developed two alternatives to annual extraction to minimize frequent disturbance and incorporated rest years to increase recovery potential. The first is a multi-year cyclical approach in which extraction would occur at most every three years, allowing recruited material to accumulate during the rest years. The volume trigger would be cumulative over the three years to meet the reserve requirement. If the trigger was not met in three years, it would be re-evaluated each year until the cumulative trigger was met. Upon extraction, the cycle would reset. The second alternative is based on masking anthropogenic disturbance by extracting after a large influx event. The TT believes a 5-year influx event (approximately 90,000 cy) is adequate to "reset" all gravel bars in the lower Chetco River, thus extraction would only occur when the system is already disturbed. This alternative was developed in concert with Trigger option C above.

Development of Percentage Available to Extract

Because the current state of the Chetco River gravel bars is degraded, maintaining them at this level has negative physical and biological consequences. The TT developed a strategy whereby a percentage of the influx is allotted to extraction and the rest is left to function in the river. Deriving a percentage was difficult because there is little scientific literature or regulatory guidelines establishing allotments for this type of resource. In developing the percentages, the TT reviewed the recommendations of NMFS in California,[1] analyzed river discharge data and predicted historical volumes of sediment influxes from the USGS study, and incorporated the information gathered at the November gravel workshop. Because little precedent exists, the TT took a conservative approach to minimize risk with the understanding that the percentages could be increased in the future if the monitoring data indicated the risk was low.

Percentages of recruited material available for extraction, adjusted for frequency of extraction: Because of the potential adverse effects of frequent disturbance and the benefits of leaving aggregate in the river during rest years, the percentages of extractable material are lower if annual extraction is allowed and higher if periods of rest are employed, as follows:

- Trigger option A percentage: If annual extraction is employed, the percentage of extractable material is 25%. If a multi-year cycle is implemented, the percentage is established at 30%.
- Trigger option B percentage: If annual extraction is proposed, the percentage of extractable material is 50%. If a multi-year cycle is proposed, the percentage is established at 60%.
- Trigger option C, no percentage: When extraction coincides with a large flow event, the anthropogenic effects are "masked" by the disturbance caused by the natural event. Therefore, the TT did not establish a percentage if extraction occurring after a 5-year event, but rather is recommending that the bar form retention be the sole limiting factor in determining the volume of extractable material.

Future adjustment of the percentages under trigger options A and B: The percentages could be further adjusted based on 5-year review of information pertaining to deposition (+), suspended load data (-), tributary inputs (+) and volume of aggregate necessary for the river (-), as well as refined information on throughput, attrition, and error (modeling).

The Options Table

To assess and compare the amount of material available for extraction under the different alternatives, the TT developed Table 1. Table 1 utilizes the real Chetco River discharge data and the Parker Equation predictions of recruited volumes from 1970 to 2008. This table represents what could have been extracted if these alternatives would have been implemented over the last 39 years. It is for discussion purposes only and is not to be interpreted as what the TT thinks will

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[1] SEDIMENT REMOVAL FROM FRESHWATER SALMONID HABITAT: Guidelines to NOAA Fisheries Staff for the Evaluation of Sediment Removal Actions from California Streams. Available online at: http://swr.nmfs.noaa.gov/hcd/policies/April19-2004.pdf. For properly functioning streams, this document recommends "that proposed extraction plans allow for pass-through of 50% of the unimpaired incoming coarse sediment load to maintain downstream habitats."

be available in the future because the future discharge of the Chetco River is unpredictable. The table provides a comparison of the extractable volumes that would have been available annually, on a multi-year cycle, or after a 5-year influx event. The annual and multi-year options were calculated using both Trigger options A and B.

Estimating the amount of material available under Trigger option C is difficult because it is bound only by the amount of material which accumulates on the bars. The TT estimated the volume harvested by looking at the operators' monitoring reports. The first year Freeman Rock used the bar form retention method (2007) they extracted 61,000 cy in 2007 (they extracted less in 2008, but the influx was low that year and the bar was likely not substantially rebuilt from 2007). Tidewater extracted 11,000 cy in 2008, the only year they implemented the bar form retention design. The TT assumed SLC could take 8,000 cy from their bar to give us a total of 80,000 cy. These numbers are likely low considering they were generated when the bars had ongoing effects from previous harvests, were likely not built up to a fully developed state, and did not benefit from a five-year event occurring.

Table 1. Volume of material that would have been available under the alternatives, 1970-2008.

Year	Parker Prediction	Annual		Three Year Cycle		5yr event
		Trig A (35k)	Trig B (Vr 26k)	Trig A (111k)	Trig B (Vr 78k)	(90k)
1970	103,545	25,886	38,773	rest	rest	80,000
1971	102,794	25,698	38,397	rest	rest	80,000
1972	105,544	26,386	39,772	93,565	140,329	80,000
1973	12,734	-	-	rest	rest	
1974	98,840	24,710	36,420	rest	rest	80,000
1975	40,070	10,017	7,035	45,493	44,186	
1976	19,226	-	-	rest	rest	
1977	1,408	-	-	rest	rest	
1978	84,662	21,165	29,331	-	16,377	
1979	19,386	-	-	-	rest	
1980	42,910	10,727	8,455	-	rest	
1981	37,077	9,269	5,538	-	12,824	
1982	134,180	33,545	54,090	101,654	rest	80,000
1983	94,805	23,701	34,402	rest	rest	80,000
1984	57,493	14,373	15,747	rest	125,087	
1985	29,949	-	1,974	54,674	rest	
1986	67,438	16,860	20,719	rest	rest	
1987	25,304	-	-	rest	26,815	
1988	31,871	-	2,936	37,384	rest	
1989	29,044	-	1,522	rest	rest	
1990	24,602	-	-	rest	4,510	
1991	12,790	-	-	-	rest	
1992	12,228	-	-	-	rest	
1993	43,383	10,846	8,691	-	-	
1994	7,207	-	-	-	-	
1995	84,362	21,091	29,181	-	17,982	
1996	63,018	15,755	18,509	-	rest	
1997	131,608	32,902	52,804	122,473	rest	80,000
1998	51,805	12,951	12,903	rest	101,059	
1999	60,191	15,048	17,096	rest	rest	
2000	39,661	9,915	6,830	45,497	rest	
2001	1,067	-	-	-	13,752	
2002	28,631	-	1,316	-	rest	
2003	45,794	11,448	9,897	-	rest	
2004	36,354	9,089	5,177	-	19,668	
2005	31,461	-	2,731	-	rest	
2006	104,425	26,106	39,212	74,320	rest	80,000
2007	51,684	12,921	12,842	rest	65,742	
2008	25,121	-	-	rest	rest	
Total	1,993,671	420,410	552,299	575,060	588,330	640,000

A dashed line indicates inadequate influx to support aggregate removal that year.

Tech Team Recommendation

The TT recommends extraction from the Chetco River following a 5-year influx event, while including a three-year cycle utilizing Trigger option B. In this recommendation, extraction would occur after any 5-year influx event. All aggregate up to the amount that still maintains the appropriate bar form could be extracted. If a 5-year influx does not occur within a 3-year period, Trigger option B would be implemented. If the trigger is met after three years (78,000 cy), 60% of the recruited volume over V_r could be extracted. If Trigger option B is not met in three years, it would be re-evaluated each year until the cumulative trigger was met. The cycle resets after each extraction event whether it is a 5-year event or Trigger option B. Table 2 represents what could have been extracted if this alternative would have been implemented over the last 39 years.

Advantages of the recommended option:

- More certainty for operators than Trigger A options, annual extractions, or 5 year event trigger by itself.
- More material can be extracted at one time resulting in less cost for operators due to reduced mobilization and survey needs.
- Reduced cost to reviewing agencies in staff time and travel.
- When a 5-year event occurs, extraction occurs when the river is in an already disturbed state and the anthropogenic impacts are masked by the natural disturbance.
- When no 5-year event occurs, at least three winters of rest will allow for aggregate to function undisturbed in the river.
- Less frequent disturbance in the river would maintain a more natural regime of bar armoring and stability.
- Operators could obtain a large volume of material from a high flow event to stockpile for years to come.
- Allows for the greatest predicted amount of extraction to occur, while still maintaining less frequent disturbance.

Table 2. Volume of material that would have been available under recommended alternative, 1970-2008. A dashed line indicates inadequate influx to support aggregate removal that year.

Year	Parker Prediction	5yr event (90k) and Trig B (Vr 78k)
1970	103,545	80,000
1971	102,794	80,000
1972	105,544	80,000
1973	12,734	rest
1974	98,840	80,000
1975	40,070	rest
1976	19,226	rest
1977	1,408	-
1978	84,662	24,819
1979	19,386	rest
1980	42,910	rest
1981	37,077	12,824
1982	134,180	80,000
1983	94,805	80,000
1984	57,493	rest
1985	29,949	rest
1986	67,438	46,128
1987	25,304	rest
1988	31,871	rest
1989	29,044	4,931
1990	24,602	rest
1991	12,790	rest
1992	12,228	-
1993	43,383	-
1994	7,207	-
1995	84,362	17,143
1996	63,018	rest
1997	131,608	80,000
1998	51,805	rest
1999	60,191	rest
2000	39,661	44,194
2001	1,067	rest
2002	28,631	rest
2003	45,794	-
2004	36,354	4,068
2005	31,461	rest
2006	104,425	80,000
2007	51,684	rest
2008	25,121	rest
Total	1,993,671	794,107

Petersen, Erik S NWP

From: MOYNAHAN Kevin [kevin.moynahan@state.or.us]
Sent: Tuesday, February 02, 2010 7:23 PM
To: Petersen, Erik S NWP
Subject: FW: Industry Response to Interagency Recommendation

Attachments: TT Proposal.xls; Gravel Demand.xls; Industry Objection.doc; Industry Proposal for Gravel Extraction from the Chetco River1.doc; Fall Freshet Turbidity Monitoring.doc

TT Proposal.xls (32 KB) | Gravel Demand.xls (39 KB) | Industry Objection.doc (48 KB) | Industry Proposal for Gravel E... | Fall Freshet Turbidity Monitor...

Erik - this material is excellent. It deserves serious consideration. The Industry proposal for assessing gravel available for extraction is closer to what I originally envisioned as working on the Chetco.

See you tomorrow.

Kevin

From: Rich Angstrom [mailto:rich@ocapa.net]
Sent: Tuesday, February 02, 2010 8:33 AM
To: tedf@hughes.net; Chris Lidstone; byocum@hughes.net; Joy Smith; Robert Elayer; virgilf@socomi.com
Cc: MOYNAHAN Kevin; Petersen, Erik S NWP
Subject: Industry Response to Interagency Recommendation

Members/Agency Folks,

Here is the Industry response to the Interagency recommendation.

I. Industry Objection: Outlines the specific issues and assumptions of the interagency proposal with which we disagree.

2. TT Proposal: Is a spread sheet showing the available gravel for commercial and in water use under various scenerios.

3. Fall Freshet Turbidity Monitoring: Summary of research sampling of water quality changes after extraction.

4. Gravel Demand: Show local need (volume) of high quality aggregates in the near future.

5. Industry Proposal for Gravel Extraction from the Chetco River: Is just that.

Kevin and Erik let me know if there is anything else we need to do.

Richard Angstrom

President

Oregon Concrete & Aggregate Producers Association

737 13th St. SE, Salem, OR 97301

Phone: 503-588-2430 ext.8

TECH TEAM RECOMMENDATION FOR GRAVEL EXTRACTION FROM THE CHETCO RIVER

		ANNUAL		3-YEAR CYCLE			(RECOM.)
	Parker Prediction	Trigger A E=T*25%	Trigger B E=[T-V]*50%	Trigger A E=T*30%	Trigger B E=[T-V]*60%	Trigger C 5yr event >90K	Trigger C/B 5yr event >90K and 3yr cycle Trig B E=[T-V]*60%
TOTALS OVER 39-YR PERIOD:							
Total Prediced Volume (39 years):	1,993,671						
Allowed Amount Extracted:	0	420,410	552,299	575,060	588,330	640,000	794,107
Amount Left in River	1,993,671	1,573,261	1,441,372	1,418,611	1,405,341	1,353,671	1,199,564
Reserve Amount (26,000 cu-yds):	780,000	780,000	780,000	780,000	780,000	780,000	780,000
Excess Amount Over Reserve:	1,213,671	793,261	661,372	638,611	625,341	573,671	419,564
Amount Left in River	1,993,671	1,573,261	1,441,372	1,418,611	1,405,341	1,353,671	1,199,564
YEARLY AVERAGES FOR PERIOD:							
Tidewater: 47%	0	5,067	6,656	6,930	7,090	7,713	9,570
Freeman: 47%	0	5,067	6,656	6,930	7,090	7,713	9,570
South Coast: 6%	0	647	850	885	905	985	1,222
Total Extracted Each Year on Average:	0	10,780	14,162	14,745	15,085	16,410	20,362
Total Left in River Each Year on Average:	51,120	40,340	36,958	36,375	36,034	34,710	30,758
EXTRACTION YEARS FOR PERIOD:							
Extraction years:	0	23	28	8	12	8	15
No extraction years:	39	16	11	31	27	31	24

TECH TEAM RECOMMENDATION

Trigger: *Any year in which a 5-year influx event of at least 90,000 cy is recorded*

Allowed Extraction: *Limited only by amount required to maintain bar form*

Trigger Option B: *If 5-year influx event does not occur within a 3-year period, the yearly influx is summed to test against Trigger Option B.*
Trigger Option B requires a minimum of 26,000 cy per year for the 3 year period (78,000 cy).
If Trigger Option B is not met in 3 years, it is again tested at 4 years which would require 104,000 cy minimum.

Allowed Extraction: *Limited to 60% of that amount over Trigger Option B.*

INDUSTRY RECOMMENDATION

Trigger: *Total Sum for the Recruitment Year is calculated from gaging station data using the Parker Equation. This amount must be greater than 26,000 cy.*

Allowed Extraction: *The Calculated Volume is determined by subtracting 26,000 cy from the Total Sum for the Recruitment Year.*
The Recruited Volume is determined by comparing the current bar surface survey with prior years pre-harvest baseline survey (Recruited Volume)
The Recruited Volume is compared with the Calculated Volume and lessor of the two is the Allowed Extraction Volume.

ESTIMATED IMMEDIATE DEMAND FOR HIGH QUALITY AGGREGATE IN CURRY COUNTY

	Aggregate Demand Average Year (cu-yds)	Anticipated Demand 2010-2011 (cu-yds)
CONCRETE AGGREGATE:		
Average year:	42,000	52,000
A/C AGGREGATE:		
Average year (excluding large highway jobs):	60,000	60,000
Large highway jobs soon up for bid:		
Agness road (Gold Beach to Agness)		75,000
Hwy 101 (Gold Beach to Thomas Creek Bridge)		150,000
BASE AGGREGATE:		
Average year	45,000	35,000
TOTALS:	147,000	337,000

Industry Response to Interagency Recommendations for Gravel Extraction from the Chetco River

Industry Overview:

The interagency report identifies an overly conservative strategy to permit gravel removal from the Chetco River resulting in an annual average between 10,000 cu/yds and 16,000 cu/yds from current averages of between 68,000 cu/yds and 80,000 cu/yds. This reduction represents a 6 fold reduction in current gravel harvest levels. Moreover, the interagency recommendation does not meet market demand by an estimated 100,000 cu/yds per year.

The interagency proposal recommends three reductions to annual bed load inflows to reach an amount of gravel available for commercial use. As explained in their recommendation, a variable volume of bed material enters the Chetco reach at the USGS gaging station (second bridge) on an annual basis. From that volume of bed material, the interagency report recommends a reserve of 26,000 cubic yards within the river system for bar formation, transfer to the estuary and habitat improvement. Next, the interagency report recommends, reducing the remaining available volume of bed load inflow by another 40% to 75% depending on one of three approaches outlined in the report. Last, the report recommends applicants mine only a portion of bed load material settling on their individual gravel bars. Of the bed load material moving past the USGS gaging station only a percentage of that material settles on gravel bars currently supporting removal activity. Current permit conditions including retaining head of bar, depth of removal and other permit conditions, results in further reduced bed load inflow actually available for harvest.

The basis for these reductions and the assumptions agency personnel used to justify them is in contention by the industry. The industry discusses in the remainder of this report our specific reasons for objecting to critical portions of the interagency recommendation. The industry is comfortable with some aspects of the recommendation including leaving a level of material in the Chetco system for bar formation, habitat improvement, and through -flow to the estuary. However, establishing the volume is in question, and though the agencies believe it needs to be conservative it still needs to be objective, measurable and scientifically based. Our point which will be further developed is that parts of the interagency recommendation are arbitrary and should not be considered.

Biological Objections:

The ODFW biologists, who were present in Charleston, were particularly familiar with the Chetco system. These biologists noted that the Steelhead population was robust and that the Chinook population, though lower than the all time high, is currently impacted more by ocean temperatures and lack of estuary habitat than anything that is taking place within the Chetco channel. Although NMFS is working on a Coho recovery plan, it was clear that there is no supporting data that suggests that there ever was a resident population of Coho "to recover".

The report suggests that if the interagency recommendations are followed, one could anticipate "maintenance and recovery of habitat of the Chetco River while providing aggregate to the industry". Both fundamental premises are incorrect. As discussed above, the biologists, who are most familiar with the Chetco River were present and led discussions in Charleston. They included Frank Burris and Jim Waldvokel, Sea Grant and Todd Confer, ODFW. All three of them questioned whether the Chetco River ever had an independent population of Coho or if the Chetco River ever provided Coho habitat. Todd Confer indicated that the limiting factor for Coho salmon is the lack of over wintering habitat, which he stated was due to the nature of the Chetco River as a high energy, high gradient system.

All experts seem to agree that the lack of estuary habitat is the key to the low populations of salmon- both Coho and Chinook. Yet the lack of estuary habitat has absolutely nothing to do with gravel extraction from upstream sources, nor is it even remotely related to the amount of gravel that passes by the USGS gaging station. The USGS notes that the majority of all material is deposited in the Mill Creek and North Fork reach and that "a small amount of gravel is transported into the Estuary reach. All experts agreed that the lack of estuary habitat is due to land development around Chetco estuary manifested as urbanization of the lower reach of the river and the construction of the boat basin and the lower jetties. Simply said the interagency recommendations will not have any notable effect on Coho or Chinook habitat.

Objection to Amount of Material Available for Market Purposes:

The second part of the report's preamble states that the interagency's approach will provide gravel for industry. Using the recommendations from Table 2 of the interagency report, the average extraction allowed will be approximately 10,000 CY per year per operator. This amount of gravel removal represents a 6 fold decrease in their present gravel harvest and will not meet the demand of the local market. The side effect of this significant reduction in gravel extraction is that the operators will be financially limited such that their ability to proceed with off channel habitat development (adaptive management) will be financially strapped.

Objection to Misuse of Fluvial Geomorphology Determinations and Principals:

The interagency recommendation states that "because the current state of the Chetco River gravel bars is degraded, maintaining them at this level has negative physical and biological consequences". This statement by the authors of this report is unsupported by the two year USGS study and Dr. O'Connor's presentation. In fact the Primary Findings of the USGS report (pg. 75) begin with "The Chetco River is a wandering gravel-bed river flanked by abundant and large gravel bars formed of coarse-bed sediment. "

At no point in the report does the USGS state that the Chetco is degraded. When asked the question in Charleston, Dr. O'Connor clearly said that there is evidence of past incision- not degradation. Much of the discussion is that the incision data referenced three data sets: 1977, 1982 and 2008. The data indicated that the majority of incision occurred between 1977 and 1982 and that there has been little, if any subsequent lowering of the bed elevation since that time period. Furthermore the USGS report stated (pg. 35) that "examination of repeat surveys (1977 and 2008) indicated that channel lowering is independent of the rest of the active channel, as bar

elevations appear similar in 1977 and 2008." The use of "incision" as a sign of degradation is a misstatement of fact. Furthermore the USGS noted that surface area of barren bars within the Chetco River has been reduced over the period of record, while the amount of vegetated bar area has increased. Such is not a picture of a degraded environment.

Visual inspection of the Chetco River finds that channel tributaries and tributary confluences all have deltas of sand and gravel and are not incised, nor "hanging", as would be the case in an incising stream. The USGS report clearly states that the majority of bed material influx, which enters the Chetco at the USGS gage site, passes through the upper reaches and accumulates in the depositional areas within the Mill Creek and North Fork Reach. Therefore it is clear that the Freeman and Tidewater gravel bar recruitment is not coming from within the system below the bridge, but is external material brought into the reach from the upper watershed. In other words, current levels (prior to the moratorium) of gravel extraction are not exceeding gravel recruitment.

Objection to Use of Unsupported Findings:

The interagency report developed a strategy whereby a percentage of the influx is allotted to extraction and the rest is left to function in the river. The report identified "a bar building recruitment volume" of 26,000 cubic yards "derived from available data and based on geomorphic principles". The number "26,000 CY" is neither substantiated in their report, nor in the USGS report. The basis for this number, including all available data supporting this number and a definition of the supporting geomorphic principles should be presented to the Executive Team before it is adopted.

The interagency report identified "percentages of recruited material available for extraction", adjusted for the frequency of extraction. This is nothing more than adding another level of conservatism on an already conservative approach. These percentages have no defined basis and as stated by the reports author(s): "there is little scientific literature or regulatory guidelines establishing allotments for this type of resource". <u>With all of the efforts of the Executive Team to fund and incorporate good science, it is an extreme disappointment that the report should arbitrarily select percentages ranging from 25-60% depending on the frequency of extraction</u>.

The report states that "the literature is clear that frequent disturbance increases adverse effects on the environment. For gravel extraction this is important because disturbance breaks down bar armoring which allows bed mobilization and bar destabilization to occur more frequently and to a higher degree than would occur naturally." The USGS report states that the "armoring ratios at Fitzhugh bar, Social Security Bar and Tidewater Estuary Bar were 1.52, 2.09 and 2.41 respectively indicating high sediment supply relative to transport conditions." This means that the armor layer, which exists on the Chetco bars, was created in a high energy disruptive environment and was not created by the process of steady state winnowing of the fines and sustained development of a coarse armor layer. It is clear that frequent disturbance of the armor layer within the Chetco is a natural process and that it has limited to no effect on the environment. Furthermore Freeman Rock has collected field (turbidity) data during three bar overtopping events over two removal periods (2007 & 2008) that establishes that turbidity does not increase downstream from a bar, which has undergone previous season gravel extraction.

Therefore the premise that removal of the armor layer will increase downstream turbidity is unproven for the Chetco.

The interagency report identifies a 5-year influx event (approximately 90,000 CY) as "adequate to "reset all gravel bars in the Lower Chetco". Again, they provide no scientific basis for this number. The selection of this event is arbitrary and capricious and is unsupported by scientific principles.

The report estimates the volume harvested by looking at operators' monitoring reports and used that volume as a means of calculating available volume after a large event via the "bar form retention method". They specifically use Freeman Rocks extraction of 61,000 CY in 2007. Although Ted Freeman stated in Charleston that their mining practice is "not to remove all gravels that are recruited on a bar", the author(s) make the assumption that Freeman did mine all that was recruited. The following are facts regarding the 2007 and 2008 harvest:

- The report states that Freeman Rock removed 61,000 CY in 2007. This is correct but it should also be noted that Freeman Rock did not remove all of the available aggregate for 2007 because they had adequate supply for future project needs. The removal footprint was approximately **one-third less than the pre-harvest plan**.
- The report states that Freeman removed less in 2008, but the influx was low that year and the bar was likely not substantially rebuilt from 2007. **The bar was rebuilt and Freeman Rock removed 36,000 CY in 2007 because of the reduced project needs from the downturn in the economy. <u>The removal footprint was approximately half of the submitted pre-harvest plan</u>**.

A key environmental goal for gravel removal is to minimize its effect on aquatic life and T&E habitat. As scientists, one endeavors to create a pre-project baseline to set as attainable habitat goals. The November/December workshop addressed both species and their habitat needs. As discussed above, the primary species of impact (environmental restoration) concern was the SONC Coho salmon and their missing habitat was "overwintering habitat". The estuary was identified as the one location where this habitat may have existed in the past but that since the development of the Chetco Harbor, Boat Basin and the Port such habitat has been impacted. The construction and maintenance of the Chetco Harbor, Boat Basin and Port are unrelated to gravel mining and have occurred after the 1939 aerial photography. Furthermore it is unlikely that the mouth of the Chetco will be or can be returned to a pre-development (pre-harbor) condition. With this said, the estuary baseline should not be a 1939 condition, but rather a post-Chetco Harbor baseline is appropriate and should serve as a measure of habitat quality.

Conclusion:

In summary the USGS published a report that included the latest science dealing with the sediment transport and geomorphic condition in the Chetco River. We are disappointed that the recommendation did not incorporate more of the information from the RGI Workshop and the USGS Report to develop an extraction alternative that meets the goals of (1) minimizing the

effect of gravel extraction to the ecology of the Chetco and (2) meet the aggregate needs of the southern Oregon communities.

Final comments, the interagency paper was not a collaborative effort and does not reflect participation from the entire Tech Team membership nor does it incorporate the findings of the two year study completed by the USGS. This paper is a reflection of flawed science, poor understanding of fluvial processes and compounds conservative assumptions upon conservative assumptions. The paper's fundamental premise that the Chetco River is "broke" and is in need of recovery is not true. This assertion is not supported by the conclusions of the USGS report and was clearly not supported by the experts, who were brought together at the Charleston Regional Gravel Initiative Workshop in November/December, 2009.

Industry Proposal for Gravel Extraction from the Chetco River
January 29, 2010

After reviewing the State and Federal interagency recommendation for gravel extraction from the Chetco and in an effort at conference and conciliation, the Chetco River operators, Freeman Rock (FR), South Coast Lumber (SCL) and Tidewater Contractors (TC) with technical assistance from Rich Angstrom (OCAPA) and Chris Lidstone (LA) recommend the following:

A. Gravel Extraction Proposal

For the next five years (2010-2015 in-water windows), the Department of State Lands (DSL) and the Army Corp of Engineers (COE) will create a qualified team of individuals to evaluate flow data, stream health, and salmonid returns in order to set gravel harvest volumes for the Chetco River and its tributaries. The Chetco River Gravel Review Team (CRGRT) will make the annual material extraction decisions in accordance with the following guidelines:

1. The CRGRT will discretize by April 30 of each year, storm hydrographs for each winter flow event with a peak flow greater than 5000 cfs as measured at the USGS gaging station 14400000 (Chetco River near Brookings). The annual time period for evaluation shall include the water year period from October 15 through April 15. Each storm flow shall be discretized on a two (2) hour basis with the average flow determined during that two hour period.
2. Using the Parker Equation (Parker, 1990) as presented in the USGS report (Open File Report 2009-1163) and as presented on Figure 30 of that report, the CRGRT will calculate the predicted bed-material load that passed the USGS Gage (14400000) during each storm event. This calculation shall be completed on a two hour interval basis. During the (5) years permit period, DSL and the COE will coordinate with USGS and/or Oregon State University (OSU) to continue to collect bed load data at the bridge to calibrate this equation as discussed in Part B of this memorandum.
3. The CRGRT will calculate the sum of the predicted bed material load that passed the USGS gage for each storm event. This number will reflect a TOTAL SUM FOR EACH EVENT.
4. Using the TOTAL SUM FOR EACH EVENT, the CRGRT will calculate the TOTAL SUM FOR ALL EVENTS during that water recruitment

year. This will reflect the TOTAL SUM FOR THE RECRUITMENT YEAR ($Q_{S\text{-}in}$). A recruitment year will extend from October 15 through April 15 period.

5. By May 15th of each year, the CRGRT will complete a calculation that uses the TOTAL SUM FOR THE RECRUITMENT YEAR ($Q_{S\text{-}in}$) and deducts 26,000 CY. This number will reflect the **"calculated"** gravel material, which is available for extraction.
6. By June 15th of each year, the Industry permittees will complete a pre-extraction survey of each bar and compare the existing bar surface (recruited surface) to the baseline configuration of the bar. The baseline surface will be the post-harvest plan surface which was documented during the 2007 harvest year. This number will reflect the **"recruited"** gravel material, which is available for extraction.
7. The CRGRT in conjunction with DSL, COE and the Industry permittees will select the minimum available extraction volume between these two methods: "calculated" versus "recruited" and that will be the allowable extraction for that year.
8. The CRGRT in conjunction with DSL, COE and the Industry permittees will select the geometrical restrictions on bar removal and will work on adaptive management techniques that will be implemented and/or monitored during the permit period. Such techniques will include the development and implementation of a 5-year plan towards habitat improvement goals.

B. Monitoring Recommendations

The agencies with assistance from the Industry permittees will implement a rigorous data collection and monitoring program of the Chetco River from 2010 to 2015. The purpose of this monitoring program will be to calibrate the USGS sediment transport equation and the maintenance variable, currently understood to be 26,000 CY. Specifically:

1. The USGS or OSU will collect a minimum of two (2) bed load samples per year at the USGS gaging station 14400000 (Chetco River near Brookings). The bed load samples will be used to develop a sediment rating curve for the gaging station and will be directly used to calibrate the Parker (1990) or if appropriate, a more accurate sediment transport equation.
2. There are two variables in the sediment inflow/outflow continuum as presented as Figure 37 of the USGS report: ***Tributary Inflow*** and ***Attrition.*** The sediment contributions from these variables were not developed in the

USGS report and thus represent a gap in the data. Over the next five (5) years, the CRGRT and Industry permittees will participate in a data collection program to address these two flux variables.

a) The USGS or OSU with the Industry permittee's assistance will collect representative samples of the material transported by the Chetco River and complete attrition analysis. Such analysis could include mechanical methods (like LA Rattler) and or modified Wolman analysis on individual bars, where individual cobbles/pebbles are not only measured for size, but classified by rock type and durability.
b) The USGS or OSU will make an effort at measuring annu***al bed load sedi***ment ***productio***n from North Fork tributary***. This may include physical sampling*** of the tributary, construction of a sediment trap and/or implementation of series of geomorphic cross sections with repeat measurements. Data from North Fork will be extrapolated to other tributaries including Emily Creek.

3. The Corps (Yaquina Suction Dredge) with annual assistance from the Operators will develop an "estuary sediment removal map" that will identify the location of the gravel and sand deposits which are dredged. The Corps and the Operators will collect for the purposes of grain size and petrographic analysis representative samples of (1) the dredged material from the estuary; (2) marine-derived beach sediments from adjacent coastal locations; and (3) fluvialtile sediment from the Chetco River at a location upstream of the Estuary. The Operators can complete the grain size analyses. The USGS, or other appropriate agencies, can complete the petrographic analyses. A qualitative and semi-quantitative comparison of the three populations can be made.
4. At the end of the five year period, the Industry permittees with agency assistance will contract a LIDAR flight and the USGS will complete the LIDAR analysis.
5. The Industry permittees will collect annual pre-extraction bar surface data on their own gravel bars and with CRGRT approval and landowner consent for access, each operator will collect existing ground surface data on two (2) non-owned or non-leased bars.
6. During the first year (2010) the Industry permittees will work with the CRGRT to develop a plan, which, if implemented will result in effective off channel habitat improvement. The primary goal appears to address the need for overwintering habitat. With this in mind, possible mitigation opportunities may include Jack Creek improvements and sediment removal

from silted in side channels within the tidal section of the Chetco. Fencing of livestock, introduction of large woody debris, regrading and revegetation efforts that may provide quiet water, shade and protection could be considered.

7. During the next several years (2011-2015), the industry permittees with CRGRT and state agency assistance will implement the off channel habitat improvement plan.
8. At the end of the 5th year, the USGS in conjunction with the CRGRT and the Industry permittees will review all data, complete the necessary analysis and make adjustments to the Parker Equation, any replacement equation and/or any maintenance variables. Data collection efforts will be reviewed and modified as necessary.

Turbidity Monitoring - Fall Freshet

on

Freeman Bar - 2007 & 2008

Date	Location	Turbidity
October 10, 2007	Above South Bar Removal Area	2.1
	Below South Bar Removal Area	2.6
	Above North Bar Removal Area	13.3
	Below North Bar Removal Area	11.1
October 4, 2008	Above North Bar Removal Area	14.4
	Below North Bar Removal Area	12.0
November 4, 2008	Above North Bar Removal Area	28.7
	Below North Bar Removal Area	25.2

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2007 Turbidity Tests for Freeman Rock on Chetco River

Performed by Cindy Ricks Myers

Hach Model 2100P Turbidimeter

Calibration
Date 10/03/2007
Meter is recalibrated at least quarterly

Accuracy Check

Secondary stds, NTU	429	45.6	4.88
Secondary stds, NTU after calibration	428	44.9	4.86
Rel % Diff	0.2	1.5	0.4

Meter accuracy must be <5% Rel % Diff

Sample Tests
Samples received 10/12/07 from Bill Yocum, held in cardboard box, not cooled
Holding time not to exceed 48 hours at 4°C (on ice or in refrigerator), in the dark
Turbidity tested 10/12/2007 14:00-14:30

Sample Date/Time	Sample ID	Location	Turbidity, NTU	Repeat measurements of same sample			
10/10/07 10:30	1	Head of South Bar	2.1	2.9	1.4	1.9	Measurements are averaged.
10/10/07 10:30	2	Head of Mine Site on North Bar	13.3	12.5	13.7	13.6	
10/10/07 10:30	dup 2	Head of Mine Site on North Bar	12.8	12.1	12.3	14.1	
10/10/07 10:30	3	Lower end of North Bar mine site before North Fork	11.1	10.4	11.6	11.3	
10/10/07 10:30	4	Lower end of South Bar below mine site	2.6	2.7	2.3	2.7	
10/10/07 10:30	5	Jacks Creek at old fish trap	6.3	6.1	6.7	6.2	
10/10/07 10:30	6	Lower end of Jacks Creek	7.7	7.4	8.1	7.7	
10/10/07 14:30	Blank		0.2	0.14	0.19	0.17	

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Above South Bar Removal Area 2.1
Below South Bar Removal Area 2.6

Calibration Error 0.5

Above North Bar Removal Area 13.3
Below North Bar Removal Area 11.1

10/4/08

2008 Turbidity Tests for Freeman Rock on Chetco River

Performed by Cindy Ricks Myers

Hach Model 2100P Turbidimeter

Calibration
Date 4/25/2008
Meter should be recalibrated at least quarterly

Accuracy Check

Secondary stds, NTU	430	45.4	4.89
Secondary stds, NTU after calibration	429	45.7	4.93
Rel % Diff	0.2	0.7	0.8

Meter accuracy must be <5% Rel % Diff

Sample Tests
Samples received 10/6/08 from Bill Yocum, in cooler on ice
Holding time exceeded 48 hours at 4°C (on ice or in refrigerator), in the dark
Turbidity tested 10/6/2008 18:45-19:15

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Sample Date/Time	Sample ID	Location	Turbidity NTU	Repeat measurements of same sample		
10/04/2008 12:00-13:30	1	Mainstem Chetco above removal sites	14.4	14.2	14.6	
10/04/2008 12:00-13:30	2	North Fork Chetco above removal site	7.6	7.6	7.7	
10/04/2008 12:00-13:30	3	Mainstem Chetco below removal sites	12.0	11.9	12.0	
10/04/2008 12:00-13:30	Dup 1	Mainstem Chetco above removal sites	14.6	14.2	15.8	13.8
	Blank		0.2	0.16		

Measurements are averaged. Generally read sample cell twice unless results differed by >1 NTU and then read sample a third time

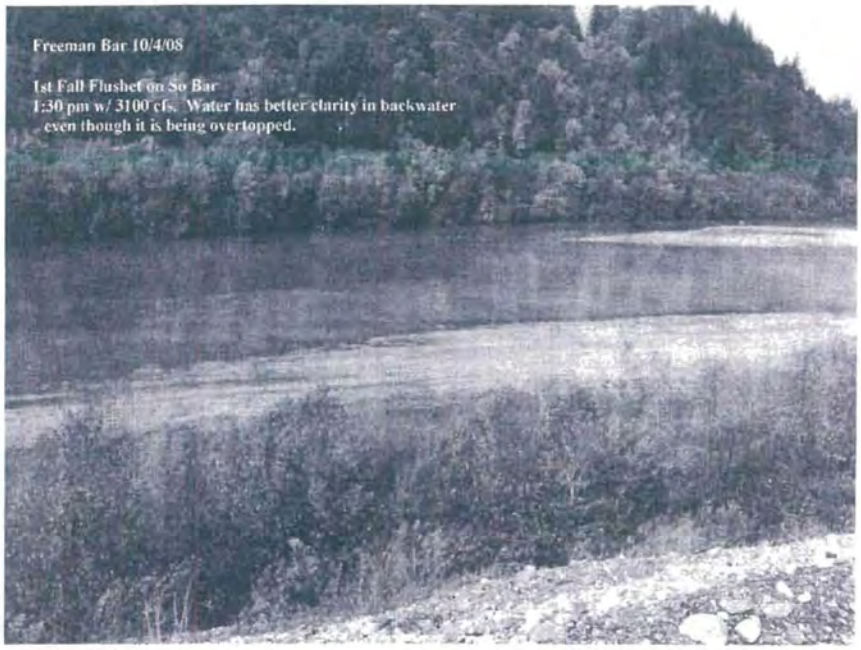
Date, time, and location information provided by Bill Yocum

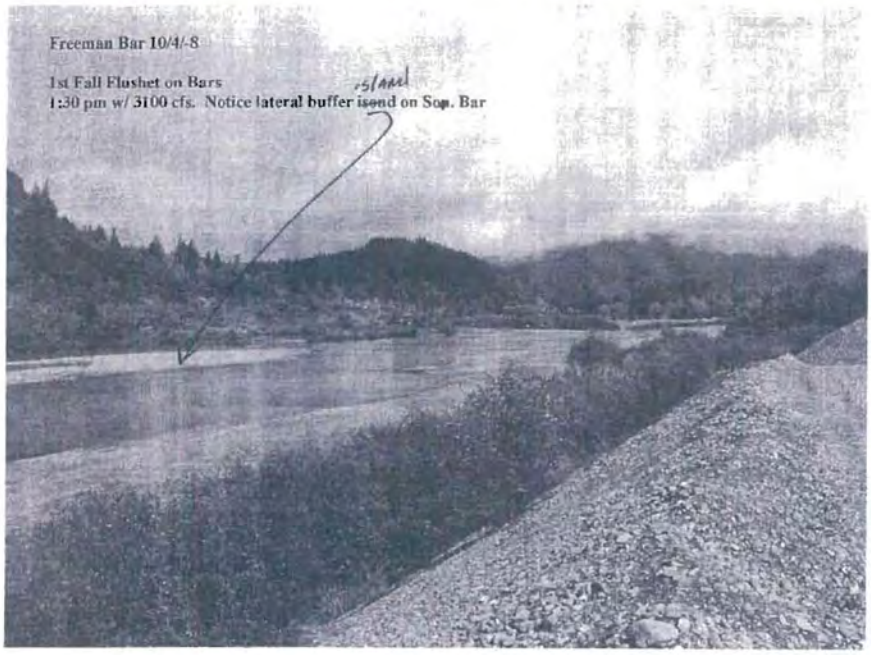
Cindy Ricks Myers

Above Removal Site 14.4
Below Removal Site 12.0

Calibration error 0.2

4/1/2008


Freeman Bar 10/4/08
1st Fall Flushet on So Bar
1:30 pm w/ 3100 cfs. Water has better clarity in backwater
even though it is being overtopped.


Freeman Bar 10/4/-8
1st Fall Flushet on Bars
1:30 pm w/ 3100 cfs. Notice lateral buffer isand on Sou. Bar

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2008 Turbidity Tests for Freeman Rock on Chetco River

Performed by Cindy Ricks Myers

Hach Model 2100P Turbidimeter

Calibration
Date 10/24/2008
Meter is recalibrated at least quarterly

Accuracy Check

Secondary stds, NTU	436	46.9	4.96
Secondary stds, NTU after calibration	432	45.9	4.92
Rel % Diff	0.9	2.2	0.8

Meter accuracy must be <5% Rel % Diff

Sample Tests
Samples received 11/4/08, held in cooler with ice
Holding time not to exceed 48 hours at 4°C (on ice or in refrigerator), in the dark
Turbidity tested 11/4/2008 19:45-20:05

Sample Date/Time	Sample ID	Location	Turbidity, NTU	Repeat measurements of same sample		
11/4/08 6:45-8:00	1	Above removal site	28.7	28.7	28.8	
11/4/08 6:45-8:00	2	North Fork	8.28	8.23	8.32	
11/4/08 6:45-8:00	3	Below removal site	25.2	25.3	25.0	
11/4/08 6:45-8:00	dup 3		25.3	24.9	25.8	25.2

Measurements are averaged.

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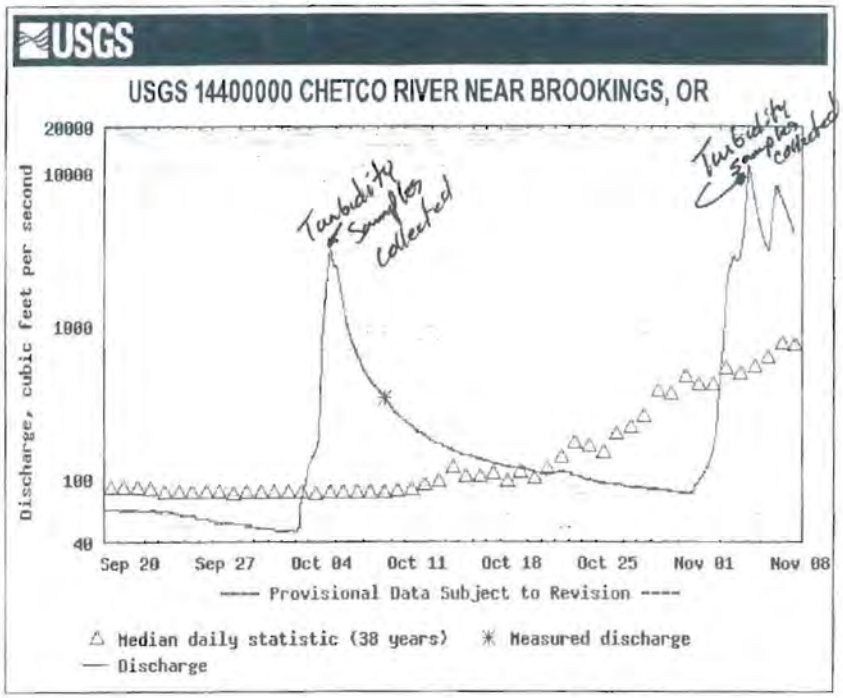
Cindy Ricks Myers

11/4/08 Above Removal Site 28.7
Below Removal Site 25.2

Calibration Error = 0.1

2008 FALL FLUSHET TURBIDITY REPORT



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Linton, Judy L NWP

From: Charland, Jay [jay.charland@state.or.us]
Sent: Friday, February 05, 2010 1:40 PM
To: LIVERMAN Alex; LOBDELL Robert; Carl Dugger; Chuck Wheeler; Janine Castro; CHARLAND Jay; Linton, Judy L NWP; WARNER-DICKASON Lori; Jim O'Connor; SNOW Patty
Subject: RE: Chetco narrative - embarrassing mistake

I fully agree with Chuck that the underlying principles of the Tech Team's proposal remain valid despite the error in units.

Jay Charland | Coastal State-Federal Relations Coordinator Oregon Coastal Management Program Oregon Dept. of Land Conservation and Development
635 Capitol Street NE, Suite 150 | Salem, OR 97301-2540
Office: (503) 373-0050 ext. 253 | Cell: (971) 239-9460 | Fax: (503) 378-6033
jay.charland@state.or.us | www.oregon.gov/LCD

-----Original Message-----
From: Chuck Wheeler [mailto:Chuck.Wheeler@noaa.gov]
Sent: Friday, February 05, 2010 11:27 AM
To: WARNER-DICKASON Lori; LIVERMAN Alex; LOBDELL Robert; Carl Dugger; Janine Castro; CHARLAND Jay; Linton, Judy L NWP; Jim O'Connor; SNOW Patty
Subject: Re: Chetco narrative - embarrassing mistake

The conversion mistake does not change any underlying concepts in the Tech Team proposal. I stand by the validity of the concepts of a maintenance reserve volume and a percentage of the rest to allow for recovery. However, some of the numbers are going to be different.

The unconverted data was used mostly for the alternatives assessment.
It was also used to calculate the 5-year return interval. It was not used to calculate the reserve volume of 26,000. That number does not need to be converted.

Attached is an updated tech team proposal document. Quick observations:
All of the estimates of available material went up substantially except Trigger C (which was based on monitoring results and I still maintain is
low). Trigger B/3-year cycle especially. The 3-year cycle options are
more reliable.

I also modified a few words to reduce some of the confusion from the meeting the other day.

The spreadsheet is also attached so you can double check my calculations. Please review it as well as the document for any other errors. I am very upset that I didn't catch this before the meeting.

Chuck

Chuck Wheeler wrote:
> In double checking some of the information from the industry, I
> believe I have found an embarrassing mistake. The Parker equation
> predictions from the USGS were all in cubic meters and not cubic
> yards. Thus, all the numbers in the Tech Team proposal need to be
> converted to cubic yards (or the metric can be changed to cubic
> meters, but the agencies typically use English units).
> I plan on backtracking the process tomorrow to figure out what this
> means and what needs to be updated. I plan on updating the Tech Team
> proposal, too. Sorry for the inconvenience. Chuck
>

Tech Team Recommendation for Gravel Extraction from the Chetco River
Conversion Corrected
February 5, 2010

The Tech Team (TT) explored many adaptive management strategies for gravel extraction from the Chetco River. This document describes an overall strategy for adaptive management, the establishment of a "reserve volume", the options for "triggers" to determine when material can be extracted, and percentages to determine the volume of extractable material. The document concludes with a recommendation to the Executive Team on an option that the TT believes would result in maintenance and recovery of habitat of the Chetco River while providing aggregate to the industry.

The Overall Strategy for Allowable Extraction

As the TT evaluated when and how much gravel should be extracted, an overall strategy emerged. This strategy is described in the paragraphs below and is applied to each of the options described later in this document.

Using flow data to predict annual recruitment volume: Flow data collected between November and March of each year will be evaluated to derive the annual recruitment volume. The Parker equation will be used to estimate the annual recruited volume (the "Parker Equation Prediction"). That annual recruitment volume will be used to determine if the appropriate trigger (see trigger options below) has been met.

Determining the amount of material that can be extracted from each bar: Based on the recruitment volume and the trigger option, the total amount of material that could be extracted from the system will be established. The total amount of extractable material will be allocated between the three bars as follows:

- 47% for the Freeman bar
- 47% for the Tidewater bar
- 6% for the South Coast Lumber bar

Once the volume of extractable material for each bar has been established, pre-extraction surveys will be conducted to confirm that the allocated volume was actually recruited at each bar. The last post removal survey is used as a baseline to estimate recruited amounts. The amount of extractable material for each bar is limited to the lesser of (1) that which can be extracted and still retain the desired bar form for that location, or (2) that which was recruited to the bar.

Prior to each extraction event, agencies will conduct site visits to establish the desired bar form retention required for each location. The agencies will adjust the bar form retention based on the current status of each reach and the need to protect or avoid certain habitat features.

Development of Alternatives

During development, the TT found inclusion of three factors essential to each alternative: the requirement to maintain a "reserve volume" of recruited material in the river, the trigger used to determine when mining may occur, and the frequency of disturbance.

The reserve volume (V_r): An annual bar maintenance reserve recruitment volume ("V_r") should be established based on flow volume and duration that will likely result in maintenance of the current state within the lower Chetco River. The TT consulted with Jim O'Connor (USGS) to determine an influx rate, derived from available data and based on geomorphic principles, that we are confident will at least maintain the current state of gravel bars in the lower Chetco River. After looking at information pertaining to water discharge, flow elevation, bar heights, and annual gravel influx, and relating it to the processes that result in maintaining gravel bars, the most appropriate minimum V_r to protect bar maintenance processes is an annual gravel influx of at least 26,000 cubic yards, as calculated from the Parker equation using the past winter's discharge. The TT has determined that it is in the best interest of resource protection to reserve 26,000 cy/yr of material in the river to maintain the current state of the Chetco River.

The trigger: The TT explored three options for development of the triggers. The first two (trigger options A and B) directly incorporate the 26,000 cy/yr reserve volume. The third does not include V_r directly, but the TT believes under this scenario the reserve volume will be met.

A. Trigger option A: Allow a percentage of the total recruited material to be extracted, as long as at least 26,000 cy/yr is left for the river (extraction=total*percentage).
B. Trigger option B: Allow a percentage of the recruited material exceeding the 26,000 cy reserve to be extracted (extraction=[total-26,000]*percentage.
C. Trigger option C: Extraction only occurs after a large influx event. Extraction is limited by maintaining bar form.

Frequency of extraction: The literature is clear that frequent disturbance increases adverse effects on the environment. For gravel extraction this is important because disturbance breaks down bar armoring which allows bed mobilization and bar destabilization to occur more frequently and to a higher degree than would occur naturally. To address this, the TT developed two alternatives to annual extraction to minimize frequent disturbance and incorporated rest years to increase recovery potential. The first is a multi-year cyclical approach in which extraction would occur at most every three years, allowing recruited material to accumulate during the rest years. The volume trigger would be cumulative over the three years to meet the reserve requirement. If the trigger was not met in three years, it would be re-evaluated each year until the cumulative trigger was met. Upon extraction, the cycle would reset. The second alternative is based on masking anthropogenic disturbance by extracting after a large influx event. The TT believes a 5-year influx event (approximately 120,000 cy) is adequate to "reset" all gravel bars in the lower Chetco River, thus extraction would only occur when the system is already disturbed. This alternative was developed in concert with Trigger option C above.

Development of Percentage Available to Extract

Because the current state of the Chetco River gravel bars is incised, maintaining them at this level has negative physical and biological consequences. The TT developed a strategy whereby a percentage of the influx is allotted to extraction and the rest is left to function in the river and recover habitats. Deriving a percentage was difficult because there is little scientific literature or regulatory guidelines establishing allotments for this type of resource. In developing the percentages, the TT reviewed the recommendations of NMFS in California,[1] analyzed river discharge data and predicted historical volumes of sediment influxes from the USGS study, and incorporated the information gathered at the November gravel workshop. Because little precedent exists, the TT took a conservative approach to minimize risk with the understanding that the percentages could be increased in the future if the monitoring data indicated the risk was low.

Percentages of recruited material available for extraction, adjusted for frequency of extraction: Because of the potential adverse effects of frequent disturbance and the benefits of leaving aggregate in the river during rest years, the percentages of extractable material are lower if annual extraction is allowed and higher if periods of rest are employed, as follows:

- Trigger option A percentage: If annual extraction is employed, the percentage of extractable material is 25%. If a multi-year cycle is implemented, the percentage is established at 30%.
- Trigger option B percentage: If annual extraction is proposed, the percentage of extractable material is 50%. If a multi-year cycle is proposed, the percentage is established at 60%.
- Trigger option C, no percentage: When extraction coincides with a large flow event, the anthropogenic effects are "masked" by the disturbance caused by the natural event. Therefore, the TT did not establish a percentage if extraction occurring after a 5-year event, but rather is recommending that the bar form retention be the sole limiting factor in determining the volume of extractable material.

Future adjustment of the percentages under trigger options A and B: The percentages could be further adjusted based on 5-year review of information pertaining to deposition (+), suspended load data (-), tributary inputs (+) and volume of aggregate necessary for the river (-), as well as refined information on throughput, attrition, and error (modeling).

The Options Table

To assess and compare the amount of material available for extraction under the different alternatives, the TT developed Table 1. Table 1 utilizes the real Chetco River discharge data and the Parker Equation predictions of recruited volumes from 1970 to 2008. This table represents what could have been extracted if these alternatives would have been implemented over the last

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[1] SEDIMENT REMOVAL FROM FRESHWATER SALMONID HABITAT: Guidelines to NOAA Fisheries Staff for the Evaluation of Sediment Removal Actions from California Streams. Available online at: http://swr.nmfs.noaa.gov/hcd/policies/April19-2004.pdf. For properly functioning streams, this document recommends "that proposed extraction plans allow for pass-through of 50% of the unimpaired incoming coarse sediment load to maintain downstream habitats."

39 years. It is for discussion purposes only and is not to be interpreted as what the TT thinks will be available in the future because the future discharge of the Chetco River is unpredictable. The table provides a comparison of the extractable volumes that would have been available annually, on a multi-year cycle, or after a 5-year influx event. The annual and multi-year options were calculated using both Trigger options A and B.

Estimating the amount of material available under Trigger option C is difficult because it is bound only by the amount of material which accumulates on the bars. The TT estimated the volume harvested by looking at the operators' monitoring reports. The first year Freeman Rock used the bar form retention method (2007) they extracted 61,000 cy in 2007 (they extracted less in 2008, but the influx was low that year and the bar was likely not substantially rebuilt from 2007). Tidewater extracted 11,000 cy in 2008, the only year they implemented the bar form retention design. The TT assumed SLC could take 8,000 cy from their bar to give us a total of 80,000 cy. These numbers are likely low considering they were generated when the bars had ongoing effects from previous harvests, were likely not built up to a fully developed state, and did not benefit from a five-year event occurring.

Table 1. Volume (in cubic yards) of material that would have been available under the alternatives, 1970-2008.

	Parker	Annual		Three Year Cycle		5 yr event
Year	Prediction	Trig A (35k)	Trig B (Vr 26k)	Trig A (111k)	Trig B (Vr 78k)	(120k)
1970	135,432	33,858	54,716	rest	rest	80,000
1971	134,449	33,612	54,225	rest	rest	80,000
1972	138,046	34,511	56,023	122,378	197,956	80,000
1973	16,655	low	low	rest	rest	
1974	129,277	32,319	51,639	rest	rest	80,000
1975	52,409	13,102	13,204	59,502	72,205	
1976	25,147	low	low	rest	rest	
1977	1,841	low	low	rest	rest	
1978	110,733	27,683	42,367	41,316	35,833	
1979	25,356	low	low	rest	rest	
1980	56,124	14,031	15,062	rest	rest	
1981	48,494	12,124	11,247	38,992	31,185	
1982	175,501	43,875	74,751	rest	rest	80,000
1983	124,000	31,000	49,000	rest	rest	80,000
1984	75,199	18,800	24,599	112,410	178,020	
1985	39,172	9,793	6,586	rest	rest	
1986	88,206	22,052	31,103	rest	rest	
1987	33,096	low	3,548	48,142	49,484	
1988	41,686	10,421	7,843	rest	rest	
1989	37,988	9,497	5,994	rest	rest	
1990	32,178	low	3,089	33,556	20,311	
1991	16,729	low	low	rest	rest	
1992	15,994	low	low	rest	rest	
1993	56,742	14,186	15,371	low	6,879	
1994	9,427	low	low	low	rest	
1995	110,341	27,585	42,171	62,770	rest	
1996	82,425	20,606	28,212	rest	74,516	
1997	172,137	43,034	73,069	rest	rest	80,000
1998	67,758	16,940	20,879	96,696	rest	
1999	78,727	19,682	26,364	rest	144,374	
2000	51,874	12,969	12,937	rest	rest	
2001	1,396	low	low	39,599	rest	
2002	37,448	9,362	5,724	rest	7,631	
2003	59,896	14,974	16,948	rest	rest	
2004	47,550	11,887	10,775	43,468	rest	
2005	41,150	10,287	7,575	rest	42,357	
2006	136,583	34,146	55,291	rest	rest	80,000
2007	67,600	16,900	20,800	73,600	rest	
2008	32,858	low	3,429	rest	95,424	
Total	2,607,625	599,237	844,540	772,430	956,175	640,000
Ave	66,862	15,365	21,655	19,806	24,517	16,410

"low" indicates inadequate influx to support aggregate removal that year.

Tech Team Recommendation

The TT recommends extraction from the Chetco River following a 5-year influx event, while including a three-year cycle utilizing Trigger option B. In this recommendation, extraction would occur after any 5-year influx event. All aggregate up to the amount that still maintains the appropriate bar form could be extracted. If a 5-year influx does not occur within a 3-year period, Trigger option B would be implemented. If the trigger is met after three years (78,000 cy), 60% of the recruited volume over V_r could be extracted. If Trigger option B is not met in three years, it would be re-evaluated each year until the cumulative trigger was met. The cycle resets after each extraction event whether it is a 5-year event or Trigger option B. Table 2 represents what could have been extracted if this alternative would have been implemented over the last 39 years.

Advantages of the recommended option:

- More certainty for operators than Trigger A options, annual extractions, or 5 year event trigger by itself.
- More material can be extracted at one time resulting in less cost for operators due to reduced mobilization and survey needs.
- Reduced cost to reviewing agencies in staff time and travel.
- When a 5-year event occurs, extraction occurs when the river is in an already disturbed state and the anthropogenic impacts are masked by the natural disturbance.
- When no 5-year event occurs, at least three winters of rest will allow for aggregate to function undisturbed in the river.
- Less frequent disturbance in the river would maintain a more natural regime of bar armoring and stability.
- Operators could obtain a large volume of material from a high flow event to stockpile for years to come.
- Allows for the greatest predicted amount of extraction to occur, while still maintaining less frequent disturbance.

Table 2. Volume (in cubic yards) of material that would have been available under recommended alternative, 1970-2008.

Year	Parker Prediction	5yr event and Trig B (Rv 78k)	70	75	80	85
1970	135,432	80,000				
1971	134,449	80,000				
1972	138,046	80,000				
1973	16,655	n/a				
1974	129,277	80,000				
1975	52,409	n/a				
1976	25,147	n/a				
1977	1,841	838				
1978	110,733	n/a				
1979	25,356	n/a				
1980	56,124	68,528				
1981	48,494	n/a				
1982	175,501	80,000				
1983	124,000	80,000				
1984	75,199	n/a				
1985	39,172	n/a				
1986	88,206	74,746	82,204	93433	99662	105,890
1987	33,096	n/a				
1988	41,686	n/a				
1989	37,988	20,862	24339	24077	27816	29554
1990	32,178	n/a				
1991	16,729	n/a				
1992	15,994	low				
1993	56,742	10,586	30550	32232	34914	37097
1994	9,427	n/a				
1995	110,341	n/a				
1996	82,425	74,516				
1997	172,137	80,000				
1998	67,758	n/a				
1999	78,727	n/a				
2000	51,874	72,216				
2001	1,396	n/a				
2002	37,448	n/a				
2003	59,896	12,444	14518	15555	16592	17629
2004	47,550	n/a				
2005	41,150	n/a				
2006	136,583	80,000				
2007	67,600	n/a				
2008	32,858	n/a				
Total	2,607,625	974,735				
Ave	66,862	24,993				

"low" indicates inadequate influx to support aggregate removal that year.

From:	Linton, Judy L NWP
To:	"Alex Liverman"; "Bob Lobdell"; "Chris Lidstone"; "Chuck Wheeler"; "Janine Castro"; "Jay Charland"; "Jim O"Connor"; "Jodi Fritts"; Linton, Judy L NWP; "Lori Warner-Dickason"; "Patty Snow"; "Rich Angstrom"; "Rose Wallick"; "Todd Confer"; "Yvonne Vallette"
Subject:	FW: Interactive volume calculator
Date:	Monday, February 08, 2010 4:29:00 PM
Attachments:	Gravel Extraction Worksheet_yards.xls Joint COE-DSL Notice with header.doc

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Folks: reminder of the Tech Team meeting scheduled for tomorrow 1-3p. Specifics are:

Date: Tuesday February 9th
Time: 1:00 to 3:00 p (although we've allowed to 4:00 if necessary)
Place: EPA Oregon Operations Office, 805 SW Broadway (across the corner from Pioneer Courthouse Square, between Yamhill and Taylor, right off the MAX line) Fifth Floor (EPA conference room). You can't miss the EPA sign, just buzz the intercom next to the front door and some one will let you in.

Teleconference info: (888)285-4585; passcode 853033

_____

A. Agenda Topics: The Exec Team is asking us to consider the following items. Some of these items I have outlined in the draft public notice (attached - note I still have some scribbly type placeholder notes in the document). The level of detail in the notice may not need to be the full formalized requirement that would be spelled out in a permit instrument - let's talk about that. I believe we have agreement from the full tech team on some items (e.g. reserve volume) so I wouldn't expect to spend much time discussing those questions.

1) Rest/recovery - look at frequency of removal in light of the "mobilization threshold" - ie, how does this affect system rest?

2) Substantiate the 26k cy reserve more clearly - why that level - is the assumption valid based on stream morphology, water elevations and thresholds for material movement?

3) What are the specific stewardship (restoration) commitments made part of the RGP/GP?

4) Monitoring details - what monitoring methods, requirements, detail and frequency will be part of the RGP/GP?

5) Adaptive framework - what mechanisms are in place to make adaptive decisions - how will such decisions be formalized and on what level of frequency?

6) Flex - recognize we start with an annual rate of 28k cy available in the industry approach - can we quantify the amount of diminished material availability on bars based on use of BMP's? Similarly - what changes can be made to the Tech proposal assumptions / algorithm that would move us towards the industry "Q" projected?

7) Risk management - where are the formal off-ramps as part of the monitoring and adaptive framework?

8) Are we looking holistically at all the actions as part of the proposal? Have we missed any major components?

_____

B. Gravel Extraction Worksheet - See the message from Jay Charland below. The worksheet is attached and may help us in developing the final proposed excavation triggers/frequency.

_____

C. Jim and Rose - this is for your information. You don't have to attend as I know you are way busy!!!

Judy

-----Original Message-----
From: Charland, Jay [mailto:jay.charland@state.or.us]
Sent: Friday, February 05, 2010 1:09 PM
To: Chuck Wheeler; Linton, Judy L NWP; WARNER-DICKASON Lori
Subject: Interactive volume calculator

Feb 5

HI guys,

I worked up this spreadsheet this morning. It is a mostly automated, interactive gravel volume calculator. It uses our combined Trigger B/Trigger C technique, and also the Industry's proposal. Some explanation is in order.

Please ignore columns E and G. They are an internal check for me.

The Volume Target:

The industry presented a proposal for 1.1 million units of gravel at the Feb 3 meeting. I am assuming they meant cubic yards. The numbers in the spreadsheet as I am sending it out meet that target.

Industry Mobilization:

This pertains to Columns V and W, and also to the trigger mechanism for the OCAPA proposal and Trigger B. During Thursday's meeting, I asked Ted Freeman what his mobilization threshold was (ie, how much gravel he needed to expect to get before he could commence extraction). He said 10,000 cy. This was a quick answer to a quick question, so we should not hold anyone to this. (That value is one which can be changed in column V, row 3.) Taking that insight, I calculate an industry minimum recruitment of 21,276 cy (Freemans share, 47%, of 21,276 is 10,000). So if 21,300 cy were recruited, and all of it magically fell on the three mined bars in the proper proportions, there would be enough (taking Ted's quick answer) to justify mining. If the OCAPA extractable volume fell below this amount, then I assumed there would be no mining for that year under their scheme (this I also added on my own). This is a way of merging the concept of rest years into the OCAPA proposal. For Trigger B, I used this same minimum mobilization value, and delayed mining under Trigger B until the extractable volume (using the standard Trigger B technique) exceeded 21,300 cy. This was done for 1977, 1993-1994, and 2003. For 1992, Trigger B would have failed in the standard way, not enough gravel to meet the reserve target.

Color Coding:

Yellow cells represent Trigger C years, years when the recruitment was greater than the 5-year event (90,000 cm, 120,000 cy).

Green cells are mandatory rest years. Rest years can be over-ridden by Trigger C, and a Trigger C year also comes with a mandatory rest period.

Gray cells are modified (reprogrammed) to account for rest periods greater than three years.

Column U

Red text in column U indicates that the normal rest period was insufficient. In only one instance, 1992, was Trigger B not met after the mandatory three years' rest. In the other cases, the extractable volume was less than the industry minimum of 21,300 cy for mobilization. In these cases, I delayed mining until either Trigger C was met (which did not occur), or the extractable volume reached the industry minimum. The addition of the industry mobilization value to Trigger B is something I did on my own, and is easily removed.

Numbers in bold face can be changed in row 3 to compare different scenarios. The entire column will update when row 3 is changed. These are columns O, V, W, Y, AA, and AC. Also, the "ones" in column K, which indicate extraction years, are set manually. It turns out that Excel, at least as far as I understand it, cannot make so complex a decision as when to mine under Trigger B. (The difficulty arises when more than three years are required to reach the recruitment target, and the computer must keep track of how many years have passed.)

Yards v Meters: This sheet is in cubic yards. I converted the Parker Equation numbers, which are in cubic meters, to cubic yards, and did the rest of the sheet in cubic yards. An earlier version of the sheet tried to merge both units, but it was too hard to follow.

I am fine with this being forwarded to the entire Tech Team if the co-chairs feel it is appropriate.

Jay

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Oregon Dept. of Land Conservation and Development
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Office: (503) 373-0050 ext. 253 | Cell: (971) 239-9460 | Fax: (503) 378-6033 jay.charland@state.or.us
<mailto:jay.charland@state.or.us> | www.oregon.gov/LCD <http://www.oregon.gov/LCD>

From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Friday, February 05, 2010 10:28 AM
To: Alex Liverman; LOBDELL Robert; Chris Lidstone; Chuck Wheeler; Janine Castro; Jay Charland; Jim O'Connor; Jodi Fritts; Linton, Judy L NWP; WARNER-DICKASON Lori; SNOW Patty; Rich Angstrom; CONFER Todd A; Yvonne Vallette; Dugger, Carl R NWP
Cc: Petersen, Erik S NWP; MOYNAHAN Kevin
Subject: Tech Team mtg February 9

Folks: Erik Petersen will be sending out a list of questions the full Tech Team needs to consider in light of the Feb 3rd Exec Team mtg. A tech team meeting had already been set for February 9 from 1:00 to 3:00p so we will use that time to discuss the questions and work towards a final proposed action. I'll

send out an agenda and the latest version of the revised public notice on Monday as that may help our discussion of some of the issues. Judy

Meeting specifics:

Date: Tuesday February 9th
Time: 1:00 to 3:00 p (although we've allowed to 4:00 if necessary)
Place: EPA Oregon Operations Office, 805 SW Broadway (across the corner from Pioneer Courthouse Square, between Yamhill and Taylor, right off the MAX line) Fifth Floor (EPA conference room). You can't miss the EPA sign, just buzz the intercom next to the front door and some one will let you in.

Teleconference info: (888)285-4585; passcode 853033

Year	Parker Prediction	Parker cubic yds	Last 3 years	Trig B 3 yrs	Last 3+	**Trig B 3+ yrs**	Trigger C >90000'	**Extract X frac**
1970	103,545	135,432					1	**0.7**
1971	102,794	134,450					1	*0.7*
1972	105,544	138,046	407,928	1	407,928	**1**	1	*0.7*
1973	12,734	16,655	289,151	1	289,151			*0.7*
1974	98,840	129,278	283,980	1	283,980		1	*0.7*
1975	40,070	52,410	198,343	1	198,343			*0.7*
1976	19,226	25,147	206,834	1	206,834			*0.7*
1977	1,408	1,842	79,398	1	79,398			*0.7*
1978	84,662	110,734	137,722	1	190,132	**1**		*0.7*
1979	19,386	25,356	137,931	1	137,931			*0.7*
1980	42,910	56,124	192,214	1	192,214			*0.7*
1981	37,077	48,495	129,975	1	129,975	**1**		*0.7*
1982	134,180	175,501	280,120	1	280,120		1	*0.7*
1983	94,805	124,000	347,996	1	347,996		1	*0.7*
1984	57,493	75,198	374,699	1	374,699			*0.7*
1985	29,949	39,172	238,370	1	238,370			*0.7*
1986	67,438	88,206	202,575	1	202,575	**1**		*0.7*
1987	25,304	33,096	160,474	1	160,474			*0.7*
1988	31,871	41,686	162,988	1	162,988			*0.7*
1989	29,044	37,988	112,770	1	112,770	**1**		*0.7*
1990	24,602	32,178	111,852	1	111,852			*0.7*
1991	12,790	16,729	86,895	1	86,895			*0.7*
1992	12,228	15,994	64,901		64,901			*0.7*
1993	43,383	56,743	89,465	1	121,643			*0.7*
1994	7,207	9,426	82,163	1	131,070			*0.7*
1995	84,362	110,341	176,511	1	241,411	**1**		*0.7*
1996	63,018	82,424	202,192	1	202,192			*0.7*
1997	131,608	172,137	364,903	1	364,903		1	*0.7*
1998	51,805	67,758	322,320	1	322,320			*0.7*
1999	60,191	78,727	318,622	1	318,622			*0.7*
2000	39,661	51,875	198,360	1	198,360	**1**		*0.7*
2001	1,067	1,396	131,997	1	131,997			*0.7*
2002	28,631	37,448	90,718	1	90,718			*0.7*
2003	45,794	59,896	98,740	1	98,740			*0.7*
2004	36,354	47,549	144,894	1	146,289	**1**		*0.7*
2005	31,461	41,149	148,595	1	148,595			*0.7*
2006	104,425	136,583	225,281	1	225,281		1	*0.7*
2007	51,684	67,600	245,332	1	245,332			*0.7*
2008	25,121	32,857	237,040	1	237,040			*0.7*
Total	1,993,672	2,607,625						cubic yds
5 yr	90,000	120,000						

Mandatory rest years
Five-year event years
Dry periods

TT (Σ-Res*n)*X	OCAPA P-Res	Rest Notes	**Large Bar Mobilize**	**Industy Mobilize**	**5 year event est**	**Reserve TT**	**Reserce OCAPA**
90000	90432		**10000**	**21276.6**	**90000**	**26000**	**45000**
90000	89450		10000	21276.6	*90000*	*26000*	*45000*
90000	93046		10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
90000	84278		10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
		3 years	10000	21276.6	*90000*	*26000*	*45000*
60292	65734	4 years	10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
36383			10000	21276.6	*90000*	*26000*	*45000*
90000	130501		10000	21276.6	*90000*	*26000*	*45000*
90000	79000		10000	21276.6	*90000*	*26000*	*45000*
	30198		10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
87203	43206		10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
24339			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
		-ve Trig B	10000	21276.6	*90000*	*26000*	*45000*
		4 years	10000	21276.6	*90000*	*26000*	*45000*
		5 years	10000	21276.6	*90000*	*26000*	*45000*
59788	65341	6 years	10000	21276.6	*90000*	*26000*	*45000*
	37424		10000	21276.6	*90000*	*26000*	*45000*
90000	127137		10000	21276.6	*90000*	*26000*	*45000*
	22758		10000	21276.6	*90000*	*26000*	*45000*
	33727		10000	21276.6	*90000*	*26000*	*45000*
84252			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
		3 years	10000	21276.6	*90000*	*26000*	*45000*
29602		4 years	10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
90000	91583		10000	21276.6	*90000*	*26000*	*45000*
	22600		10000	21276.6	*90000*	*26000*	*45000*
			10000	21276.6	*90000*	*26000*	*45000*
1,101,859	1,106,415						
55.3%	55.5%	fraction of total gravel					
15 years	16 years	years in the river					
cf 794,107	cf 1,104,599	February 4 meeting numbers					

1395.584	1395.584	1067
1841.595	1841.595	1408
9426.403	9426.403	7207
15993.62	15993.62	12228
16655.45	16655.45	12734
16728.69	16728.69	12790
25146.67	25146.67	19226
25355.94	25355.94	19386
32178.21	32178.21	24602
32857.04	32857.04	25121
33096.39	33096.39	25304
37447.95	37447.95	28631
37988.13	37988.13	29044
39171.82	39171.82	29949
41149.45	41149.45	31461
41685.71	41685.71	31871
47549.25	47549.25	36354
48494.9	48494.9	37077
51874.64	51874.64	39661
52409.6	52409.6	40070
56124.18	56124.18	42910
56742.84	56742.84	43383
59896.31	59896.31	45794
67600.14	67600.14	51684
67758.4	67758.4	51805
75198.03	75198.03	57493
78726.88	78726.88	60191
82424.46	82424.46	63018
88205.6	88205.6	67438
110341.4	110341.4	84362
110733.7	110733.7	84662
124000.3	124000.3	94805
129277.9	129277.9	98840
134449.5	134449.5	102794
135431.8	135431.8	103545
136582.8	136582.8	104425
138046.4	138046.4	105544
172136.8	172136.8	131608
175500.9	175500.9	134180

US Army Corps
of Engineers
Portland District

Joint Public Notice

Proposed Permits for Gravel Mining on the Chetco River

Issue Date:
Expiration Date:
Corps of Engineers Action ID: NWP-2008-71

Interested parties are hereby notified that, in accordance with 33 CFR 325.3(b), the U.S. Army Corps of Engineers, Portland District (Corps) proposes to develop a regional general permit (RGP) to authorize commercial gravel mining activities within the Chetco River, Curry County, Oregon, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C.) and Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). The Director, Oregon Department of State Lands (DSL) is also proposing to develop a General Permit (GP) for commercial gravel mining activities pursuant to ORS 196.795, 196.817, and OAR 141-85-0068. The permits, if issued, would be valid for a period of five years.

1. PROJECT PURPOSE/NEED AND ALTERNATIVES: To obtain aggregate for industrial and commercial purposes.

Comment [g1]: Lori to revise

2. PROJECT LOCATION: This RGP is geographically limited to the portion of the Chetco River from the mouth to river mile 11 in Curry County, Oregon. Specific project locations within this 11 mile stretch are identified below and shown on Figure ___.

1) Tidewater Bar site: Located on the south bank of the Chetco River at mile 2.0. This site is located within the estuary and is subject to diurnal tidal fluctuations during which the bar may be exposed or totally inundated. This site is located in Section 33 of Township 40 South, Range 13 West. (See Figure 1).

2) Freeman Bar site: Includes several sites which are located on the north and south banks of the Chetco River between river miles 4.5 and 5.5. The sites are located in Sections 34 and 35 of Township 40 South, Range 13 West. See Figure _ for basic site plan information.

3) South Coast Lumber site: This site includes two adjacent river bars (the lower bar on the north bank and the upper bar on the south bank) at about river mile 7.0 of the Chetco River. The site is located in Sections 24 and 25 of Township 40 South, Range 13 West. See Figure _ for basic site plan information.

4) 2nd Bridge Bar (aka Fitzhugh Bar) site: This site is located just upriver from the bridge that crosses over the Chetco River at about river mile 10.2. This site is located in Section 12 of Township 40 South, Range 13 West. See Figure _ for basic site plan information.

3. PROJECT DESCRIPTION:

A. Bar Retention Strategies. Under the RGP/GP, gravel mining would be authorized to occur over a five-year period at the identified project locations using one of the methods described below. As part of an adaptive management strategy, the specific requirements of these methods may be modified prior to extraction based on site specific conditions.

- Bar Removal. A typical diagram of the bar removal technique is shown on Figure __.
    a. Head of bar. Protect the upper 1/3 of the bar from any excavation activities. The protective armor layer and any vegetation shall not be disrupted.
    b. Lateral Buffer. The area between the low flow channel and the active mining area would be one foot elevational difference. Buffer widths (horizontal distance) will be set based on site specific conditions.
    c. Excavated backwater length. The maximum excavated backwater length is 2/3 of the bar feature, but this area must incorporate the head slope and side slope of the backwater area.
    d. Excavated backwater head slope. This portion of the excavated area shall be no steeper than 10:1 (horizontal to vertical). This is the transition between the protected head of bar and the bottom of the backwater and must be contained entirely in the backwater area.
    e. Excavated backwater side slopes. This portion of the excavated area shall be no steeper than 4 to 1 (horizontal to vertical). This is the transition between the lateral buffer area and the excavated backwater bottom and must be contained entirely in the backwater area.

Comment [g2]: USFWS recommends lateral buffer be no less than 20% of the active channel width, or be set on site specific conditions.

- Backwater or trench construction. A typical diagram of the backwater/trench construction method is shown in Figure _.
    a. Lateral buffers. The set-back area between the low flow channel and the active mining area would be no less than 20 feet from the active channel. Other lateral buffers may be set based on site specific conditions.
    b. Excavated backwater length. Maximum excavated backwater length would be within 20' of the head of bar.
    c. Excavated backwater area. The area of the excavated backwater would be constrained by the established buffers except on the lower end where it would be designed to breach with over-topping during the fall and winter freshets.
    d. Excavated backwater head slope. This portion of the excavated backwater area would be no steeper than 4:1 (horizontal to vertical).
    e. Excavated side slopes. This portion of the excavated backwater area would be no steeper than 4:1 (horizontal to vertical).

Comment [g3]: The extraction options paper talks about maintaining bar form. Is it possible this method may do that in some locations? Need to discuss with group.

Comment [g4]: USFWS public notice comment recommends upper third of bar be protected from mining.

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B. General Construction Requirements.

Equipment and Access: The type of equipment used to excavate the sand and gravel includes paddlewheel scrapers, excavators, and front-end loaders. Dump trucks are generally used to haul material to the upland stockpile site or processing facility. Temporary crossings of the Chetco River with a flatcar bridge may be used to access the gravel bar at some locations. In these situations the only in-water river crossing would be for installation and removal of the bridge. Native material from authorized excavation areas may be used to form footings at either end of the bridge. Temporary crossings of dry channels may include a stabilized low water ford or the installation of culverts to allow for fish passage if the water level rises during the removal season. All temporary crossings, including temporary fill

material, will be removed at the end of the construction season within the approved in-water work window.

Vehicle Staging: Vehicle staging areas will be designated for cleaning, maintenance, refueling, and monitoring for petroleum leaks and repairs. These staging areas will be no closer than 150' from any stream, waterbody, or wetland unless otherwise approved in writing by ____. All equipment will be cleaned prior to the start of each excavation season and as needed during the season. Wash and rinse water must not be discharged into the waterways, unless adequately treated. Each day prior to leaving the staging area to perform excavation activities, vehicles will be inspected for fluid leaks with any detected leaks repaired before leaving the staging area. Documented inspections will be logged in a record that is available to the Corps upon request.

Stormwater management: To minimize the amount of sediment released to the Chetco River and the effects to the quality of stormwater runoff from upland processing activities, a stormwater management facility or system of facilities will be constructed at the upland processing site. All stormwater from the entire upland processing site will be treated to minimize any nonpoint source pollutant (including sediment) likely to be present in the volume of runoff predicted from a 6-month, 24-hour storm. Documented inspections and maintenance of the stormwater facility(ies) will be logged in a record that is available to the Corps upon request.

In-water Work Window: All in-water work shall be conducted during the listed in-water work window, as applicable, unless otherwise approved by the Corps of Engineers. (Refer to Oregon Department of Fish and Wildlife (ODFW) "Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources" http://www.dfw.state.or.us/lands/inwater/inwater_guide.pdf)

Basic bmps

5. Pollution and Erosion Control Plans. Such plans may require following Best Management Practices to minimize pollution from being introduced into the river. Such BMPs may include:

- Sequence/Phasing of work – work will be scheduled so as to minimize potential turbidity in the water.
- Equipment control – all excavation and relocation of material by machinery will be completed so as to minimize turbidity.
- Machinery will not drive into the active flowing channel except for one crossing to place a temporary bridge and one crossing for the removal of the temporary bridge.
- Excavated material will be placed so that it is isolated from the water edge and not placed where it could re-enter the river or natural drainage to the river.
- Use of containment measures such as silt curtains, geoblocks, geotextile fabric, and silt fence will be implemented where needed and properly maintained to minimize instream sediment suspension and resulting turbidity.

4. ADAPTIVE MANAGEMENT

An interagency technical team is discussing the concept of including adaptive management into the RGP/GP. Adaptive management would allow the above list of project design features to be modified if site specific conditions warrant and if there is common agreement between the regulatory and resource agencies and the permittee. The determination of whether modifications to the project design are appropriate would be based on the evaluation of a pre-harvest plan and any changes that have occurred to the physical and biological characteristics of the river in the vicinity of the extraction site. Adaptive

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management helps maintain flexibility by recognizing uncertainties exist and gives the agencies latitude to improve the project design features by moving towards the desired outcome of minimal effects to the aquatic and terrestrial ecosystem.

Comment [g5]: rewrite

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- April 1: flow data + transport model = estimated recruitment volume (this is listed in 3 below so maybe it is more properly a monitoring requirement.
- if volume/frequency trigger met, operators conduct surveys; submit to agencies by 30 May.

A. Annual Review. The following activities will be conducted each year beginning on or about April 1:
1. Collect flow data to determine recruitment volume (Annual stream flow analysis utilizing gage data and other applicable information to more accurately estimate annual sediment transport rates.)
2. apply triggers to determine if extraction is allowed
3. conduct bedload sampling twice per year until 10 measurements to develop an independent sediment rating curve for future use in determining annual recruitment volume. (conduct bedload sampling at the USGS streamflow gaging station)

B. Pre-excavation evaluation
- if triggers are met:
1. pre-harvest survey (describe details of requirement)
2. pre-harvest site visit to determine bar form retention criteria
3. establish extractable volumes for each site based on recruitment vols, surveys, and site visits.

C. Post excavation report by December 31
1. surveys
2. photos from established photo points (Established photo points with pictures being taken once a week during the removal season. The photo points with pictures will become part of the post-harvest report.)
3. report on restoration activities
4. report on volume extracted

D. Five year Evaluation
- System wide LIDAR
along the entire lower Chetco system (~RM 0-12) to evaluate longitudinal elevations, bank conditions, evaluate triggers, determine/evaluate adverse affects, make adjustments if warranted.
2a. Conduct longitudinal profiles of the channel thalweg for the lower Chetco (~RM 0-12) after two years with peak flows of ~10,000 cfs (several years could pass before this occurs) or after any year with a peak flow of ~45,000 cfs.
2b. Conduct point bar analysis at locations from USGS study during the same years as longitudinal profiles are taken.

Survey Requirements:

5. MITIGATION
Planting on head of bar and lateral buffers

6. PROPOSED CONDITIONS (the following are proposed conditions for the Corps Regional General Permit and DSL General Permit. The final conditions may change based on public comment and agency coordination).

a. **Cultural Resources and Human Burials-Inadvertent Discovery Plan:** Permittees shall immediately cease all ground disturbing activities and notify the Portland District Regulatory Branch if at any time during the course of the work authorized, human burials, cultural items, or historic properties, as identified by the National Historic Preservation Act and Native American Graves and Repatriation Act, are discovered and/or may be affected. The Permittee shall follow the procedures outlined below:

- Immediately cease all ground disturbing activities.
- Notify the Portland District Regulatory Branch. Notification shall be made by fax (503-808-4375) as soon as possible following discovery but in no case later than 24 hours. The fax shall clearly specify the purpose is to report a cultural resource discovery.
- Follow up the fax notification by contacting the Corps representative (by email and telephone) identified in the permit letter.
- Project Located in Oregon: Notify the Oregon State Historic Preservation Office (503-986-0674).

Failure to stop work immediately and until such time as the Corps has coordinated with all appropriate agencies and complied with the provisions of 33 CFR 325, Appendix C, the National Historic Preservation Act, Native American Graves and Repatriation Act and other pertinent regulations, could result in violation of state and federal laws. Violators are subject to civil and criminal penalties.

b. **Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

c. **Spill Containment/Control Plans:** To minimize the impact of a contaminant spill, the permittee shall prepare a spill containment and control plan to include notification procedures, specific cleanup and disposal instructions for different products, a description of quick response containment and cleanup supplies that will be available on the site, proposed methods for disposal of spilled materials and contaminated soils, and employee training for spill containment.

d. **Hazardous, Toxic, and Waste Materials.** Petroleum products, chemicals, fresh cement, construction debris, or other deleterious waste materials shall not be allowed to enter waterways or wetlands.

e. **Fish Passage.** The activities authorized by this general permit, including the construction of temporary crossings, must not restrict fish passage.

f. **Navigation.**

i. No activity may cause more than a minimal adverse affect on navigation.

ii. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure of work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration

g. **Endangered Species Act (ESA) Compliance**. All activities authorized under this general permit must implement and adhere to all of the Reasonable and Prudent Measures and Nondiscretionary Terms and Conditions contained in the National Marine Fisheries Service (NMFS) Biological Opinion dated _____.

h. **Water Quality.** All activities authorized under this general permit must comply with the conditions of the 401 Water Quality Certification issued by the Oregon Department of Environmental Quality on _____.

i. **Coastal Zone Management.** All activities authorized under this general permit must comply with the conditions of the concurrence letter (dated _____) issued by the Oregon Department of Land Conservation and Development to ensure consistency with the Oregon Coastal Management Program.

j. **Inspection of the Project Site.** The permittee shall allow representatives of the Corps to inspect the authorized activity to confirm compliance with the general permit terms and conditions. A request for access to the site will normally be made sufficiently in advance to allow a property owner or representative to be on site with the Corps representative conducting the inspection

7. GENERAL PERMIT PROCESS INFORMATION

WATER QUALITY CERTIFICATION

The Corps is requesting certification of this RGP from the Oregon Department of Environmental Quality (DEQ) as required by Section 401 of the Clean Water Act. DEQ will provide public involvement opportunities during the certification process as per OAR 340-048-0027. A public meeting will be held in Brookings, Oregon as part of this public involvement process; other state and federal agencies are expected to attend this meeting. The meeting is anticipated for March or April 2010. Information regarding specific date, time, and location will be provided later.

COASTAL ZONE MANAGEMENT ACT CERTIFICATION

Concurrence from the Oregon Department of Land Conservation and Development (DLCD) that the activities (which may affect land or water uses in the Coastal Zone) to be authorized by the proposed Corps RGP will be in compliance with the State Coastal Zone Management Program, is required by Section 307(c) of the Coastal Zone Management Act of 1972, as amended by 16 USC 1456(c)(3). The Corps is working closely with DLCD as part of the development of this RGP.

ENDANGERED SPECIES

Preliminary determinations indicate that the proposed activity may affect listed salmon species or designated critical habitat. Consultation under Section 7 of the Endangered Species Act of 1973 (87 Stat. 844) will be initiated with the National Marine Fisheries Service. This consultation will also include an evaluation of the impacts to essential fish habitat as required by the Magnuson-Stevens Fishery Conservation and Management Act. A permit for the proposed activity will not be issued until the consultation process is completed.

CULTURAL RESOURCES

This notice has been provided to the State Historic Preservation Office, interested Native American Indian Tribes, and other interested parties. If you have information pertaining to cultural resources within the permit area, please provide this information to the Corps project manager (identified on page _ of this notice) to assist in a complete evaluation of potential affects.

PUBLIC HEARING

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this proposal. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing. As indicated in the Water Quality Section, the agencies will be holding a public informational meeting in March or April 2010, in Brookings. Further information regarding the specific date, time, and location of this meeting will be provided later.

EVALUATION

The ultimate decision whether to issue the RGP will be based on an evaluation of the probable impacts including cumulative impacts of the described activities on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the described activities must be balanced against their reasonably foreseeable detriments. All factors, which may be relevant to the described activities will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people.

The Corps and DSL are soliciting comments from the public; Federal, state, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of the activities proposed to be authorized by this RGP and GP. Any comments received will be considered by the Corps of Engineers in its decision on the RGP and by DSL in its decision on the GP. Comments received by the Corps during the development of the RGP will be considered in the preparation of an Environmental Assessment pursuant to the National Environmental Policy Act. Comments will also be used by both the Corps and DSL to determine the need for a public hearing and to determine the overall public interest of the proposed activities.

The evaluation of the likely impact of the proposed RGP on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act. This evaluation will include an alternatives analysis.

COMMENTS

The Corps and DSL are requesting comments to assist in refining the RGP and GP. Comments may be submitted to either the Corps or DSL at the addresses given below. Comments should be received no later than _____, 2010.

Please provide comments to:

Ms. Judy Linton Portland District, Corps of Engineers CENWP-OD-G P.O. Box 2946	**OR**	Mr. Robert Lobdell Oregon Department of State Lands 775 Summer Street NE Salem, OR 97301-1279

Portland, OR 97208
Telephone: (503) 808-4382
Email: judy.l.linton@usace.army.mil

Telephone: (503) 986-5282
Email: robert.lobdell@dsl.state.or.us

****

The Corps issued an initial public notice on February 8, 2008, describing the RGP concept for gravel mining on the Chetco River. A joint Corps/DSL public notice was issued on November 26, 2008, providing more specific details regarding the proposed RGP/GP. Comments submitted in response to these notices are still valid and will be considered as part of the permit evaluation process. The Corps has developed a website specific to the Chetco River Gravel RGP proposal: http://www.nwp.usace.army.mil/op/g/chetco_background.asp. This site includes information pertaining to comments that have been received to date.

Linton, Judy L NWP

From: Rich Angstrom [rich@ocapa.net]
Sent: Wednesday, February 10, 2010 8:36 AM
To: Petersen, Erik S NWP; MOYNAHAN Kevin; WARNER-DICKASON Lori; Linton, Judy L NWP
Cc: Chris Lidstone; Robert Elayer; byocum@hughes.net
Subject: Emailing: Physical and ecological response to gravel mining_CJFAS.pdf

Attachments: Physical and ecological response to gravel mining_CJFAS.pdf

Physical and ecological respon...

Kevin/Erik,

The full Tech committee did not reach an agreement last night. Chuck and I will be visiting again this morning on the areas of disagreement.
One of the issues that came up concerns effects of mining on invertebrate populations. The attached study is the only study in the literature that I know of. The industry would like it to become part of the record of decision making process. The study on the Frazier River, essentially concludes that mining has little affect on invertebrate populations. Invertebrate species rapidly recolonize the disturbed area with little or no long term impacts.

Thank you,

Richard Angstrom
President
OCAPA

<<Physical and ecological response to gravel mining_CJFAS.pdf>>

Physical and ecological response to disturbance by gravel mining in a large alluvial river

Laura L. Rempel and Michael Church

Abstract: The role of sediment transport during high flows for restoring fish habitat was demonstrated following an experimental gravel removal from Fraser River, British Columbia, Canada. Dry bar scalping 69 000 m^3 of river sediment left a topographically simple removal area with a loose surface of gravel and sand. Two subsequent, below-average floods yielded no gravel replenishment but restored substrate grain size and some topographical complexity at the habitat scale. A third, above-average flood replenished 31% of the removal volume. High-elevation bar area, which provides fish habitat at high flows, remained 25% smaller after the three floods. Effects of mining on the fish community could not be confirmed. Benthic invertebrates recolonized the removal site immediately after mining, and differences in community composition compared with three reference sites disappeared during the first flood. Results suggest that physical changes due to this mining operation fell within the range to which local aquatic populations are accustomed during flooding, because the ecological response was modest and short-lived. Despite an extensive sampling program, inherent variability in the biological data reduced statistical power to detect an effect. Monitoring programs to support adaptive management of river fisheries will require substantial investment and planning to yield definitive results.

Résumé : Après une extraction expérimentale de gravier dans le Fraser, la Colombie-Britannique, Canada, nous avons démontré le rôle du transport des sédiments pendant les forts débits dans la restauration des habitats des poissons. Le prélèvement par décapage de 69 000 m^3 de sédiments sur les barres sèches de la rivière a laissé une zone d'extraction à topographie simple avec une surface lâche de gravier et de sable. Deux crues subséquentes, de débit inférieur à la moyenne, n'ont pas rapporté de gravier, mais elles ont restauré la taille des particules du substrat et rétabli une partie de la complexité topographique à l'échelle de l'habitat. Une troisième crue, plus importante que la moyenne, a rétabli 31 % du volume retiré. La zone des hauts-fonds qui représente l'habitat des poissons pendant les forts débits est demeurée 25 % plus petite après les trois crues. Il n'a pas été possible de déterminer l'effet de l'extraction du gravier sur les communautés de poissons. Les invertébrés benthiques ont recolonisé le site d'extraction immédiatement après l'opération minière et les différences de composition de communauté observées en comparaison avec trois sites témoins sont disparues lors de la première crue. Nos résultats laissent croire que les changements physiques causés par cette extraction minière se situent dans la gamme des conditions auxquelles les populations aquatiques locales sont habituées parce que la réaction écologique a été modeste et de courte durée. Malgré un important programme d'échantillonnage, la variabilité inhérente aux données biologiques a réduit notre capacité statistique à détecter des effets. Les programmes de surveillance qui appuient la gestion adaptative des pêches de rivière vont exiger un investissement et une planification importants afin de produire des résultats définitifs.

[Traduit par la Rédaction]

Introduction

The distribution of sediment along stream channels determines the form of the channel, as well as the character of habitats available to aquatic organisms. In steep gradient systems, cobbles and boulders are major structural elements that define habitat boundaries (Halwas and Church 2002), while gravel and smaller-sized sediments are transported downstream. As gradient drops and the flow becomes less powerful, gravel is deposited and accumulates to form bars. The tendency for sediment to accumulate as gravel bars and islands in moderate and low-gradient channels creates outstanding habitat for various fish species and aquatic organisms (Thorp 1992; Johnson and Jennings 1998; Beechie et al. 2005).

River-run sediment is also highly desirable for construction purposes. Alluvial gravel is particularly sought after because of its high quality, often simple removal, and the fact that land-based aggregate is, with population growth, increasingly pre-empted for other uses (Kondolf 1994, 1998). Depending on channel characteristics and jurisdictional regulations, material is either removed by in-stream dredging (e.g., Harvey and Lisle 1998), extracted from off-channel floodplain deposits (e.g., Kondolf 1998), or scalped from dry bar surfaces within the channel during low flow (this study). Volumes extracted from many rivers have greatly exceeded the natural rate of recruitment, and in some cases, severe environmental damage has been reported (e.g., Macdonald 1988; Rinaldi et al. 2005; Rovira et al. 2005).

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[2]Present address: Fisheries and Oceans Canada, 401 Burrard Street, Vancouver, BC V6C 3S4, Canada.

Studies characterizing the physical impacts of gravel mining from rivers in the United States (e.g., Collins and Dunne 1990; Kondolf 1994; James 1999) and Europe (e.g., Sear and Archer 1998; Surian 1999) are relatively common. Far fewer studies have examined ecological impacts, despite growing concern that mining damages aquatic habitat. Attempts are made to minimize direct effects, such as the loss of benthic organisms (e.g., Griffith and Andrews 1981) or turbidity causing physiological stress to sensitive fish species (e.g., Berg and Northcote 1985; Shaw and Richardson 2001), through regulations restricting the timing and method of extraction (e.g., Boyd 1975; Meador and Layher 1998).

Indirect ecological effects due to gravel mining, those transmitted through habitat modifications, are likely to have the greatest impact on river ecosystems. But such effects are difficult to detect and characterize. Previous studies examining ecological effects have been carried out at sites with a prolonged history of gravel mining (e.g., Brown et al. 1998). There remains a major gap in our knowledge of the impacts to pristine aquatic habitat and the response of organisms. Gravel mining directly alters channel morphology (Collins and Dunne 1990; Kondolf 1997), thereby affecting flow velocity, water depth, and substrate texture, all of which influence the distribution and abundance of aquatic organisms. Species with specific habitat requirements may disappear from a system where substantial habitat modifications have occurred (Ricciardi and Rasmussen 1999). Other species with greater tolerance to habitat change may persist; however, recurrent habitat alteration will inevitably impact species composition and the productivity of river ecosystems (Benke 1990; Richter et al. 1997).

The objective of our study was to examine the effects of a single, experimental gravel removal on the physical habitat and invertebrate and fish communities in the lower Fraser River, British Columbia. A secondary goal of our study was to evaluate sampling requirements for effect detection in a large river system. Fraser River is unregulated and has a predictable annual hydrograph with snowmelt flooding in late spring that delivers substantial gravel annually to the lower river. Our hypothesis was that habitat alterations and the ecological response due to gravel mining are mediated by this annual flow event.

Materials and methods

Study area

Fraser River drains 232 000 km^2 of south and central British Columbia, Canada. The mainstem river is unregulated, and annual flooding due to snowmelt occurs in spring. At high flows, a large amount of sediment is mobilized and transported from the steep, upper basin, and a sharp decline in gradient in the lower 170 km forces deposition of much of this sediment load. Coarse sediment (gravel, cobble) is deposited within a 50 km reach between Laidlaw and Sumas Mountain (Fig. 1), referred to as the gravel reach, whereas fine sediment (sand, silt, clay) is transported further downstream (McLean et al. 1999). Sediment deposition in the gravel reach creates a wandering channel pattern (Desloges and Church 1989), with gravel bars and islands dividing the flow into multiple channels that shift with bar growth and bank erosion. Average peak flood discharge for the gravel reach (measured at Hope, Water Survey of Canada Stn. 08MF005) is 8766 m^3·s^{-1}, and mean annual flow is 3410 m^3·s^{-1}.

Because of annual gravel deposition, the Fraser River gravel reach has been exploited as a local source of high-quality gravel for many decades. At least 5 million m^3 have been mined since 1964 (averaging 117 000 m^3·year^{-1}; Weatherly and Church 1999), the majority of which was removed by dry bar scalping at low flow in winter. To place this volume in context, annual gravel influx averages 250 000 m^3·year^{-1} to the gravel reach (Ham 2005), while substantially larger volumes of sediment, on the order of 1 million m^3·year^{-1}, are redistributed by natural erosion and deposition processes during spring flooding (Ham and Church 2003). A removal rate of less than 50% the natural influx rate is low relative to most rivers where mining occurs (Collins and Dunne 1990; Rinaldi et al. 2005), and sediment transport processes in the gravel reach are mostly intact.

The Fraser River gravel reach supports 28 native fish species, including endangered white sturgeon (*Acipenser transmontanus*). Its residency in the gravel reach has been a major force behind habitat protection and sustainable management of the reach. The family Salmonidae dominates the faunal assemblage of the gravel reach with 11 species, and the Fraser River exceeds all rivers worldwide in terms of salmonid stock abundance (Northcote and Larkin 1989). Millions of pink salmon (*Oncorhynchus gorbuscha*) spawn within the gravel reach biennially, and large numbers of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) use the reach for rearing.

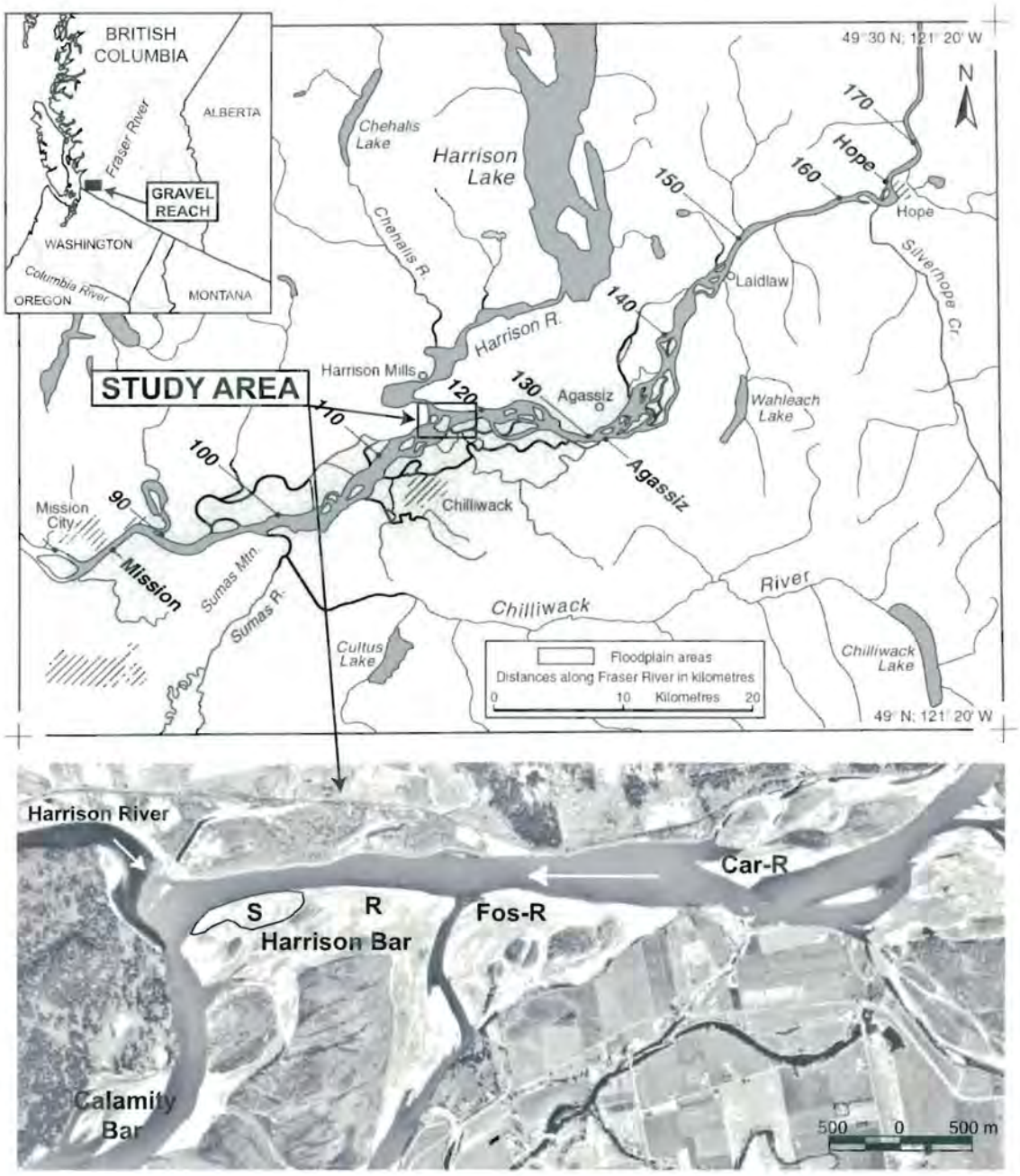
The lower Fraser River valley is also home to 2 million people, and with this concentration of people and investment, there is concern that annual gravel deposition is creating a flood risk. Gravel mining from within the main channel is proposed by river management agencies as a strategy to reduce flood risk, but concern over the potential impacts to fish habitat forced a moratorium on commercial mining from 1998 to 2004 to allow scientific studies to proceed. During the moratorium, one gravel removal (this study) was authorized to assess mining impacts on fish habitat and aquatic organisms.

Gravel mining

Gravel was removed by scalping 69 070 m^3 of dry sediment from lower Harrison Bar (Har-S) in early March 2000. The affected area represented 2% by volume and 15% by surface area of the nonvegetated Harrison Bar (Rice et al. 2008). The contractor followed normal industrial methods in accordance with Fisheries and Oceans Canada regulations. After completion, the site was graded to a 2% slope from the inner bar towards the main channel to ensure positive drainage and no fish stranding.

Upper Harrison Bar (Har-R), along with the lower halves of Carey Bar (Car-R) and Foster Bar (Fos-R), were designated reference sites (Fig. 1). The upstream proximity of reference sites to Har-S meant that they were unaffected by possible changes due to mining, but shared physical characteristics with respect to channel morphology, sediment transport regime, and substrate texture. Carey Bar has no prior history of gravel mining, but a site on Foster Bar located

Fig. 1. Location map of the Fraser River (British Columbia, Canada) gravel reach showing the study area, gravel mining site on Harrison Bar (S), and three upstream reference sites (Har-R, Fos-R, Car-R). Numbers indicate river kilometres measured from the mouth. Photograph taken 27 March 1999.

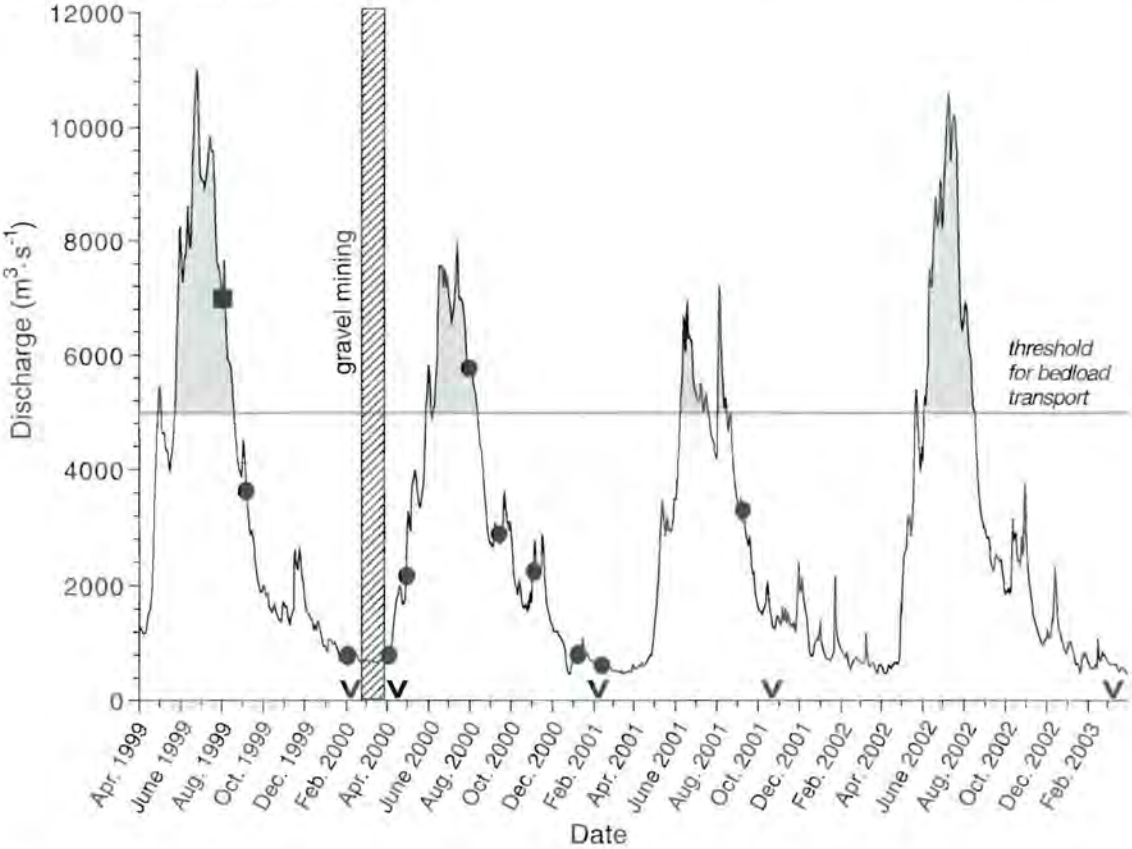


1 km upstream of Fos-R was mined in 1995. Herein, the term scalping is used interchangeably with mining and is defined as the removal by front-end loader of dry sediment from high-elevation areas of gravel bars.

Sampling schedule and design

Sampling began in August 1999 (Fig. 2) as part of a larger study examining the ecology of lower Fraser River. The experimental removal was not then anticipated and pre-removal sampling effort was unequal among reference sites. Mining at Har-S occurred in March 2000 at low flow and sampling after mining extended over 18 months, during which time spring flooding occurred twice. It was only during these annual flood events that any gravel replenishment and habitat recovery at Har-S could take place. Fish sampling at Har-S and the reference sites occurred three times before (August and September 1999, February 2000) and eight times after (April, May, August, September, and November 2000; January, February, and October 2001) mining. Invertebrate sampling occurred twice before (September 1999 and February 2000) and the same eight times after mining. The sampling schedule was designed, within the

Fig. 2. Sampling and topographic survey dates of our study in relation to river discharge measured at Hope, British Columbia (square, fish sampling only; circles, fish and invertebrate sampling; v, topographic survey). Substantial bedload gravel transport occurs at >5000 $m^3 \cdot s^{-1}$. The date that gravel mining commenced is indicated.



constraints of an imposed planning timeline, to coincide with the timing of key life cycle stages of juvenile fish and invertebrates.

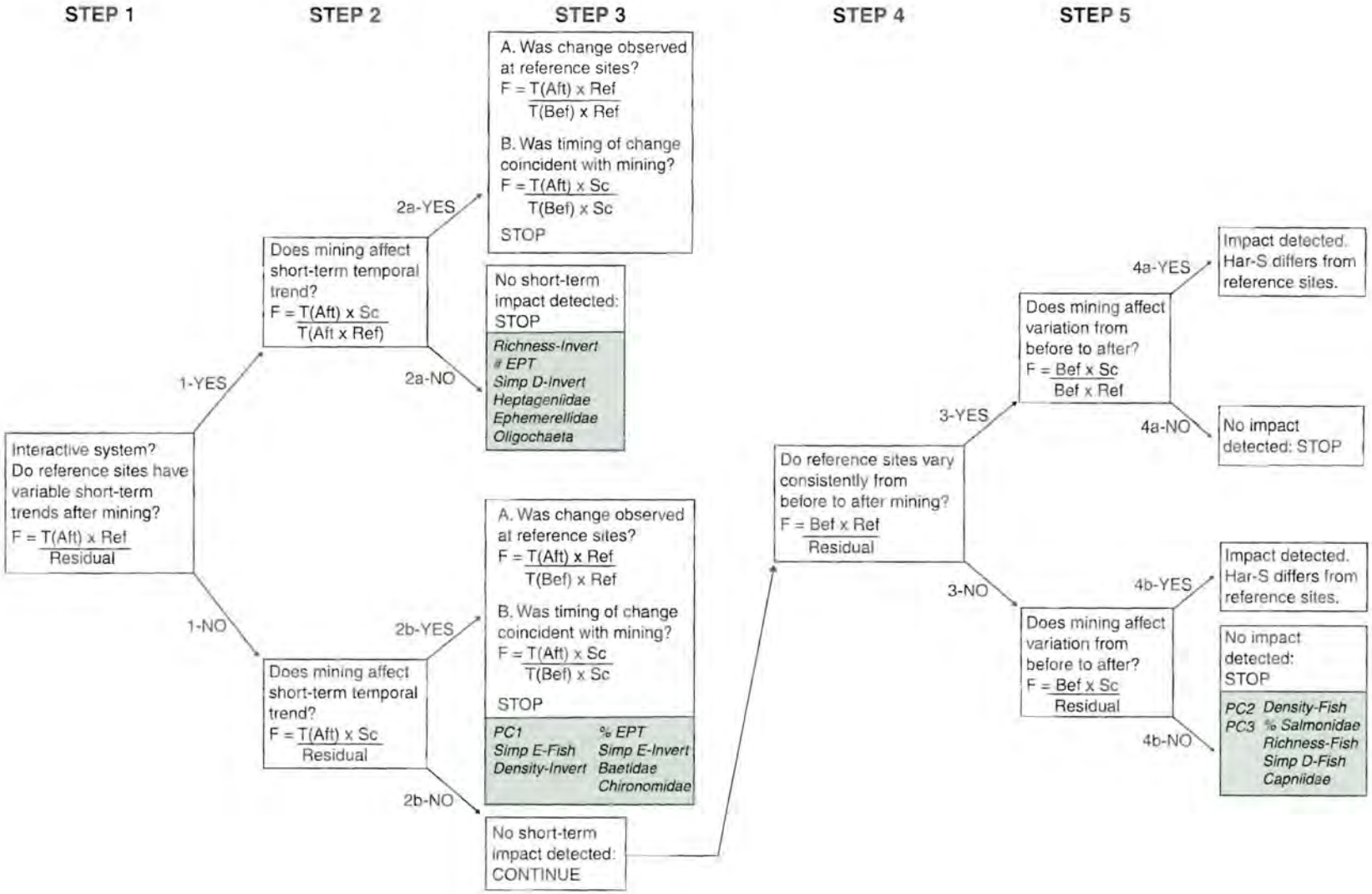
Sampling followed a modified BACI design (before–after control–impact; Stewart-Oaten et al. 1986) with three reference sites rather than a single control site. Including three reference sites leads to an asymmetrical analysis of variance (A-ANOVA; Underwood 1992, 1994, 1997), in which sources of environmental variance are assessed from observations at the multiple reference sites. This statistical design was specifically developed to assess the effects of major anthropogenic treatments in naturally variable systems, which are not often replicated.

A-ANOVA requires multiple reference sites for spatial replication and multiple sampling episodes before and after treatment for temporal replication. Only the reference condition is replicated; hence, the asymmetry. In our study, the difference between Har-S and reference sites prior to mining provided an estimate of the variability in possible outcomes after mining had the removal not occurred, thus making it possible to ascertain what a significant change at Har-S might be. A significant effect was defined as a detectable difference (negative or positive) in the change of measured parameters at Har-S from before to after mining compared with changes from before to after at the reference sites. Thus, a statistical interaction in the difference between Har-S and reference sites from before to after mining was required for the effect of gravel mining to be significant. This modified BACI design allowed for natural differences between the reference sites and Har-S and for changes during the before and after periods that influenced all sites in the same way. The practical mechanics of A-ANOVA are detailed in Underwood (1993) and described briefly herein to facilitate the reporting and interpretation of results for our study.

A series of questions are specified (Fig. 3), which are answered by up to five standard ANOVAs designed to determine if a detectable effect due to gravel mining at Har-S had occurred. Together, the ANOVAs systematically isolate the variance contributed by Har-S, before and after mining, from the total variance in the observations. SYSTAT (version 9.0, SPSS Inc., Chicago, Illinois) was used for the analyses. A-ANOVA was then calculated by subtractions and additions of the component sums of squares. We chose a critical value of $p = 0.05$ as a compromise between inflating the risk of a type I error by performing multiple analyses on the same data set and wanting to ensure that any real effect was detected. Power was estimated following Underwood (1993) for each analysis that failed to detect a significant impact.

If a significant temporal interaction is detected among reference sites after mining (Fig. 3, 1-Yes), the test in step 2 for a different temporal pattern at Har-S is less sensitive (fewer degrees of freedom in the denominator). This condition indicates large natural variation among reference sites over time, and an impact may need to be large to be detect-

Fig. 3. Sequence of questions and statistical tests for asymmetrical analysis of variance (A-ANOVA) to determine if effects of mining at Har-S were significant (Underwood 1993). The question in each box is answered by a standard ANOVA; for example, the F value in step 1 equals the mean-square estimate of the interaction among reference sites after mining divided by the mean-square estimate of the residual (T, time; Aft, after mining; Bef, before mining; Ref, reference sites; Sc, scalping at Har-S; EPT, Ephemeroptera, Plecoptera, and Tricoptera; Simp D, Simpson's diversity; Simp E, Simpson's evenness; PC, principal component). Shaded boxes indicate the endpoints of statistical tests for the parameters examined in our study.



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able (Underwood 1993). The most rigorous test for impact is available when the temporal interaction among reference sites is nonsignificant after mining (1-No) and an interaction between Har-S and the reference sites is not detected (2b-No). A detectable impact then produces an interaction in the difference between Har-S and the reference sites before mining compared with after mining (steps 4 and 5).

A short-term interaction between Har-S and reference sites (2a-Yes or 2b-Yes) implies that the temporal trend at Har-S falls outside that found at the reference sites. Accordingly, there must be no change in the interaction from before to after mining among the reference sites (step 3A), and the change in this temporal interaction must be coincident with mining (step 3B). Indeterminate results are produced when variance is large relative to the number of pretreatment sampling episodes. In such cases, we then examined the data graphically, depicted as normal-transformed variables to reflect the scale on which statistical analyses are based, for causal inference.

Juvenile fish

Juvenile fish were collected using a beach seine net (12.5 m × 2 m, 6 mm mesh) to compare the assemblage of species between sites over time. All fish were identified to species, measured (mm), weighed (g), and then promptly released. Each seine haul constituted a sample, and seine hauls were carried out within all habitat units present at each site based on the classification for gravel-bed rivers of Church et al. (2000). This classification recognizes seven habitat types associated with gravel bars: bar head, bar edge, bar tail, eddy pool, open nook, channel nook, and bay. In the gravel reach, these habitats occur at a scale of 10–100 m in perimeter. Habitat-specific sampling effort varied between sites and dates based on habitat unit presence, despite intentions to sample from all habitats on each date. Only bar edge habitat was sampled at all sites on all dates; it is the dominant habitat in the gravel reach and is defined as shallow-sloping (<5°) gravel bar edge oriented parallel to the flow and subject to constant and consistent flow forces of moderate velocity (<50 cm·s^{-1}).

We examined five fish community metrics separately using A-ANOVA at two spatial scales: the bar-scale (seines from all habitat types pooled) and habitat-scale (bar edge seines only). Analyzing data at both spatial scales allowed us to examine to what physical scale the ecological response best corresponded and to accommodate the dilemma that bar-scale analysis pools habitat-specific variability, whereas habitat-scale analysis reduces sample size. The following metrics were included after transformation to meet assumptions of normality and homogeneity of variance: log density (number·10 m^{-2}), % salmonids (arcsine-transformed), species richness, Simpson's diversity, and Simpson's evenness (no transformation).

Because the experimental gravel removal was not anticipated when sampling began, data collection was incomplete for ANOVA requirements at some reference sites. Following Underwood (1997), "dummy values" were substituted for missing data (1% of bar-scale cases, 5% of habitat-scale cases) by using the mean of the other reference sites on that date. The residual degrees of freedom were adjusted to compensate for missing values.

Benthic invertebrates

Three replicate invertebrate samples were collected using a Surber net (500 μm mesh, 0.09 m^2) at each site within habitats with flow (riffle, bar head, bar edge, bar tail). Sampling effort varied between months because habitat availability changed as water levels fluctuated. Samples were field-preserved in 4% formalin and wet-sieved (250 μm mesh) in the laboratory for sorting and identification. No subsampling occurred. Mayflies, stoneflies, and caddisflies were identified to genus; dipterans to either family or subfamily (Chironomidae); beetles and true bugs to family; oligochaetes, leeches, crustaceans, and mites to class; and nematodes to phylum.

We examined six invertebrate community metrics separately using A-ANOVA both at the bar (all habitats pooled) and habitat scale (bar edge only). The following metrics were included after transformation to meet assumptions of normality and homogeneity of variance: log density (number·m^{-2}), % EPT (Ephemeroptera, Plecoptera, and Tricoptera, arcsine-transformed), total and EPT richness, Simpson's diversity, and log Simpson's evenness. We replaced missing data with dummy values following Underwood (1997) for three cases of missing data (1.5% of habitat-scale cases) at reference sites before mining. The residual degrees of freedom were adjusted accordingly.

Densities of common taxonomic families (each representing >1% of invertebrates collected) were compared between sites before and after mining using A-ANOVA for insight into recolonization of a mined gravel bar. Six families met the 1% criterion: Baetidae, Heptageniidae, Ephemerellidae, Capniidae, Chironomidae, and Oligochaeta. Together, they represented 96% of invertebrates collected in our study. Densities were log-transformed prior to analysis to meet assumptions of normality and homogeneity of variance.

Habitat characteristics

Habitat characteristics were measured at all fish sampling sites. Water velocity and depth measurements were taken at nine points within the sampled area using a wading rod and Marsh–McBirney electromagnetic velocity meter. Surface sediment was visually classified for embeddedness and percent representation by major grain-size classes. The slope angle of the bank was calculated as the sine function of maximum sample depth divided by sample width.

Principal components analysis (PCA) was used to summarize total variation in the characteristics of bar edge habitat units and reduce the number of variables to an orthogonal, linear subset representing the dominant physical gradients. These PC axes were then used to examine habitat differences between Har-S and the reference sites before and after mining by considering the relation among all physical factors simultaneously. The following variables were included after transformation to meet assumptions of normality and homogeneity of variance: $\log_{10}$ bank angle, mean depth, maximum depth, mean velocity, maximum velocity, and the arcsine-transformed proportions of cobble, gravel, and sand. A-ANOVA was applied to each of the first three PC axes to determine if the physical characteristics of bar edge units changed as a result of gravel mining.

Sedimentology

Surface sediment samples were collected from the inner bar and water edge of Har-S and Har-R once before (February 2000) and three times after mining (April and September 2000, September 2001). Sampling followed either the Wolman or photographic technique (Church et al. 1987) to measure sediment size and sand coverage. Wolman samples consisted of 400 independently sampled stones and the size-frequency curve was plotted to determine median grain size (D_{50}) and the size of the coarse (D_{95}) sediment present. The photographic method was used only in September 2001 based on a calibration data set from the gravel reach (Rice et al. 2008), from which size percentile metrics were derived.

Single-factor ANOVA was used to compare surface sediment over time between samples collected before (February 2000) and on two dates after gravel mining (September 2000, 2001). Separate analyses were run for inner bar and water edge samples. Three parameters were examined after transformation to meet assumptions of normality and homogeneity of variance: arcsine-transformed proportion of sand and untransformed D_{50} and D_{95}. The critical value was adjusted by the Bonferroni method because multiple significance tests were performed on the same data ($p = 0.05$ divided by four contrasts = 0.0125).

No sampling occurred downstream of the removal area to examine sand deposition as a result of mining. Fine sediment is highly transient in the gravel reach, and considering an average 5.5 million tonnes of sand are transported through the reach each year (McLean et al. 1999), a change in sand content on downstream gravel bars would be undetectable.

Bar topography

Har-S was surveyed in February 2000 and immediately after scalping in March 2000 to determine the volume of gravel removed. The survey was repeated in February 2001, October 2001, and March 2003 to quantify bar-scale sediment recruitment to Har-S after each of three flood events and to measure habitat-scale topographic change. The extent of surveys after mining did not exactly match; thus, we examined the largest area common to all surveys and refer to it as Lower Harrison Bar. This area excluded the outer corner of Har-S but included a larger area of the inner bar to ensure that bar-scale changes in topography were captured.

Volumetric change between each survey of Lower Harrison Bar was estimated using the TOPOGRID (5 m grid spacing) and CUTFILL commands in Arc/Info Workstation (version 8.3, Environmental Systems Research Institute, Redlands, California). Habitat-scale topographic change was examined by creating hypsometric curves to relate bar surface area and elevation based on the TOPOGRID surfaces. Bar elevation was then related to river discharge by regression based on stage readings from a gauge at the mouth of Harrison River and commensurate discharge data at Hope to determine the amount of bar area exposed at high flows. This question was of interest because the lowering of bar surface elevation by scalping may reduce the availability of shallow, nearshore habitat for fish during flooding.

Potential effects of the removal on channel gradient and upstream–downstream changes to sediment supply were not evaluated in this study because they are considered to be negligible. Islam (2008), using the advanced morphodynamic simulation model MIKE21C, calculated that mining as much as 500 000 m^3 of sediment from Harrison Bar would induce a drop in water level, locally, of about 35 mm at the highest probable flood stage. This would affect local river gradient (400 $mm \cdot km^{-1}$) by less than 10% and have only a small influence on sediment transfer along the river, which would soon be neutralized by renewed deposition on the bar. In comparison, the experimental gravel removal under study was nearly an order of magnitude smaller (69 000 m^3). Water levels and sediment transfer at Harrison Bar are dominated by the hydraulic effect of the sharp channel bend opposite the Harrison River confluence (Fig. 1). Any gravel removal from the bar that does not cause channel realignment is apt to have water level and sedimentation effects that are practically impossible to measure.

Results

Juvenile fish

We report only on bar-scale analyses of fish data because A-ANOVA results were similar at the bar and habitat scales, but the former had higher power to detect an effect when all habitat types were pooled (242 total seines versus 124 seines in bar edge units). A total of 12 094 fish representing 24 species were captured by beach seine at all sites during our study. The number of beach seines differed each month (inset box, Fig. 4) because of varying habitat unit presence; fish sampling could not be conducted at flows > 5700 $m^3 \cdot s^{-1}$.

Fish density varied among sites and seasonally, with highest density between April and September and lowest density in winter months (Fig. 4*a*). In all months after mining except February and August 2001, density at Har-S was equal to or greater than the average density at reference sites (Fig. 4*a*), and no significant effect due to scalping was detected (Table 1).

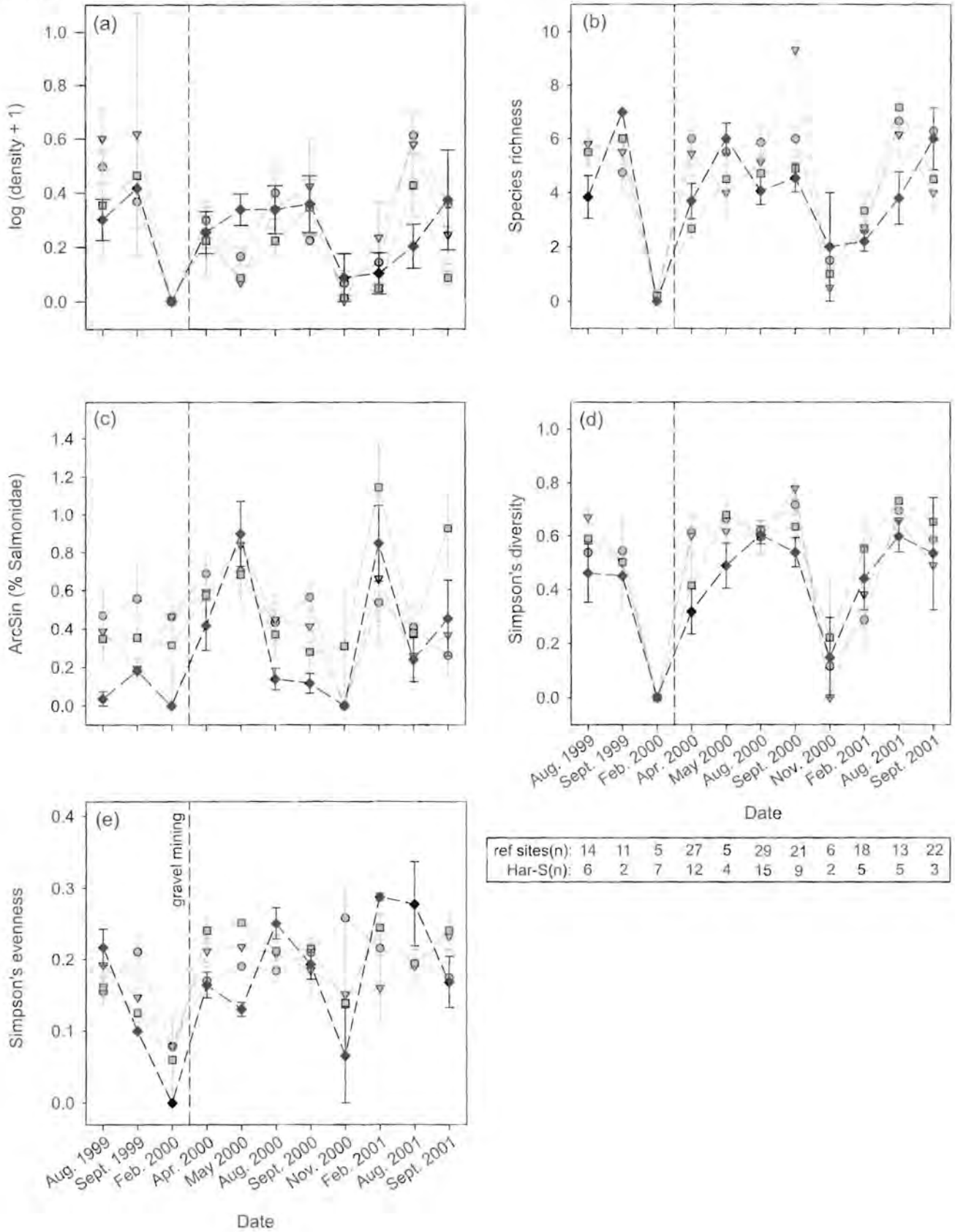
Species richness was low in winter at all sites compared with spring and summer (Fig. 4*b*). At Har-S, richness was higher than or within the range of values at reference sites in all months except August 1999 before mining and September 2000 and August 2001 after removal (Fig. 4*b*). No effect due to bar scalping could be confirmed, and statistical power was moderate (Table 1).

The proportion of Salmonidae at Har-S was lower than that at reference sites in most months of the study, both before and in the first year after scalping (Fig. 4*c*). The exception was May 2000 when Chinook salmon abundance at Har-S was high. One year after scalping in 2001, the proportion of salmonid species at Har-S was similar to that at reference sites, and no effect due to scalping was detected (Table 1).

Simpson's diversity was lower at Har-S than at reference sites in summer 1999 before scalping and remained lower immediately after scalping in April and May 2000 (Fig. 4*d*). In all periods after August 2000, Har-S samples had diversity similar to that at reference sites, and no effect due to bar scalping was detected (Table 1).

Simpson's evenness was higher at Har-S in August 1999, 2000, and 2001 compared with reference sites, but varied considerably in the intervening periods (Fig. 4*e*). A signifi-

Fig. 4. Average (± standard error) fish metric values at Har-S and reference sites before and after mining (diamonds, Har-S; circles, Car-R; triangles, Fos-R; squares, Har-R). The date that gravel mining commenced is indicated with a vertical broken line. Lines joining symbols connect sampling episodes and are not meant to represent a trend in the intersampling period. The number of beach seines in each month is indicated in the box.



ref sites(n):	14	11	5	27	5	29	21	6	18	13	22
Har-S(n):	6	2	7	12	4	15	9	2	5	5	3

Table 1. Asymmetrical analysis of variance (A-ANOVA) results examining gravel mining impacts at Har-S on fish community metrics (all habitats combined).

Variable	Step 1: Do reference sites have variable short-term trends after mining?	Step 2: Does mining affect short-term temporal trend?	Step 3A: Was change observed at reference sites?	Step 3B: Was timing of change coincident with mining?	Step 4: Do reference sites vary consistently from before to after mining?	Step 5: Does mining affect variation from before to after?	Conclusion	*p* value	Power
Density	No	No	↑	↑	No	No	No effect detected	0.37	0.18
	No	No	↑	↑	No	No	No effect detected	0.68	0.37
	No	No	↑	↑	No	No	No effect detected	0.27	0.08
	No	No	↑	↑	No	No	No effect detected	0.49	0.26
	No	Yes	Yes	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	<0.001	—

Note: Refer to Fig. 3 for flowchart showing steps and details of A-ANOVA.

cant temporal interaction between Har-S and reference sites after mining was detected, but the analysis had inadequate power to attribute mining as the cause (Table 1). Graphical examination was not informative in this regard.

Benthic invertebrates

We report only on habitat-scale analyses of invertebrate data because A-ANOVA results were identical at the bar and habitat scales, but the latter had higher power to detect an impact. Invertebrate density varied seasonally at all sites, and February samples contained more than four times the density of animals in August and September (Fig. 5*a*). Year-to-year variability was evident as well. Mean density at Har-S was similar to that at reference sites before mining but lower in May and August 2000 when samples were collected within the removal boundary and from sediment directly disturbed by scalping. A-ANOVA detected a significant temporal interaction among reference sites after mining (Table 2) but lacked statistical power to attribute mining as the cause. The short-term difference detected by A-ANOVA was more likely higher density at Har-S in January 2001 compared with reference sites (Fig. 5). On all dates after August 2000, density at Har-S was higher than the average of reference sites (Fig. 5*a*).

The proportion of EPT was highest in samples from Har-S before scalping, and values remained higher than at reference sites immediately after scalping in April 2000 (Fig. 5*b*). The proportion of EPT at Har-S in all subsequent months was within the range observed at reference sites, and differences between sites were small (Fig. 5*b*). A-ANOVA detected a significant change at Har-S (Table 2), which graphical examination suggested was the positive difference in April 2000.

Both total richness and the number of EPT taxa followed a seasonal cycle similar to density, being highest in winter samples collected between November and February (Figs. 5*c*, 5*d*). Har-S had higher values than the average at reference sites both before and one year after scalping. The lower number of EPT taxa at Har-S in May and August 2000 samples was not statistically significant, and no effect due to scalping was detected for either metric (Table 2).

Simpson's diversity was highest at Har-S prior to scalping but low relative to reference sites in April 2000 when a high proportion of *Ameletus* sp. was collected (Fig. 5*e*). Between May and November 2000, diversity at Har-S was higher than the average of reference sites (Fig. 5*e*) but was lowest in January 2001 when Chironomidae and Baetidae dominated Har-S samples. These differences between Har-S and reference sites were not significant (Table 2).

Simpson's evenness was highest in months immediately after scalping at most sites, including Har-S, and lowest in winter months (Fig. 5*f*). The numerical dominance of Orthocladiinae contributed to low evenness values in February of both years at all sites. A-ANOVA revealed a short-term change at Har-S (Table 2) that likely corresponded with January 2001 samples having notably lower evenness than all reference sites (Fig. 5*f*).

Baetidae abundance at Har-S was approximately equal to or higher than the average at reference sites in all months after mining (Fig. 6*a*). Whereas abundance declined between November 2000 and February 2001 at reference sites, it in-

Fig. 5. Average (± standard error) invertebrate metric values at Har-S and reference sites before and after mining (diamonds, Har-S; circles, Car-R; triangles, Fos-R; squares, Har-R). The date that gravel mining commenced is indicated with a vertical broken line. Lines joining symbols connect successive sampling episodes and are not meant to represent a trend in the intersampling period. EPT indicates Ephemeroptera, Plecoptera, and Tricoptera.

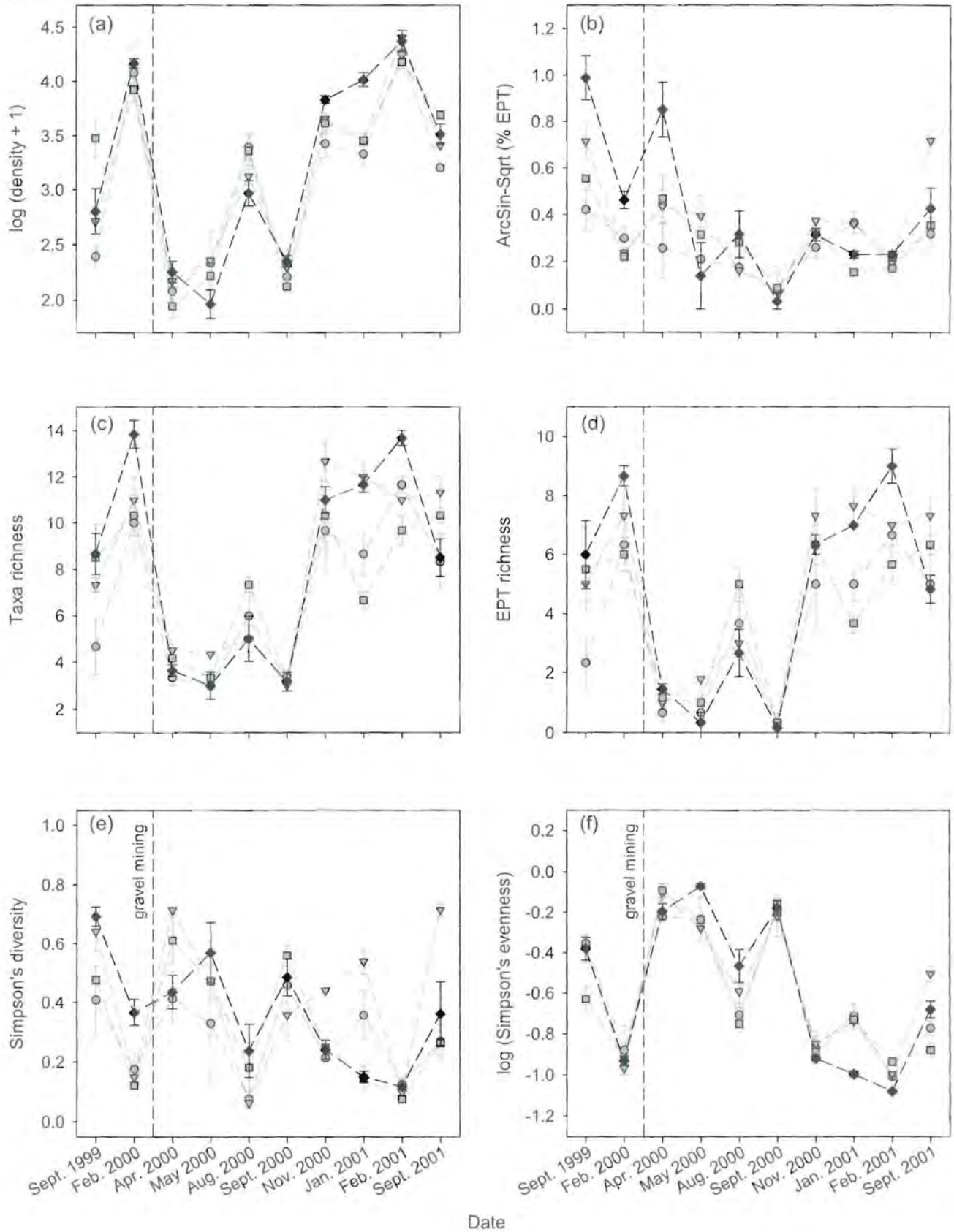


Table 2. Asymmetrical analysis of variance (A-ANOVA) results examining gravel mining impacts at Har-S on invertebrate community metrics (bar edge habitat only).

Variable	Step 1: Do reference sites have variable short-term trends after mining?	Step 2: Does mining affect short-term temporal trend?	Step 3A: Was change observed at reference sites?	Step 3B: Was timing of change coincident with mining?	Step 4: Do reference sites vary consistently from before to after mining?	Step 5: Does mining affect variation from before to after?	Conclusion	*p* value	Power
Density	No	Yes	No	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	<0.001	—
% EPT*	No	Yes	No	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	<0.001	—
Taxon richness	Yes	No	—	—	—	—	No short-term effect detected	0.39	0.54
EPT richness	Yes	No	—	—	—	—	No short-term effect detected	0.21	0.67
Simpson's diversity	Yes	No	—	—	—	—	No short-term effect detected	0.35	0.62
Simpson's evenness	No	Yes	No	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	<0.001	—

Note: Refer to Fig. 3 for flowchart showing steps and details of A-ANOVA.
*EPT: Ephemeroptera, Plecoptera, Trichoptera.

creased at Har-S. Notably higher abundance at Har-S compared with reference sites in January 2001 (Fig. 6*a*) likely explains the statistically significant A-ANOVA results (Table 3).

Chironomids (mostly Orthocladiinae) were the most abundant taxon in most samples on all dates. A significant short-term interaction between Har-S and the reference sites is detected (Table 3), but only in January 2001 did abundance at Har-S fall outside, and above, values observed at reference sites (Fig. 6*b*).

Capniidae is the only taxonomic group for which the temporal trend was consistent among reference sites after mining, and no short-term interaction between Har-S and the reference sites was found (Table 3). This allowed for more rigorous impact assessment and no significant effect due to mining was detected. Capniidae abundance was highest in winter months at all sites (Fig. 6*c*).

Patterns of abundance were similar for Heptageniidae and Ephemerellidae families (Figs. 6*d*, 6*e*). Whereas Har-S had higher relative abundance in the summer prior to mining, the families were uncommon at both Har-S and reference sites in spring and summer after removal. Abundance was variable among sites in the winter following mining, but Har-S was generally similar to or higher than the average of reference sites during this period. No significant short-term effect at Har-S was detected for either taxon (Table 3).

Oligochaeta (mostly Naididae and Tubificidae) abundance was the most variable among sites of all families examined (Fig. 6*f*). On most dates after mining, abundance at Har-S was similar to or exceeded values at reference sites, and power to detect an impact was high (Table 3).

Habitat characteristics

Bar edge habitat dominated both Har-S and Har-R prior to mining, and individual units were up to 500 m in length. Increased topographic complexity as a result of flooding in the 3 years after scalping reduced the length of individual bar edge habitat units and increased the variety of habitat types overall.

PCA applied to bar edge habitat characteristics at Har-S and the three reference sites accounted for 90.5% of the total variation in the first three PC axes (Table 4). PC1 explained 44.3% of the variation and represented a hydraulic gradient of increasing water depth, velocity, and bank angle. PC2 and PC3 represented gradients of coarse and fine sediment, respectively. There was a seasonal shift along PC1 at Har-S relative to reference sites from shallow and lower velocity conditions in summer months to deeper and faster-flowing water in winter (Fig. 7). The shift was observed over three summers of sampling, and May 2000 PC1 scores for Har-S fell outside the values for reference sites. A-ANOVA found a significant short-term change in this hydraulic gradient at Har-S (Table 5), and graphical examination supports mining as the cause (Fig. 7). PC2 and PC3 values were similar among sites on all dates before and after scalping.

Sedimentology

Surface sediment texture (D_{50}, D_{95}) prior to mining was similar at Har-S and Har-R (Fig. 8) and became finer from the water edge toward the inner bar. Average sand cover

Fig. 6. Average (± standard error) density of common invertebrate taxa at Har-S and reference sites before and after mining (diamonds, Har-S; circles, Car-R; triangles, Fos-R; squares, Har-R). The date that gravel mining commenced is indicated with a vertical broken line. Lines joining symbols connect sampling episodes and are not meant to represent a trend in the intersampling period.

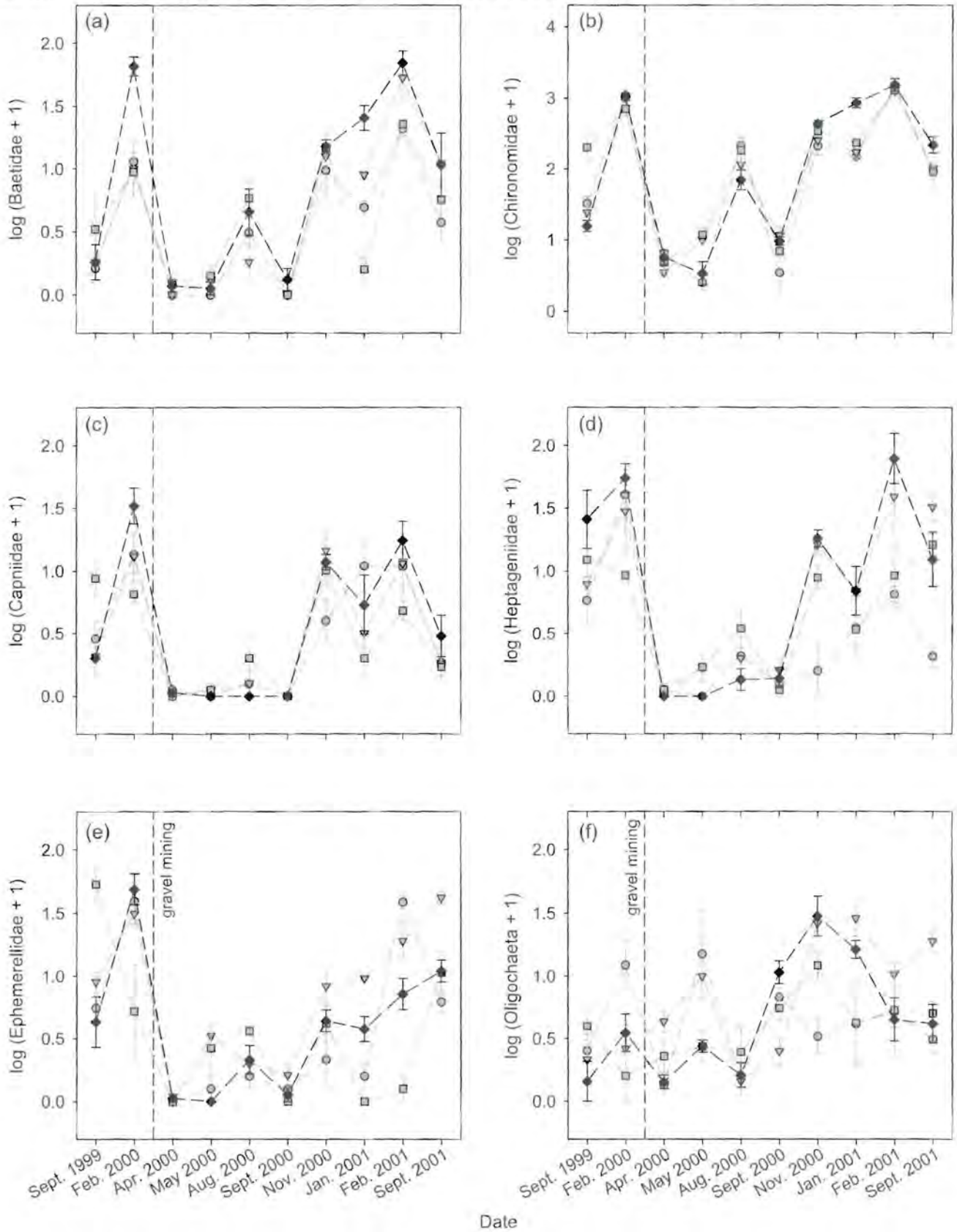


Table 3. Asymmetrical analysis of variance (A-ANOVA) results examining gravel mining impacts at Har-S on common invertebrate family densities.

Variable	Step 1: Do reference sites have variable short-term trends after mining?	Step 2: Does mining affect short-term temporal trend?	Step 3A: Was change observed at reference sites?	Step 3B: Was timing of change coincident with mining?	Step 4: Do reference sites vary in difference from before to after mining?	Step 5: Does mining affect differences from before to after?	Conclusion	*p* value	Power
Baetidae	No	Yes	No	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	0.03	—
Chironomidae	No	Yes	No	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	<0.001	—
Capniidae	No	No	↑	↑	No	No	No effect detected	0.71	0.07
Heptageniidae	Yes	No	—	—	—	—	No short-term effect detected	0.29	0.79
Ephemerellidae	Yes	No	—	—	—	—	No short-term effect detected	0.98	0.15
Oligochaeta	Yes	No	—	—	—	—	No short-term effect detected	0.40	0.81

Note: Refer to Fig. 3 for flowchart showing steps and details of A-ANOVA.

Table 4. Factor loadings from principal components analysis (PCA) of bar edge habitat units.

Variable	PC1	PC2	PC3
Cobble	−0.63	0.71*	−0.26
Gravel	0.29	−0.88*	−0.35
Sand	0.55	0.08	0.78*
Bank angle	−0.81*	−0.31	0.44
Average depth	−0.82*	−0.27	0.42
Average velocity	−0.73*	−0.26	−0.27
Eigenvalue	2.66	1.53	1.24
% variation explained	44.3	25.6	20.6

*Correlated with PC axis.

was relatively high at both Har-S (11%) and Har-R (17%) but locally variable. Immediately after scalping, Har-S had a higher proportion of sand, average D_{95} decreased from 66 to 39 mm, and average D_{50} decreased from 25 to 13 mm. After two below-average floods, the D_{50} at Har-S in September 2001 was nearly identical to the size before removal both along the water edge and inner bar. Average D_{95} was less than that before scalping at the water edge, but a reduction in size over this period was observed at Har-R as well. Sand content in both areas was lower in September 2001 than before scalping.

Single-factor ANOVA comparing values at Har-S over time showed that the inner bar had significantly higher sand content before scalping compared with both sampling dates after scalping (Table 6). The gravel fractions were similar in size before and after scalping.

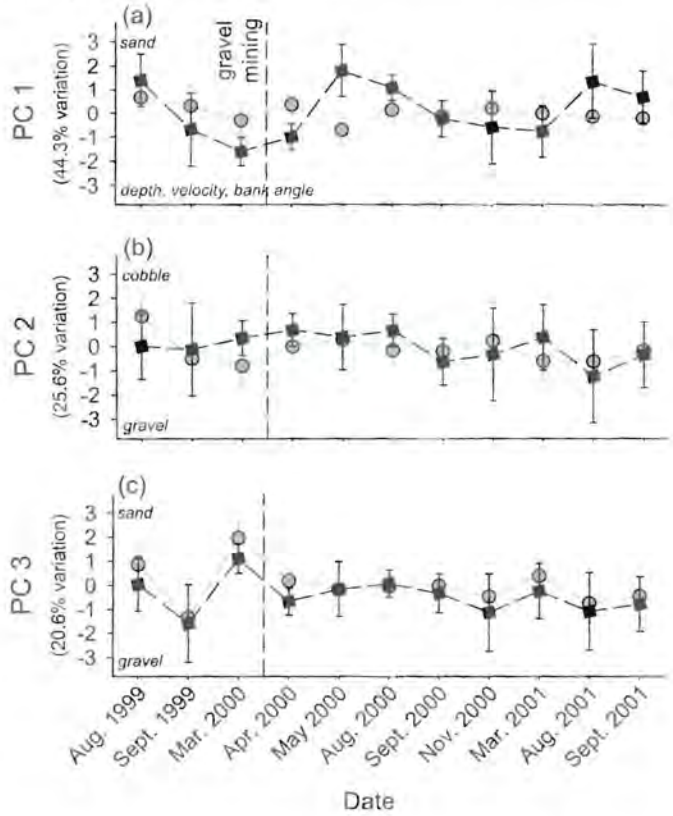
Bar topography

The topography of Lower Harrison Bar (the area commonly surveyed in all years) was simple prior to mining (Fig. 9*a*), and average and maximum surface elevations were 8.4 and 11.6 m, respectively (Table 7). Scalping removed 69 070 m^3 of sediment from within Har-S (62 232 m^3 from Lower Harrison Bar, the difference due to exclusion of the outer corner of Har-S) and left a low-gradient slope running from the inner bar to the water edge (Fig. 9*b*). The maximum vertical depth of extraction was nearly 2 m, and average surface elevation was reduced by approximately 1 m.

The modest 2000 and 2001 floods resulted in further net losses of 6635 and 1676 m^3 from Lower Harrison Bar, respectively (Table 8). There was, however, sediment exchange (erosion and deposition) over the bar in both years that filled the major area that had been reduced to <8 m elevation (Fig. 10) and increased topographic complexity at the habitat scale (Figs. 9*c* and 9*d*). A summer channel developed across the lower corner of the bar during flooding in 2000 (Fig. 9*c*) that had irregular geometry, high habitat diversity, and conveyed flow through October 2000 (discharge > 1500 $m^3 \cdot s^{-1}$). Sediment deposition by the 2001 flood cut off flow into the channel after September 2001 (discharge > 1800 $m^3 \cdot s^{-1}$), and in 2002 the channel carried flow through August (discharge > 2000 $m^3 \cdot s^{-1}$).

The large 2002 flood produced the most notable topographic change, depositing 27 630 m^3 of sediment. Comparing February 2000 and March 2003 surveys, there remained

Fig. 7. Mean factor scores (±95% confidence interval) for Har-S and reference sites derived from principal component analysis (PCA) of bar edge habitat characteristics (squares, Har-S; circles, reference sites). Variables most highly correlated with each axis are indicated in each panel. The date that gravel mining commenced is indicated with a vertical broken line. Lines joining symbols connect sampling episodes and are not meant to represent a trend in the intersampling period.



a net loss of 42 913 m^3 over Lower Harrison Bar (Table 8). With 62 232 m^3 removed from this same area, 31% was replenished by the 2002 flood to restore average bar elevation to within 10 cm of the surface before scalping (Table 7). Comparing these two surveys also reveals the extent to which topographic complexity increased across Lower Harrison Bar from before to after mining (Figs. 9*a*, 9*e*). Based on the relation between discharge (Q) and water surface elevation ($z = 0.0005Q + 6.55$, $r^2 = 0.98$), Lower Harrison Bar would have been submerged at a discharge of 10 100 $m^3 \cdot s^{-1}$ prior to mining compared with 10 900 $m^3 \cdot s^{-1}$ after the 2002 flood (maximum bar elevations of 11.6 and 12.0 m, respectively, Table 7).

Bar scalping resulted in a major shift in the elevation profile of Lower Harrison Bar that was partially reversed by flooding (Fig. 10). For example, the proportion of bar with >9 m elevation declined from 24% before scalping to 0% immediately after scalping and 18% after three flood events (Table 7). Hence, there remained a net 25% loss of bar area with >9 m elevation after the 2002 flood. Despite no long-term reduction in maximum surface elevation, this remaining deficit in high bar area, which provides shallow-water habitat for fish during flood, was notable (Table 7).

Table 5. Asymmetrical analysis of variance (A-ANOVA) results examining gravel mining impacts on the physical characteristics of bar edge habitat units at Har-S.

Variable	Step 1: Do reference sites have variable short-term trends after mining?	Step 2: Does mining affect short-term temporal trend?	Step 3A: Was change observed at reference sites?	Step 3B: Was timing of change coincident with mining?	Step 4: Do reference sites vary consistently from before to after mining?	Step 5: Does mining affect variation from before to after?	Conclusion	*p* value	Power
Hydraulic gradient (PC1)	No	Yes	No	No	—	—	Inadequate degrees of freedom to confirm an effect due to mining	<0.001	—
Coarse sediment gradient (PC2)	No	No	↑	↑	No	No	No effect detected	0.72	0.004
Fine sediment gradient (PC3)	No	No	↑	↑	No	No	No effect detected	0.48	0.04

Note: Refer to Fig. 3 for flowchart showing steps and details of A-ANOVA.

Fig. 8. Surface sediment characteristics (mean ± standard error) in the scalped (black symbols) and reference (grey symbols) areas of Harrison Bar before and after gravel mining along the water edge (circles) and inner bar (squares). The date that gravel mining commenced is indicated with a vertical broken line. Lines joining symbols connect sampling episodes and are not meant to represent a trend in the intersampling period.

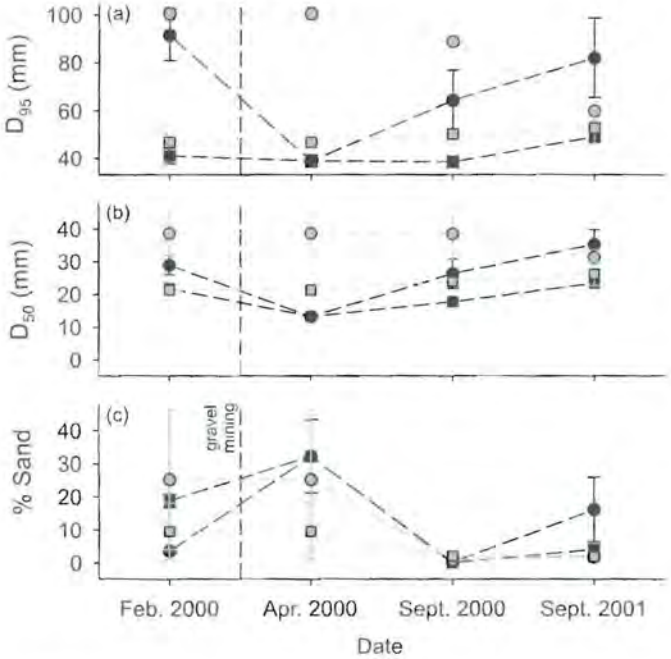


Table 6. Analysis of variance (ANOVA) results comparing surface sediment samples before and after gravel mining.

Parameter	df (residual)	MS (residual)	F	p
Water edge				
% sand	2 (3)	0.04 (0.05)	0.83	0.52
D_{50}	2 (3)	43.3 (57.8)	0.75	0.54
D_{95}	2 (3)	384.3 (724.9)	0.53	0.64
Inner bar				
% sand	2 (3)	0.1 (0.003)	33.31	0.009*
D_{50}	2 (3)	19.3 (11.5)	1.67	0.32
D_{95}	2 (3)	33.5 (40.2)	0.83	0.52

Note: D_{50}, median sediment size; D_{95}, coarse sediment size; df, degrees of freedom; MS, mean square.

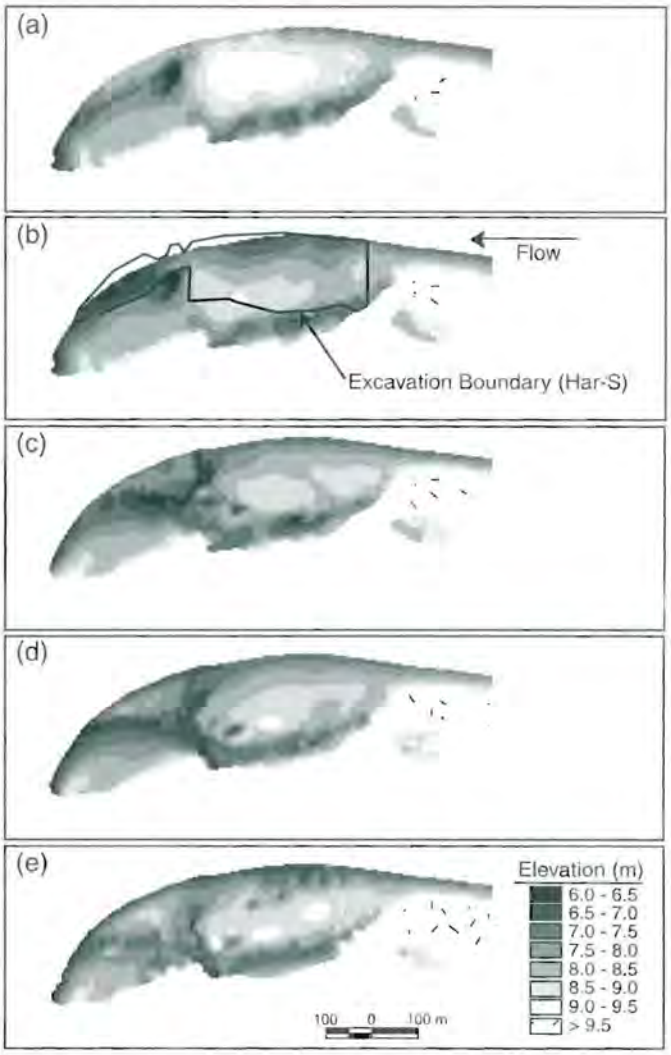
*$p < 0.0125$, corrected by Bonferroni's method for multiple contrasts.

Discussion

Physical changes

Immediate physical changes to Harrison Bar as a result of gravel mining in March 2000 were substantial. Scalping removed 69 070 m^3 of sediment, and the pre-existing coarse and stable bar surface was replaced by an evenly graded area of loose gravel and sand. However, the dramatic change in sediment texture was short-lived, as flooding in 2000 transformed the loose and sandy substrate into a moderately coarse surface with negligible sand cover. Reduced sand cover over both the scalped and reference areas of Harrison Bar after flooding indicates that sand entrainment across the entire bar surface was high. These observations are consistent with the transient occurrence of sand in the gravel reach, and considering the 5.5 million tonnes of sand transported through the reach each year on average (McLean et al. 1999), sand transport from Har-S is believed not to have had a detectable or lasting impact on downstream habitats. Flooding in 2001 produced additional surface coarsening within the removal area, although the coarsest fraction (D_{95}) along the water edge remained smaller than that prior to mining.

Fig. 9. The topography of Lower Harrison Bar before and on four dates after gravel mining: (*a*) Feb. 2000, (*b*) Mar. 2000, (*c*) Feb. 2001, (*d*) Oct. 2001, (*e*) Mar. 2003.



Sedimentary changes at Har-S as a result of flooding occurred concurrently with volumetric and topographic changes. Modest flooding in 2000 and 2001 yielded no volumetric replenishment but resulted in minor rebuilding of high bar habitat and increased topographic complexity due to sediment exchange across the bar surface. In the gravel reach, topographic complexity begets habitat diversity, and the increased topographic complexity over Har-S after flooding in 2000 and 2001 resulted in higher habitat diversity at the site overall. Therefore some habitat-scale recov-

Table 7. Surface elevation characteristics of Lower Harrison Bar before and on multiple dates after gravel mining (area: 247 825 m²).

		Elevation (m)			Elevation > 8 m*		Elevation > 9 m*	
Date	Period	Mean	Max.	Min.	Area (m²)	%	Area (m²)	%
Feb. 2000	Before scalp	8.4	11.6	5.7	175 725	71	58 925	24
Mar. 2000†	After scalp	7.2	9.7	5.5	9 775	4	<1 000	<1
Feb. 2001	After flood 1	8.1	10.9	6.1	135 900	55	35 300	14
Oct. 2001	After flood 2	8.1	11.9	5.8	136 950	55	38 250	15
Mar. 2003	After flood 3	8.3	12.0	5.6	141 250	57	44 750	18

Note: Lower Harrison Bar represents the area commonly included in all surveys after mining.

*The areas of bars with elevations >8 m and >9 m would remain exposed at discharges of 2960 and 4960 $m^3 \cdot s^{-1}$, respectively.

†Values for March 2000 are derived from within Har-S removal area rather than from Lower Harrison Bar.

Table 8. Volumetric (m³, bulk volume) comparisons between surveys of Lower Harrison Bar.

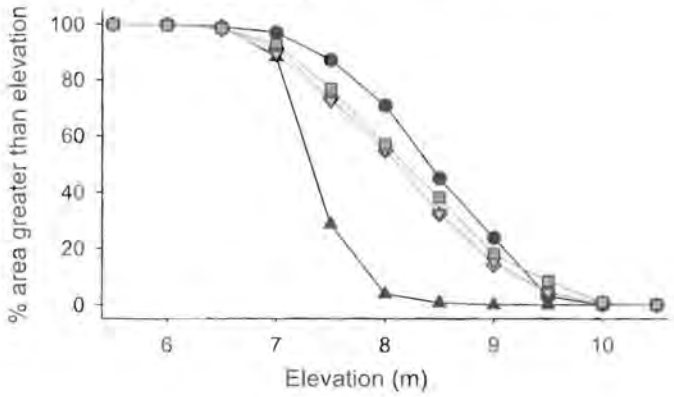
Survey contrasts	Erosion	Deposition	Net change
Feb. 2000 vs. Mar. 2000 (mining)	−63 881	+1 648*	−62 232†
Mar. 2000 vs. Feb. 2001 (2000 flood)	−47 476	+40 840	−6 635
Feb. 2001 vs. Oct. 2001 (2001 flood)	−28 414	+26 737	−1 676
Oct. 2001 vs. Mar. 2003 (2002 flood)	−23 348	+50 978	+27 630
Feb. 2000 vs. Mar. 2003	−81 317	+38 400	−42 913

Note: Lower Harrison Bar represents the area commonly included in all surveys after mining and excludes the downstream, outer corner of Har-S (see Fig. 9*b*).

*Minor deposition due to a sediment berm left by the contractor at the downstream end of Har-S.

†Discrepancy with reported volume of 69 070 m³ due to exclusion of the downstream corner of Har-S in the survey comparison.

Fig. 10. Area–elevation relation of Lower Harrison Bar based on topographic surface modeling (circles, Feb. 2000; upright black triangles, Mar. 2000; diamonds, Feb. 2001; reverse grey triangles, Oct. 2001; squares, Mar. 2003).



ery occurred in these two low-flood years despite the fact that bar-scale recovery in sediment volume did not. In 2002, above-average flooding replenished 31% of the scalped volume and restored average bar surface elevation to within 10 cm of the average before mining. Maximum bar elevation exceeded the level before scalping by 35 cm. These findings demonstrate that vertical bar growth can proceed after gravel mining so long as an upstream supply of sediment is recruited to the site during high flow events.

Despite modest sediment replenishment and vertical bar growth over Lower Harrison Bar, the proportion of area at elevations > 9 m after the 2002 flood remained 25% smaller than that before mining. The loss of high bar habitat was most significant for flows > 5000 $m^3 \cdot s^{-1}$, generally from May through August, when these areas represent nearshore rearing habitat for juvenile fish. Habitat availability naturally decreases in summer months as flooding inundates gravel bars and low-lying islands. The reduction in high elevation bar area as a consequence of mining would have further reduced available rearing habitat during a period when it is already limiting for fish in the gravel reach (Perkins 2007). Only by comparing the area–elevation relation and then relating it to the specific range of flows over which fish might be affected was this impact to fish habitat identified.

The extent to which the effect of this high-bar habitat loss transmitted to fish populations remains uncertain. Fish species may have alternate strategies to cope with seasonal flooding in Fraser River, especially given the river's highly predictable hydrograph. Several studies of northern floodplain rivers have documented lateral shifts in the distribution of fish during high flow events (Sommer et al. 2001; King et al. 2003; Schwartz and Herricks 2005), with side channels becoming increasingly important. Flood predictability and duration are believed to be important factors influencing seasonal side channel use for spawning and rearing and as refugia from flooding (Galat et al. 1998; King et al. 2003). In Fraser River side channels, gillnet and minnow trap sampling during spring flooding consistently yielded high catch rates (L.L. Rempel, unpublished data), but comparable data during flooding from main channel and bar top habitats are not available.

The overall physical transformation of Har-S by flooding highlights the critical role of sediment transport for maintaining fish habitat in the gravel reach and in gravel-bed rivers in general. Even in the absence of gravel mining, bars undergo changes in sediment texture, topography, and volume on an annual basis that create habitat at a local scale and cause lateral instability at the bar scale (Rice et al. 2008). Sediment transport also is important for maintaining

high-quality habitat by episodically reworking and cleaning the substrate (Milhous 1982; Resh et al. 1988; Kondolf and Wilcock 1996). Such fluvial processes and the relatively dynamic presence of habitat units characterize the natural state of the Fraser River gravel reach to which local populations of aquatic organisms are likely accustomed and which may habituate them to modest imposed disturbances.

Response by aquatic organisms

More than 12 000 fish representing 24 species were captured by beach seine during this study. Chinook salmon were numerically dominant and most commonly found in the main channel occupying bar edge habitat as well as eddy pools and channel nooks. The extensive use of the Fraser River by juvenile Chinook salmon has been documented previously (Brown et al. 1989; Levings and Lauzier 1991), but its dominant abundance year round in the gravel reach was a novel finding. Large numbers of juvenile Chinook were collected in the former removal area of Harrison Bar soon after mining in May 2000, but Chinook density and percent Salmonidae were lower at Har-S in most subsequent months.

Fish density, along with several other metrics characterizing the fish community, showed no detectable impact at Har-S as a result of mining over the range of flows sampled. The statistical analyses were relatively sensitive because reference sites varied in a consistent manner over time. Only Simpson's evenness changed significantly at Har-S relative to reference sites, but high variance among all sites over time prevented the analysis from confirming that the change was coincident with scalping. More generally, high spatial and temporal variance reduced statistical power overall and confounded our attempt to detect the effect of gravel mining on the fish community at Harrison Bar. A replicated study design, wherein gravel mining occurred at multiple sites, would have been more powerful and possibly generated more definitive results. However, this design was not possible given regulatory restrictions and the moratorium on gravel mining in place.

Benthic invertebrates have been used to examine the ecological response to habitat disturbance in numerous previous studies (e.g., Gurtz and Wallace 1984; McCabe and Gotelli 2000). In our study, benthic invertebrates recolonized Har-S immediately after mining as water inundated the site with the onset of flooding. Samples collected in April 2000 had above average density and included a high proportion of mayfly, stonefly, and caddisfly nymphs. Several of these taxa (e.g., *Ameletus* sp.) are highly mobile and have good swimming ability (Mackay 1992). These behavioral tactics are practical for survival in the gravel reach, where the water edge shifts laterally across the surface of gravel bars during flooding. The rapid colonization of Har-S is consistent with previous work in the gravel reach by Rempel et al. (1999), which showed invertebrates migrate laterally across undisturbed gravel bars with the rise and fall of water levels. Just as *Ameletus* sp. was found almost exclusively in April 2000 samples in this study, it was collected by Rempel et al. (1999) only in April.

In two subsequent sampling episodes after April 2000, invertebrate density at Har-S was lower than that at reference sites. Taxon and EPT richness were lower at Har-S during this period as well, though differences were not statistically significant. These May and August 2000 samples were collected from within the scalped boundary, and it was during this period of high discharge that the bar surface underwent the most dramatic change in sediment texture. The rate of sediment transport across Lower Harrison Bar was probably higher because of the loose material left by scalping (US ACE 1982), and these conditions may have deterred settlement by some taxa or crushed them. But just as sediment texture generally recovered by September 2000, invertebrate samples collected from Har-S in September 2000 and all months thereafter had higher density than the average of all reference sites.

Taxon richness, the number of EPT taxa, and Simpson's diversity each showed variable trends after mining at the reference sites, and no short-term effect at Har-S was detected. Statistical power was relatively high for these analyses despite temporal variability among reference sites. Metrics for which a short-term change was detected (density, % EPT, Simpson's evenness) had more consistent, though still high variance among reference sites after mining relative to those metrics showing no detectable impact. High variance generally characterizes the natural condition for Fraser River, and Underwood (1993) asserts that a significant temporal interaction among reference sites after treatment (i.e., mining) indicates that an impact would have to be large to be ecologically important. Otherwise, it falls within the natural range of variability encountered by populations and therefore should be within the community's capacity to recover.

The fact that virtually all community metrics and taxon-specific densities at Har-S were similar to or higher than those at reference sites after August 2000 implies that the scale of disturbance by a single gravel removal of modest size at Harrison Bar was within the system's capacity to recover. Moreover, aquatic organisms appeared most sensitive to habitat-scale effects of mining because community and taxon-specific metrics recovered soon after the first flood, coincident with the recovery of sediment texture and topographic variability. These habitat-scale physical changes persisted only into the first flood after mining, whereas bar-scale changes in volume and overall topographic distribution remained through at least three freshets. The statistical appearance that fish metrics were best evaluated at the bar-scale is an operational sampling issue related to high variance, which does not upset this conclusion. Our hypothesis that the ecological response to mining is mediated by annual flooding is therefore supported.

This finding, however, can provide a basis for ecologically sound management of gravel mining only up to a point. The experimental removal at Harrison Bar was situated in a reach of persistent sediment aggradation, and the removal volume constituted only a small fraction (approximately 30%) of mean annual sediment recruitment to the gravel reach of Fraser River. We recommend that an essential element of any river gravel management plan is for removal volumes to remain modest in comparison with natural rates of sediment recruitment to ensure that sediment transport processes remain intact. Larger removals may require years of sediment recruitment for recovery, with the potential loss of important bar-scale habitat, particularly

high-bar rearing habitat, for periods exceeding the generation time of most aquatic organisms. The removal of 30% of the average annual recruitment rate was coincidentally similar to Kondolf et al.'s (2002) recommendation for limiting removals to 50% of the annual rate of sediment recruitment to reduce impacts on salmonid spawning habitat in Washington rivers. Implementing this recommendation requires knowledge of basin-scale processes of sediment recruitment and storage and reach-scale patterns of sediment erosion and deposition. These factors influence the system's response to disturbance and capacity for recovery and should be regarded as fundamental factors in the maintenance and management of fish habitat.

Sampling strategy and statistical power

Statistical power is a well-established concept being applied increasingly in studies when results have important implications for resource management (Peterman 1990). Power analysis is particularly useful when planning a study to determine the necessary sampling effort for a desired level of power or to solve for the minimum detectable effect size based on a predetermined sampling effort (Osenberg et al. 1994). In both applications, knowledge of the system's natural variance is required. Variance estimates from our study are useful in this regard for designing future habitat and fishery monitoring programs in the gravel reach of Fraser River.

Determining the most effective sampling strategy (i.e., that returns the most discriminating results without excessive effort) will ultimately depend on the temporal and spatial structure of variance in the data. Large variability in time and space characterized our data, and four exploratory analyses were carried out to evaluate how changes to our sampling strategy might have improved statistical power. The invertebrate metric taxon richness was chosen, and analyses consisted of (*i*) simulating a larger effect size in April 2000 by greatly reducing taxon richness at Har-S; (*ii*) adding a fourth reference site to the analysis (Calamity Bar was included in the sampling program but data were excluded from primary analyses because it is downstream of Har-S); and (*iii*) eliminating several after-mining sampling episodes. The fourth simulation used a hypothetical data set of Underwood (1993) in which we randomly eliminated two of four before-impact sampling episodes to evaluate if the ability of A-ANOVA to detect change was compromised by our unequal sampling episodes before and after mining.

Collectively, these simulations indicated that when spatial variability (i.e., bar to bar) is high, the addition of another reference site does not improve resolution greatly. An additional reference site will, however, improve power when the effect size is very large. Also, the addition of one or two sampling episodes may not greatly increase resolution when there is high temporal variability. In such cases, it is more effective to increase sample replication at all sites to improve as much as possible the estimates of mean values, thereby improving the ability of the analysis to discriminate among them. Lastly, statistical power is virtually unaffected by an unbalanced sampling design compared with the effect of variance in the data set. Hence, our study was not fatally weakened by its unbalanced design. A greater number of sampling episodes prior to mining would have improved estimates of the natural variance, thereby increasing statistical power to detect an impact. Of course, such insights can only be drawn once knowledge of the system's natural variance has been gained. Because a replicated and balanced design is often not realistic for real world, anthropogenic treatments, Underwood's (1992, 1994, 1997) A-ANOVA presents an alternative statistical design for such cases. Our chosen analysis was as rigorous as the data allowed.

Acknowledgements

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Linton, Judy L NWP

From: Petersen, Erik S NWP
Sent: Monday, March 01, 2010 5:45 PM
To: Jon Germond; MOYNAHAN Kevin
Cc: Linton, Judy L NWP
Subject: RE: Chetco Gravel Permit Recommendations

5239

Good clarification John, thanks

-----Original Message-----
From: Jon Germond [mailto:jon.p.germond@state.or.us]
Sent: Monday, March 01, 2010 9:15 AM
To: Petersen, Erik S NWP; MOYNAHAN Kevin
Subject: Chetco Gravel Permit Recommendations

Gentlemen:

Just got word from Judy via Patty that there may be some confusion as to what I said to Kevin on Friday regarding ODFW's position on the need for rest periods for gravel extraction in the Chetco River. Here is what I thought I said to Kevin on Friday:

* ODFW is on record disagreeing with NMFS on whether the Chetco River ever supported a viable population of Coho salmon. NMFS says yes, ODFW says no.

* ODFW is on record stating both the Tech Team & gravel industry options are better for fish than what existed before.

* The Tech Team option is still better for fish than the gravel industry's option, but the difference between the two options is not significant.

* ODFW does not plan to prepare a "mini-Bi-Op" evaluating both options as requested by Rich Angstrom.

* ODFW did not say that extraction rest periods are not necessary for fish. ODFW believes the rest period issue would be better addressed by a geomorphologist, which ODFW does not have on staff.

* Regardless of what the regulatory agencies decide to permit this year, there will be an adaptive management component to the GP/RGP that will help direct any necessary changes in the future. The adaptive management analysis will likely shed some light on the need for rest periods over the next several years.

* The gravel industry has come a long way by agreeing to most of the components in the Tech Team proposal. Again, this will be a benefit to fish as compared to what existed in the past.

* Kevin said this would provide a precedent for how we work in other river systems. To that I suggested ODFW's position might be different on other river systems - like the Umpqua or Coquille, which have broader floodplains & support viable populations of Coho. Kevin agreed that we should make decisions based on the site-specific conditions of each river system.

* I suggested that Kevin coordinate with the other state agency partners on this issue, as well.

Please let me know if you have any questions about the content of this email.

Jon Germond

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Linton, Judy L NWP

From: Petersen, Erik S NWP
Sent: Wednesday, March 03, 2010 9:38 AM
To: Linton, Judy L NWP
Subject: FW: Chetco related documents

Attachments: OCAPA Proposal 2-23-10 Final.pdf; Final ODFW comments on Co-Managers draft SONCC coho rec plan 9-1-2009.pdf; ODFW comm- viability draft doc 9-19-07.doc; SONC Pop Struct Response Final.doc; Position Memo re 2 proposals.doc; OCAPA Proposal 2-23-10 Final.pdf

OCAPA Proposal 2-23-10 Final.p... | Final ODFW nments on Co-Man | ODFW comm- viability draft doc... | SONC Pop Struct Response Final... | Position Memo re 2 proposals.d... | OCAPA Proposal 2-23-10 Final.p...

-----Original Message-----
From: Rich Angstrom [mailto:rich@ocapa.net]
Sent: Wednesday, February 24, 2010 10:06 AM
To: Petersen, Erik S NWP; MOYNAHAN Kevin
Cc: tedf@hughes.net; byocum@hughes.net; Robert Elayer; Chris Lidstone
Subject: Chetco related documents

Eric/Kevin,

1. Enclosed is a comparison of the OCAPA Proposal and the Agency Proposal (OCAPA Proposal 2-23-10 Final.pdf) after the last series of meetings. Though the science community is not far apart the differences are significant.

2. Three documents are enclosed from ODFW outlining why the the Chetco has a dependent Coho population and not a independent one. I would like this to be made part of the record. It is industry's opinion that the Chetco would not or never did support an independent population of Coho. The Chetco's system's habitat is not preferred habitat type for Coho. Though the protective measures will be good for other salmonids, which we agree with, restricting the industry to the point of unprofitability because of the Coho is flawed logic and such basis for decisions are arbitrary and capricious.

3. A memo (Position Memo re 2 Proposals.doc) is also attached outlining all points of agreement and disagreement. The industry has been very accomodating to the agency personnel evaluating these proposals. All of us entered into this mediation with the view science would be the basis of all decisions. For the most part that has been the case. The industry has to draw the line on the a) extra percentage taken from available gravel budget and b) the overly concervative rest periods. Both these proposals are not based on facts before us and appear to be pulled out of thin air and as such accepting these recommendations are arbitrary and capricious. The memo outlines more of our concerns.

We hope you find these documents helpful. Our intent here is not to use legal ease related to suits (not our intention at all) but to make sure you have solid factual information to define these projects that balance all of our interests.

Thank you.

Richard Angstrom

President

Oregon Concrete & Aggregate Producers Association

737 13th St. SE, Salem, OR 97301

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Oregon Concrete & Aggregate Producers Association, Inc.

Memo

To: Kevin Moynahan, Erik Peterson

From: Rich Angstrom

CC: Ted Freeman, Robert Elayer, Chris Lidstone

Date: February 22, 2010

Re: Brief on Industry Position: Proposed Gravel Extraction on Chetco River

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Kevin/Erik,

Following the last Technical Advisory Team meeting, Chuck Wheeler, NOAA Fisheries, and my self met to try to work out the details of a compromised plan. When we talked, Chuck was not interested in restating our perspective positions; agreeing to disagree if you will. What we did agree upon was to put our perspective positions in writing for the Executive Committee to discuss. To that end, I thought it would be good to reiterate what we agree upon, what we disagree with and why. This is a condensed restatement of where we are to date. I hope this is helpful to you in outlining a future permit.

1. Areas of Agreement (Initial 5 year permit)

    a. Industry and the Agency Representatives propose to use the Parker Equation (1990) to calculate the volume of bed load material entering the Lower Chetco River Reach. The annual calculation will reflect a cumulative volume of all sediment delivery storms over the course of a "winter period": October through April.
    b. Industry and Agency Representatives agree that an "annual gravel maintenance" volume is appropriate. They have agreed that the number 26,000 CY per year will serves as that annual gravel maintenance volume for the first five (5) year period.
    c. Industry and Agency Representatives agree that certain bar retention strategies may be appropriate. Adaptive management should be used to evaluate their respective effectiveness.
    d. Industry and Agency Representatives agree that an "adaptive management" process should be developed. Any developed process should include representatives of the permitting agencies and the mining companies (permittees) with technical or practical experience in fisheries, geomorphology or mining. These individuals will meet once a year and will address: (1) removal volumes; (2) bar extraction strategies; (3) monitoring results from the previous year and anticipated monitoring requirements for the current year; (4) general construction requirements; and (5)

habitat restoration and off channel opportunities.

e. Industry and Agency Representatives agree that monitoring projects are an essential element of the Chetco Program. Although specific monitoring projects were not "fleshed out", in general the monitoring projects should be developed to calibrate the sediment recruitment equation (Parker, 1990), the "annual gravel maintenance volume", the Chetco River "sediment mass balance" and the response of the system and habitat to gravel extraction and annual storm flow.

f. Industry and Agency Representatives agree that proposed "habitat restoration projects" should be considered generically in the General Permit authorization. Three were identified: Jack Creek; Estuary Fill Removal; and Riprap Removal above Freeman Bar.

II. Areas of Disagreement (initial 5 year permit)

a. Industry does not agree that allowable extraction should be determined based on some arbitrarily determined percentage of annual recruitment- beyond the 26,000 CY, which industry has already accepted. It is Industry's position that:

i. The Parker Equation is conservative on behalf of the environment.

ii. The 26,000 CY of material left in the system for "bar maintenance etc." will adequately protect channel and biotic functions.

iii. Additional data collection over the next five years will refine the accuracy of the predictions and provide a basis for adjustments to the above parameters and will allow for adaptive management that will enhance system behavior.

iv. Agency Representatives proposal to use the lesser of Calculated Gravel Recruitment (Gravel Influx, Parker, 1990) minus 26,000CY or the amount which was annually recruited to each bar **is more than enough additive conservatism,** which will result in the protection of the Chetco River and its ecosystem. This degree of protection is further supplemented by the bar retention strategy (i.e. leaving a portion of the bar for "form maintenance" which will be additively employed with any annual gravel extraction strategy.

Adding an additional percentage is arbitrary and does not meet any scientific criteria that have been developed for the Chetco River. Specifically, the Industry approach by itself will effectively reduce the Industry's removal of gravel by nearly 3 fold. From 2000-2008 Industry has removed an annual average of 77,200 CY of gravel from the Chetco River. If the Industry Proposal is accepted by the Agencies and assuming that the Parker Equation approach was applied every year between 2000 and 2008, Industry extraction of gravel along the Chetco would have been restricted to 29,700 CY or 38% of the annual removal average. It is important for all parties to understand that during this same period, the USGS report did not note any decrease in bar area or any adverse geomorphic changes to the Chetco River and as a corollary, its habitat. See Figures 9-15ff. In summary, there is no geomorphic evidence of "over mining" at the 77,200 CY annual rate per year, so one should clearly conclude that mining a lesser amount would not deplete the system of gravel and there will be no adverse impact on habitat or the Chetco ecosystem with the adoption of the Industry Proposal.

b. Industry does not agree that a "rest period" should be dictated by anything other than natural recruitment processes or market economics. In other words, if annual recruitment is less than 26,000 CY or there is no recruitment to the mining

companies' bars, no mining will take place. If market economics dictate that the mining company cannot afford or does not have the market demand that will justify removal that year, then no gravel will be removed. It is Industry's position that:

i. The Agency Representatives proposal and subsequent meetings and conversations did and do not provide any credible, Chetco-specific, scientific justification for a "rest period".
ii. The Industry Proposal will allow for periodic rest periods, but such rest periods will be determined following a review of annual recruitment. During the same 2000- 2008 mining period, Industry would likely not have removed gravel three or four times out of the nine year period.

Industry does not feel that there is any scientific basis in the imposition of a mandated "rest period". The Agency Representatives arguments are based on literature and assumptions that are not applicable to the Chetco River. For example, the Agency Representatives states that "the current state of the Chetco River gravel bars is degraded; maintaining them at this level has negative physical and biological consequences." This statement is not supported in the USGS document nor was it the general consensus of the experts at the Charleston meeting. There was discussion that the Chetco was "habitat limited", especially in the amount of available over wintering habitat in the estuary. Clearly all experts agreed that the lack of estuary habitat is independent of gravel mining. Furthermore the USGS noted on Figure 16 that the amount of bar area that was covered by vegetation has increased since 1939 and this increase in vegetated bar area has occurred during a period of active gravel removal. Gravel bar extraction without a rest period has not impacted recolonization of the Chetco bars. Finally scientific literature presented by Industry (Rempel, L. and M. Church, 2007) suggests that invertebrate colonization of disturbed gravel bars occurs nearly immediately following the disturbance. There is no support for the Agency Representatives argument that the current state of the gravel bars is degraded.

c. Industry does not agree with the Agency Representatives' view to limit mining to only those years following a 5-year event. The Agency Representatives provides no scientific basis for their selection of a 5-year event but suggest that allowing mining only after a 5-year event will protect the bars from disruption during intervening years following a "disruptive event". They argue that mining disrupts the armor layer of a gravel bar and causes turbidity downstream. This is not true, and Industry has already provided scientific measurements from the Chetco to prove that there is no turbidity increase downstream from a mined gravel bar. Furthermore the USGS report and Industry observations concur that the Chetco River is supply dominated and the lower reaches (Emily Reach, North Fork and Estuary Reach) are supply dominated and transport limited. As such a significant greater volume of material is deposited within this reach then is transported through this reach. This condition (lack of sediment deficient flows to winnow out the fines on the surface layer of the bar) does not lend itself to armoring-- hence the argument that armoring of the bars will be disrupted by the failure to provide rest periods does not "hold water".

In summary, the Industry Proposal is highly conservative, based on the scientific record specific to the Chetco, a fair compromise to all concerns expressed by all parties, and most importantly protective of coho and other salmonids on the Chetco. The Industry Proposal is the only one before the committee that includes restoration projects that will increase overwintering habitat in a measurable way increasing the survival of coho smolts during peak winter flows. We submit that any reasonable person weighing the Industry Proposal could not come to any other conclusion than our proposal meets all regulatory requirements.

balances fish needs and economic considerations, and is in the spirit of the collaborative process that serious participants agreed to. This is especially true in context with ODFW's continued and repeated statements during this process that the Chetco's population of Coho is "functionally extirpated as independent population unit"; that "ODFW believes that there is a good chance that strays from the more healthy populations present in the Oregon Coastal Coho ESU, and in the interior portion of the Rogue River Basin, likely account for a significant portion of the coho salmon that spawn in the . . . [Chetco]; and that ODFW believes that "[t]here is also a possibility that these 'populations' may never have functioned as independent populations" because of habitat restrictions associated with natural conditions unique to the Chetco system.

OCAPA GRAVEL EXTRACTION PROPOSAL
CHETCO RIVER
February 23, 2010

All units are in cu-yds except where noted

VARIABLES:

Reserve Volume:	26,000
Industry Minimum Volume:	10,000

Parker Prediction For Historic Data			Calculated Volume (Parker - Reserve)	Extraction Volume (> Reserve Volume)	Extraction Volume (> Industry Minimum Volume)
Year	cu-m	cu-yds	cu-yds	cu-yds	cu-yds
1970	103,545	135,432	109,432	109,432	109,432
1971	102,794	134,450	108,450	108,450	108,450
1972	105,544	138,046	112,046	112,046	112,046
1973	12,734	16,655	(9,345)	REST	REST
1974	98,840	129,278	103,278	103,278	103,278
1975	40,070	52,410	26,410	26,410	26,410
1976	19,226	25,147	(853)	REST	REST
1977	1,408	1,842	(24,158)	REST	REST
1978	81,662	110,734	84,734	84,734	84,734
1979	19,386	25,356	(644)	REST	REST
1980	42,910	56,124	30,124	30,124	30,124
1981	37,077	48,495	22,495	22,495	22,495
1982	134,180	175,501	149,501	149,501	149,501
1983	94,805	124,000	98,000	98,000	98,000
1984	57,493	75,198	49,198	49,198	49,198
1985	29,949	39,172	13,172	13,172	13,172
1986	67,438	88,206	62,206	62,206	62,206
1987	25,304	33,096	7,096	7,096	REST
1988	31,871	41,686	15,686	15,686	15,686
1989	29,044	37,988	11,988	11,988	11,988
1990	24,602	32,178	6,178	6,178	REST
1991	12,790	16,729	(9,271)	REST	REST
1992	12,228	15,994	(10,006)	REST	REST
1993	43,383	56,743	30,743	30,743	30,743
1994	7,207	9,426	(16,574)	REST	REST
1995	84,362	110,341	84,341	84,341	84,341
1996	63,018	82,424	56,424	56,424	56,424
1997	131,608	172,137	146,137	146,137	146,137
1998	51,805	67,758	41,758	41,758	41,758
1999	60,191	78,727	52,727	52,727	52,727
2000	39,661	51,875	25,875	25,875	25,875
2001	1,067	1,396	(24,604)	REST	REST
2002	28,631	37,448	11,448	11,448	11,448
2003	45,791	59,896	33,896	33,896	33,896
2004	36,354	47,549	21,549	21,549	21,549
2005	31,461	41,149	15,149	15,149	15,149
2006	104,425	136,583	110,583	110,583	110,583
2007	51,681	67,600	41,600	41,600	41,600
2008	25,121	32,857	6,857	6,857	REST
Total:	1,993,673	2,607,625	Extraction:	1,689,081	1,668,950
			Left in River:	918,544	938,676

Average extraction per extraction year:	54,486	59,605
Average left in river each year:	23,552	24,069
Extraction years:	31	28
Rest years:	8	11

Oregon
Theodore R. Kulongoski
Governor

Department of Fish and Wildlife
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Salem, OR 97303
Voice: 503-947-6200
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September 2, 2009

Ms. Irma Lagomarsino
National Marine Fisheries Service
Southwest Region Arcata Office
1655 Heindon Road
Arcata, California 95521

Dear Ms. Lagomarsino,

The Oregon Department of Fish and Wildlife (ODFW) has reviewed the Co-Manager Review Draft Recovery Plan for the Evolutionarily Significant Unit of Southern Oregon Northern California Coast Coho Salmon (draft plan) and provides the following comments. NOAA Fisheries (NMFS) has compiled a considerable amount of information about coho salmon in the Southern Oregon Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU). ODFW recognizes that the data related to coho performance in the ESU are quite limited and present a challenge to utilize in assessments of status and limiting factors. We have considered these challenges in formulating our comments on this draft plan.

We have focused our comments on the major issues we have found in the draft plan. These are the issues ODFW feels are important to resolve in order to create a recovery plan that we can support. The lack of specific comments related to portions of this plan should not be construed as ODFW support for those portions. Once the major issues have been resolved, we will conduct a more thorough review of the revised draft plan.

Consistency with Oregon's Native Fish Conservation Policy

The management of native fish in Oregon is guided by the Native Fish Conservation Policy (NFCP). The policy calls for the development of conservation plans for each species management unit (very similar to an ESU). Our review of the draft plan has focused on the need for the plan to utilize sound biological principles and to contain the

requirements of a conservation plan. The NFCP identifies a list of elements that each conservation plan should contain, and acknowledges that these plans can take the form of federal recovery plans as long as the plan contains the required elements. It is ODFW's preference to have the recovery plan for SONCC coho also meet the requirements of an Oregon conservation plan. This will reduce any confusion and potential inconsistencies between two plans – one federal and one state.

> **ODFW Recommendation 1.** *The SONCC Coho Salmon Recovery Plan should include all required elements of an Oregon conservation plan as called for in the NFCP. If NMFS is unable to incorporate our comments that allow the final plan to serve as an Oregon conservation plan, then NMFS should include language in the plan that provides flexibility for Oregon to develop addenda to the plan that will fulfill state conservation plan needs.*

The draft plan was not developed with input from interested members of the public. The NFCP requires such participation. A public stakeholder group would provide input to the agencies on what level of recovery citizens want for SONCC coho. It has been our experience that citizens want to strive for a broad sense recovery that goes beyond de-listing to levels of population health that provide societal benefits (i.e.: ecological, cultural, recreational, and economic benefits). The NFCP terms this the desired status for the ESU, which, again, may or may not be the same as a de-listing status. This is a required element of an Oregon conservation plan. Allowing stakeholder involvement in plan development also allows for stakeholder input into reasonable management strategies and actions to achieve the desired status of the ESU. The participation of a stakeholder group in the development of conservation and recovery plans allows the public to have a stake in the plan and leads to more willingness to see the plan successfully implemented.

> **ODFW Recommendation 2.** *A public stakeholder group should be recruited to help determine desired status for the ESU and management strategies to be implemented for the final recovery plan.*

The draft plan does not contain all of the required elements for an Oregon conservation plan called for in the NFCP. Oregon has previously expressed concerns with the approach taken by the SONCC TRT to develop viability criteria for the SONCC coho ESU and its constituent populations (ODFW comment letter on the draft TRT viability document dated September 19, 2007). Our concerns have not been addressed to a significant degree. It was Oregon's intention to address our perceived shortcomings of the viability criteria within the recovery plan for Oregon populations by identifying criteria that directly measure productivity, spatial structure and diversity, which are required elements for an Oregon conservation plan called for in the NFCP. NMFS has not developed such criteria in the draft recovery plan. Both current and de-listing status need to be expressed in measurable criteria. The description of current status in this draft is only described in broad terms of risk with no quantitative assessment that can be measured against viability. This type of assessment makes it difficult to gauge the gap between current and de-listing, or desired status.

The draft plan utilizes the viability criteria developed by the SONCC TRT. Basing viability on abundance alone, as called for in the demographic objectives, will not ensure that the core populations are viable. Productivity is the best measurement of population viability, but has not been proposed by the TRT or NMFS. Abundance needs to be measured against marine survival in order to gauge whether the abundance level seen is indicative of a productive population. The data necessary for assessing the abundance-based criteria proposed in the draft plan would provide the ability to measure productivity.

> **ODFW Recommendation 3.** *Appropriate measurable criteria for productivity, diversity and spatial structure should be developed for all independent populations in addition to the criterion already developed for abundance; a marine survival component should be added to the abundance criterion; and a quantitative assessment of current and desired viability based on the four VSP parameters (McElhany et al., 2000) should be conducted, along with an assessment of the gap between current status and de-listing or desired status.*

The criterion for dependent populations in Section 6.1 is identified as "Dependent populations should produce juvenile coho outmigrants every year in order to sustain the population...". All criteria should have metrics that are measurable. Having a criterion for dependent populations that calls for juvenile outmigrants every year is contrary to the definition of a dependent population. Dependent populations have a higher risk of extinction than independent populations and rely on immigration from other populations to persist (Lawson et al. 2007). These populations are expected to have periods of time where immigration would not occur due to very poor marine survival conditions or catastrophic events in a donor population where the habitat would be unoccupied. Since the absence of coho juveniles would be expected in a dependent population, having a criterion requiring occupancy in every year goes against the very nature of such a population.

> **ODFW Recommendation 4.** *NMFS should revise the criterion for dependent populations in the draft plan. Any criteria for dependent populations should account for the sporadic nature of fish presence in these populations over time.*

Identification of Key Factors Limiting the Populations and Actions to Address Them

Oregon began its process to develop a recovery plan for the Oregon portion of the SONCC coho ESU by convening an expert panel to identify the key and secondary limiting factors for each Oregon population. While the draft recovery plan identifies those limiting factors identified by Oregon's expert panel, the plan also develops its own limiting factors through the use of a methodology developed by The Nature Conservancy (CAP Workbooks). The limiting factors developed through the CAP process are not consistent with the expert panel findings and no key or secondary limiting factors and threats are identified in the draft plan. NMFS guidance on recovery plans (NMFS 2006) identifies the need to prioritize threats. For Oregon to accept this plan as a conservation plan under the NFCP, the key and secondary limiting factors and threats will need to be identified and actions developed that address them.

The tables summarizing site-specific actions for each population in the population profiles in Chapter 11 identify actions that mostly have the same priority ranking. Those actions that are the most important to implement need to be identified. Because the CAP process was used, some of the actions identified in the population profiles may not address key or secondary factors that are most limiting the productivity of the fish.

The use of the CAP Workbooks is not appropriate for identifying limiting factors that are affecting SONCC coho. The CAP process looks at only habitat and ignores other potential sources of limiting factors. The process also looks at individual stresses of habitat quality (degraded riparian forest condition, altered sediment supply, impaired water quality, etc.) as separate factors and compares data for these stresses to a reference condition identified in the literature. The stresses are then scored individually and a list of all stresses and their severity is created without considering how each stress affects the fish, or how it limits the productivity of the fish. Key and secondary limiting factors are those factors most limiting the fish. Identifying the severity of the stresses does not help identify which are most limiting the fish.

The CAP workbooks also rely on data for various attributes of each stress. The data used in the workbooks are not identified in the plan. The types of data requested of Oregon by NMFS for many of the attributes are limited in the extent to which they spatially represent an entire population area. If non-representative data were used to assess any of the attributes used in the workbooks, the resulting stress severity could be in error. The draft plan states that professional opinion was used where data were lacking to assess attributes, but whose professional opinion was used and how the opinion was arrived at are not documented. Without the ability to review how decisions were arrived at in the CAP workbooks it is difficult to determine if the stress assessments are appropriate for those stresses assessed by professional opinion.

> **ODFW Recommendation 5.** *The limiting factors and threats for SONCC coho need to be developed in a manner that allows for identification of those that are key or secondary in limiting the productivity of each population. Threats that are not related to habitat also need to be considered. Both professional opinion and appropriate, available information should be considered. The process and elements used to identify these factors needs to be clearly identified in the draft plan.*

The draft plan makes several statements regarding limiting factors that are not substantiated by relevant references. As an example, the draft plan identifies and emphasizes the importance of estuary habitat for coho salmon juveniles. The basis for this emphasis is provided by studies that have shown that coho juveniles are present in studied estuaries. There is no information provided that supports the claim that estuary rearing is a significant life-history for coho, yet the draft plan devotes an entire section on estuaries (3.1.3) within the discussion of coho life history. As Section 3.1.2 of the draft states, "(t)he dominant life history pattern is for juvenile coho salmon to feed and rear within the streams of their natal watershed for a year before migrating to the ocean." Estuaries are very important for other salmonids that rear extensively within them (Chinook, pink and chum salmon), and are an important corridor for coho to pass through. Identifying impaired estuaries as a stress for

coho along with lack of floodplain and channel structure suggests that the two are equal in their importance to coho. This is not true for the majority of coho juveniles and such a suggestion diverts limited restoration and protection resources away from the natal streams where most coho rear.

> **ODFW Recommendation 6.** *NMFS should review statements made related to limiting factors, threats and stresses and eliminate statements that can not be substantiated by a majority of the literature related to the topic.*

Recovery Strategies - Northern Coastal Basins

The NMFS draft plan presents recovery strategies that pertain primarily to the management of freshwater and estuarine habitat; with also some mention of ocean and freshwater fisheries. ODFW was unable to find recovery strategies in the draft that pertain to populations that appear to be functionally extirpated. There is also the possibility that these "populations" may never have functioned as independent populations; as detailed in previous ODFW comments submitted to NMFS and the TRT.

The draft recovery plan assumes that there are independent populations that consist of sufficient numbers of coho salmon to allow for potential recovery. These independent populations, listed in Table 5-1 of the draft, include Elk River, Chetco River, Lower Rogue, and Winchuck River. ODFW considers coho salmon in these areas to be functionally extirpated as independent population units because annual spawning escapement estimates usually are less than 300 wild fish in each area (Table 1).

In addition, ODFW believes that there is a good chance that strays from the more healthy populations present in the Oregon Coastal Coho ESU, and in the interior portion of the Rogue River Basin, likely account for a significant portion of the coho salmon that spawn in the above areas.

Table 1. ODFW estimates of the number of non-fin clipped coho salmon that spawned in the coastal strata of the Oregon portion of the SONCC, 1998-2008. Estimates include a few unmarked hatchery fish. Estimates for individual years and data used to generate the summary statistics can be found in Appendix Tables 1-4. Estimates include only those populations classified by NMFS as independent, or potentially independent. Estimates for some dependent or ephemeral populations are presented in Appendix Table 2.

	Elk	Lower Rogue	Chetco	Winchuck
Mean	114	113	184	18
Median	52	124	75	0
N	8	11	11	11

There is good evidence that coho populations in the interior portion of the Rogue River Basin increased markedly during the 1980s and 1990s as a result of decreased harvest rates in the ocean fisheries. However, ODFW has not observed any similar type of increase in the populations in the small coastal basins of southern Oregon, indicative of their functional extirpation. Similarly indicative, surveys of juvenile coho salmon confirmed that there are very few wild coho salmon in the coastal areas in the northern portion of the SONCC.

These random snorkel surveys of juvenile coho salmon abundance have been conducted annually in the Rogue Basin since 1998. In 2002, these surveys were expanded to other

South Coast basins. Table 2 displays a summary of the annual density estimates available for each population; including the Rogue populations. In each case, mean rearing densities in the coastal basins were less than 3% of full seeding levels and the median rearing densities were zero (0) fish per square meter. These findings are commensurate with electrofishing surveys that were conducted at randomly selected sites during 1999-2001 (Satterthwaite 2004).

Table 2. Summary statistics related to the estimated densities (fish/square meter) of juvenile coho salmon rearing in the Oregon portion of the SONCC, 1998-2006. ODFW considers full seeding levels to be 0.7 coho/square meter.

Coastal basins	Elk	Euchre	Hunter	Pistol	Chetco	Winchuck
Mean	0.018	0.027	0.013	0.000	0.005	0.009
Median	0.000	0.000	0.000	0.000	0.000	0.000
N	29	9	8	22	77	22

Rogue Basin	Lower Rogue	Middle Rogue	Upper Rogue	Illinois
Mean	0.025	0.280	0.535	0.500
Median	0.000	0.000	0.244	0.017
N	37	154	142	109

ODFW Recommendation 7. *The NMFS recovery plan should present and discuss the functional extirpation of coho salmon in the Elk River, Chetco River, Lower Rogue, and Winchuck River population areas. In addition, the NMFS recovery plan should outline recovery strategies that need to be employed to restore populations that exhibit escapements of less than 300 spawners annually and/or exhibit no detectable juvenile production during a typical (median) year.*

Recovery Strategies – Interior Rogue stratum

Throughout the draft, the description of recovery criteria for interior Rogue populations seems confusing (aggregate viable population abundance; low risk spawner abundance; required minimum spawners; 50% total stratum abundance). Table 6.1-1 lists the recovery criteria for the interior Rogue populations as being a required minimum number of spawners of 22,650. Table 6.1-3 lists required minimum spawners by core population, which total much more than 22,650. The figure listed in Table 6.1-3 for the mid-Rogue/Applegate is later described as the annual average carrying capacity before habitat disturbance.

ODFW Recommendation 8. *Recovery criteria, presented in the draft, should be reviewed to ensure consistency and clarity.*

Adjustment for Unrecoverable Habitat

In Table 6.1-3, the table lists the minimum numbers of spawners needed for recovery with and without removal of dams. The estimates suggest that habitat recovered after dam removal could support an additional (1) 860 spawners above Lake Selmac (Illinois population), (2) 8,140 spawners above William Jess Dam (Upper Rogue population), and (3) 3,122 spawners above Applegate Dam (Mid Rogue-Applegate population). These numbers seem very high for the available habitat. Section 11.35-29 line 4 states that approximately

150km of high IP coho habitat was blocked by Applegate Dam. The most recent ODFW estimate of available habitat for anadromous fishes in the Applegate population area is closer to 56km when secondary barriers are considered. In addition, as conveyed previously to NMFS, ODFW concluded there is no reason to believe that coho salmon ever passed upstream of Cascade Gorge (river mile 167 - Rogue River) in the Upper Rogue.

> **ODFW Recommendation 9.** *The basis for determining unrecoverable habitat should be reconsidered to include natural barriers that would have limited coho distribution.*

Over-utilization Threat Criteria

The discussion on over-utilization is very brief and does not state whether the projected allowable fishery impacts of 10% to 12% are at the ESU or at the population level. Regardless, the rationale is not clear in relation to the stated proposal to allow more impact on populations exposed to tribal fisheries; as compared to other populations. With the absence of background information and a relevant technical assessment, it was not possible to assess how fishery impacts can or cannot be allocated, or whether the resultant impacts would threaten recovery. It is also not clear whether historical freshwater fisheries could be partially or completely restored when cumulative fishery impacts do not impact the subsequent recruitment of wild coho salmon. A goal of the NFCP is to maintain natural fish populations at levels that support fisheries, and Oregon intended to describe a process in the recovery plan that would identify when such fisheries could occur.

ODFW Recommendation 9. *A technical assessment of fishery impacts on SONCC coho salmon populations should be incorporated into the draft plan in order to demonstrate the levels of fishery impact rates that pose risk to attainment of recovery goals. In addition, the draft plan should describe a process which would employ the results of the technical assessments to identify the means by which freshwater harvest would either be curtailed or would be allowed under specific conditions.*

Hatchery Management Threat Criteria

In section 6.2.4 hatchery management is discussed. The Hatchery Scientific Review Group (HSRG) is cited in a discussion of their recommendations for integrating hatchery programs. ODFW, as a member of the Policy Coordination Team, expressed concerns to the HSRG regarding the integrated approach during the development of their recommendations (HSRG 2004). The HSRG recommendations are based on a theoretical model developed by Ford (2002). This theoretical model has not been empirically proven to accurately represent domestication effects from propagating salmon on the survival and fitness of wild salmon populations. In fact, empirical results for winter steelhead in the Hood River, Oregon, suggest that domestication effects can be quite significant and happen rapidly (Araki et al. 2007) – something not expected from the Ford model. For this reason, ODFW has been cautious to rapidly implement integrated programs and believes more empirical information is needed before requiring all hatchery programs that may impact ESA listed fish to develop integrated brood stocks.

ODFW Recommendation 11. *The draft plan should not require hatchery programs to implement integrated brood stocks. This decision should be left to the management agencies to consider, based on the best available science. It is more appropriate to identify utilizing approaches that minimize the impact of hatchery fish as the goal.*

The draft plan proposes criteria (page 6-16) for the operation of hatchery programs for coho salmon and then proposes actions that should be taken by management agencies. ODFW found this portion of the draft to be confusing for the following reasons:

1. The PNI goal of ≥ 0.67 and the pHOS goal of < 0.30 were identified without a relevant reference or technical assessment.

2. There is no rationale associated with the differing pHOS goals for populations with and without hatchery programs.

3. There are management actions proposed in lines 8-15. However, it is not clear whether some or all of these actions are proposed under the conditions when PNI and pHOS goals are attained or are not-attained. For example, under a scenario of attainment of PNI and pHOS goals, why should there be a reduction in the number of hatchery fish released?

4. Specific monitoring is proposed in this section. The rationale associated with the need and structure of the proposed monitoring cannot be determined from the text in the draft.

ODFW Recommendation 12. *Section 6.2.4 should be significantly modified in order to detail the scientific basis associated with any statements related to spawner composition goals and hatchery operations. Specific topics that should be addressed are covered in comment items 1-4 above.*

ESU Recovery Strategy

Chapter 7 describes the ESU recovery strategy and the strategy for each diversity stratum. There is very little discussion of what the gap is between each population's current status and a de-listing status. The language describing what is needed for core populations suggests that all habitats that are classified as having intrinsic potential must be restored to "functional habitat." The definition of "functional habitat" seems to suggest that all stresses must be abated. This appears to say that all habitats must be returned to nearly pristine condition. ODFW believes that it is possible to have viable populations with some habitats being in less than pristine condition.

ODFW Recommendation 13. *NMFS should try to better describe where it thinks core populations are now in terms of status and what actually is needed to achieve viability. NMFS should also reconsider the definition of functional habitat or the demographic criteria that leads to the restoration of all historic habitats.*

Monitoring and Adaptive Management Frameworks

ODFW believes the true success of a recovery plan relies on having effective monitoring and adaptive management frameworks identified and implemented. Chapter 8 of the draft plan states that "NMFS plans to present a monitoring framework in the next draft." The

description of the adaptive management framework in Section 8.2 is very general and provides no specifics of how adaptive management will be implemented or who will be involved. With the omission of a presentation of proposed monitoring and adaptive management, ODFW is unable to comment on this matter, which is of primary interest because progress towards attainment of recovery goals can only be assessed through a workable monitoring program and an effective adaptive management program which we believe NMFS will likely work with ODFW to implement.

> **ODFW Recommendation 14.** *Proposed monitoring and adaptive management frameworks should be developed and reviewed by co-managers before release of a public draft of the NMFS recovery plan.*

General Corrections

Page 2-22, line 33. Oregon's Wild Fish Management Policy (WFMP) has been replaced with the Native Fish Conservation Policy. All references to the WFMP should be deleted.

Page 2-33, line 5. Draft states a production goal of 320,000 coho salmon smolts at Cole Rivers Hatchery. The actual production goal is 200,000 coho salmon smolts.

Section 11.34-35 line 1. The draft refers to the Cole Rivers Hatchery program as a supplementation program. The program is actually a mitigation program designed to compensate for spawning habitat blocked by the construction of US Army Corps of Engineers dams.

ODFW appreciates the opportunity to review the Co-Manager Review Draft Recovery Plan for the Evolutionarily Significant Unit of Southern Oregon Northern California Coast Coho Salmon. As is apparent from our comments above, we have considerable concerns with the draft plan and have concluded that significant changes will need to be made in order for ODFW to be supportive of this recovery planning effort. We hope that NMFS will consider our comments and work with us to address our concerns. Please contact Kevin Goodson at Kevin.W.Goodson@state.or.us or (503)947-6250 for further clarification.

Sincerely,

Stephen Williams

Stephen Williams
Deputy Fish Division Administrator
Oregon Department of Fish and Wildlife

Cc: Bowles
McIntosh
Corrarino
Stahl
Goodson
Stauff
VanDyke
Confer
Satterthwaite
Knapp - GNRO

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Appendix Table 1. Rogue Watershed District estimates of annual spawning escapement of coho salmon spawning in the coastal strata of the Oregon portion of the SONCC, 1998-2008; along with the data used to derive those estimates.

Basin	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Peak Count of Spawners						
Elk	1	--	0	--	1	2	0	0	0	2	--
Euchre	0	0	0	8	0	0	2	0	0	3	0
L. Rogue*	0	0	1	157	22	3	5	3	2	11	7
Hunter	0	0	0	17	6	0	1	1	0	0	2
Pistol	0	1	2	9	3	0	0	0	0	0	0
Chetco	0	0	5	20	0	0	6	0	1	8	1
Winchuck	0	0	1	3	0	0	0	0	0	3	0
					Proportion of Spawners without Fin Clips						
Elk	1	--	--	--	1	1	--	--	--	1	--
Euchre	--	--	--	0.00	--	--	1	--	--	1	--
L. Rogue*	--	--	1	0.08	0.47	1	1	1	1	1	1
Hunter	--	--	--	0.46	0.50	--	1	1	--	--	1
Pistol	--	1	1	0.00	0.20	--	--	--	--	--	--
Chetco	--	--	1	0.64	--	--	1	--	1	1	1
Winchuck	--	--	1	0.00	--	--	--	--	--	1	--
					Estimated Escapement of Unmarked Adults						
Elk	501	--	0	--	104	187	0	0	0	230	--
Euchre	0	0	0	0	0	0	30	0	0	63	0
L. Rogue*	0	0	59	235	205	75	127	127	35	193	184
Hunter	0	0	0	136	52	0	17	22	0	0	35
Pistol	0	78	155	0	118	0	0	0	0	0	0
Chetco	0	0	307	665	0	0	299	0	75	601	75
Winchuck	0	0	37	0	0	0	0	0	0	163	0

* Includes data from random Coho + Standard & Supplemental Chinook Surveys

Appendix Table 2. Rogue Watershed District estimates of the number of non-fin clipped coho salmon that spawned in the coastal strata of the Oregon portion of the SONCC, 1998-2008. Estimates include a few unmarked hatchery fish.

Watershed	Elk	Euchre	L. Rogue*	Hunter	Pistol	Chetco	Winchuck
Mean	114	8	113	24	32	184	18
Median	104	0	124	0	0	75	0
N	8	11	11	11	11	11	11

* Includes data from random Coho + Standard & Supplemental Chinook Surveys.

Appendix Table 3. Comparison of Rogue Watershed District estimates of spawning escapement for coho salmon that spawned in the Lower Rogue population area, 1998-2008. Estimates were derived from differing types of spawning surveys.

Lower Rogue	Random Coho Surveys	Chinook Surveys	Combined Surveys
Mean	110	136	113
Median	66	129	127
N	10	11	11

Appendix Table 4. Rogue Watershed District estimates of coho salmon spawning escapement based on two differing types of spawning surveys completed in the Lower Rogue population area, 1998-2008.

Lower Rogue	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Peak Spawning Count						
Random Coho Surveys	0	0	--	75	19	0	0	1	0	2	4
Chinook Surveys	0	0	1	82	14	3	5	3	2	9	6
Combined Surveys	0	0	1	157	22	3	5	3	2	11	7
					Proportion of Spawners without Fin Clips						
Random Coho Surveys	--	--	--	0.09	0.56	--	--	1	--	1	1
Chinook Surveys	--	--	1	0.05	0.43	1	1	1	1	1	1
Combined Surveys	--	--	1	0.08	0.47	1	1	1	1	1	1
					Estimated Escapement of Unmarked Adults						
Random Coho Surveys	0	0	--	404	361	0	0	79	0	69	190
Chinook Surveys	0	0	59	129	178	108	148	158	64	290	359
Combined Surveys	0	0	59	235	205	75	127	127	35	193	184

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September 19, 2007

Tommy Williams
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Dear Dr. Williams,

Thank you for allowing the Oregon Department of Fish and Wildlife (ODFW) to comment on the draft document *Framework for assessing viability of threatened coho salmon in the Southern Oregon / Northern California Coast Evolutionarily Significant Unit* (viability document) dated 5 July, 2007. This document is crucial for the development of an Endangered Species Act (ESA) Recovery Plan for the Southern Oregon / Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU), which Oregon is committed to helping the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) develop. The final version of this viability document will form the biological basis for delisting criteria to be defined in the Recovery Plan, and as such, will dictate the level and types of recovery actions that will be necessary to recover the SONCC coho ESU. For this reason, it is important that the viability criteria outlined in this document accurately describe the metrics and thresholds necessary for viable populations and ESUs.

ODFW appreciates the challenge the SONCC Technical Recovery Team (TRT) faced in trying to utilize the available data to formulate viability criteria. We also understand that insufficient data are available to accurately assess the viability of any of the independent populations in the ESU at this time. As a result of this paucity of appropriate data, the TRT correctly acknowledged that the framework presented in the draft viability document should provide guidance for the collection of appropriate data to assess the viability of the ESU sometime in the future. It is with this thought in mind that ODFW

provides the following comments on the draft viability document. These comments were compiled from comments received from Fish Division and Rogue Watershed District staff.

General Comments

Appropriateness of Draft Criteria

Only one of the four biological parameters (abundance) as described in NOAA Fisheries' Technical Memorandum *Viable Salmonid Populations* (McElhany et al. 2000) are being directly measured by the criteria outlined in this draft document. The other three parameters are being measured through surrogates that utilize adult abundance estimates. ODFW believes that assessing population growth rate, population spatial structure and diversity should use independent metrics that directly address each parameter. Growth rate would be better assessed by measuring intrinsic productivity or spawner/spawner relationships that incorporate the level of marine survival the recruits experienced. ODFW considers measures of productivity key to understanding how individual populations perform under variable environmental conditions. Productivity as a measure of fish performance also tends to be an integrative metric of population dynamics such that a highly productive population can only be sustained in the long haul through adequate levels of abundance, distribution and diversity. If forced to rely on only one metric of fish performance, productivity would be what we emphasized. Development of minimum criteria for evaluating productivity should be included in the final report to guide future monitoring efforts. Spatial structure would be better assessed by measuring the distribution of coho adults or juveniles throughout a population's appropriate habitats. Diversity would be better assessed by measuring the variation in life-history characteristics.

The ability to directly measure the three parameters for the SONCC ESU as ODFW suggests above is not currently possible, as is true for the criteria proposed in the draft viability document. The ability to assess these parameters directly will improve as monitoring programs in the ESU evolve. It appears that the TRT sought to develop the draft viability criteria with an assumption of what type of data collection would occur in the future, rather than developing the most appropriate criteria and allowing the monitoring program to be developed around the criteria. ODFW supports the development of criteria that directly measure the VSP parameters. Even if future monitoring does not collect the necessary data to adequately assess these parameters, defining criteria that relate directly to these parameters will provide guidance for the most appropriate analysis of the data available and provide the best assessment of population and ESU viability.

The draft viability document states that the approaches and threshold values used in this document and the Oregon Coast (OC) ESU's viability document are quite consistent. A comparison of the results of applying the criteria in both documents to the OC ESU shows that the results are not consistent (*see* Spatial Structure and Diversity comments). The SONCC TRT should reconsider this statement or explain how these differences equate to consistency.

Flexibility in Applying Criteria
The TRT should acknowledge that the lack of appropriate data and the ruggedness and remoteness of much of the terrain encompassed by the SONCC ESU will make it a challenge to develop appropriate datasets that will lend themselves to viability analyses. Further, the TRT should clearly account for this dilemma by providing guidance on viability criteria that allow for individual and unique approaches to assessing viability that utilize the information that can be collected.

Oregon has implemented a spatially balanced, stratified, random sampling design for monitoring the Oregon Coast coho ESU that provides us with reasonable estimates of spawners, juveniles and habitat that can be applied to the criteria defined in the draft viability document. However, applying this design to the Illinois and Chetco populations, where portions of the basins are in remote inaccessible areas, has presented problems that preclude us from being able to adequately monitor spawner abundance. It is likely that ODFW can use this sampling design to monitor summer coho juvenile abundance and habitat quality in all of the independent SONCC populations. It may be possible for ODFW to utilize this monitoring data to assess some aspects of viability, but the criteria outlined in the draft document do not provide the flexibility to pursue such analyses. ODFW asks that the TRT consider incorporating language into this viability document that provides for this type of flexibility within the guidance framework.

Concern for IP Estimates
ODFW continues to believe that the amount of historical Intrinsic Potential (IP) habitat documented in the TRT's previous document *Historical population structure of coho salmon in the Southern Oregon/Northern California Coasts Evolutionarily Significant Unit* (historic population document) (Williams et al. 2006) was an over estimate, and recommends that the TRT include language in the viability document that provides for the use of modified totals of IP habitat. The estimates of historical IP habitat from the historic population document are used in defining the thresholds for the draft spatial structure and diversity criterion contained in the draft viability document, and as a result, factor into the draft viability analyses. ODFW provided comments on the historic population document on this issue and requests that the TRT review those comments, including the information on historical canning records, and reconsider the appropriateness of some of the assumptions used in developing the IP model. This model was developed for the middle and northern Oregon Coast, and as was pointed out in our previous comments, some of these assumptions may not have application to the geology and hydrology of the SONCC coho ESU.

The approach used in the SONCC ESU to identify IP habitat made the assumption that application of an air temperature mask significantly increases the accuracy associated with trying to identify those reaches of those streams that may have historically produced subyearling coho salmon. ODFW agrees with the approach employed, but believes that the mask was not adequate to identify all stream reaches with water temperatures too high for summer use by coho salmon.

Welsh et al. (2001) found juvenile coho salmon in the Mattole River Basin of northern California only in those tributary streams where mean maximum water temperatures did not exceed 18°C over the course of any week. In most low-elevation SONCC streams, water temperatures commonly exceed 20°C during the summer, regardless of the type of land use observed in the surrounding area. For example, water temperature in July 2003 exceeded 20°C in all fourteen tributaries that entered the Rogue River between the Applegate River and Lobster Creek (Watershed Sciences 2004). Included in this total were five tributaries located within the Wild Rogue Wilderness. Similarly, water temperature of the Chetco River at river mile 30 can exceed 24°C (Groos 2003). Upstream of this point, the Chetco River Basin lies entirely within the Kalmiopsis Wilderness Area. A rough idea of the extent of high water temperatures can be found in Table 1.

Table 1. Relative occurrence of high water temperatures during summer, organized by historical coho populations identified by the SONCC TRT. Accessible km represents ODFW's projected kilometers of stream habitat accessible to adult steelhead in the Oregon portion of the SONCC. TMDL km represents the kilometers of stream habitat where water temperatures are projected to exceed 18°C over the course of any seven day period. TMDL estimates were generated from the Oregon Department of Environmental Quality (ODEQ) list of 303(d) streams. As such, kilometers of high water temperature are overestimated within some individual streams. Similarly, many streams are not included in the ODEQ list of streams.

Coho population	Accessible km	TMDL km	% of total
INDEPENDENT OR POTENTIALLY INDEPENDENT SONCC POPULATIONS			
Upper Rogue[a]	627	531	85%
Middle Rogue[b]	654	592	91%
Lower Rogue[c]	94	89	94%
Illinois River	605	446	74%
Elk River	92	52	57%
Chetco River	266	114	43%
Winchuck River	80	30	38%

[a] Area upstream of Savage Rapids Dam (below mouth of Evans Creek).
[b] Area between mouth of Illinois River and Savage Rapids Dam.
[c] Area between mouth of the Rogue River and mouth of the Illinois River.

Three primary factors contribute to the warming of stream temperatures during summer: stream flow, integrity of the riparian zone, and ambient air temperature. Diversions for consumptive uses contribute to warmer water temperatures by decreasing the volume of water in streams. However, there is minimal diversion of water in streams of the northern coastal basin (non-Rogue) stratum (Table 2). In addition, ODFW believes that the riparian zones of these streams are of sufficient integrity that human impacts to the riparian zones do not solely account for the relatively warm water temperatures observed within a significant portion of these basins. Based on these inferences, ODFW concludes that ambient air temperatures are the primary factor responsible for warm water temperatures during the summer, and that the IP*km index of production potential for coho salmon in SONCC streams does not adequately take this natural impact into account. Consequently, we recommend that the document be revised to state that the

IP*km indexes may be modified upon completion of subsequent assessments of water temperature in SONCC streams.

In addition, ODFW recommends that the IP*km estimates be revised to exclude those stream segments located downstream of where the lowest mean August air temperature in each basin exceeded 21.5°C (air temperature mask). ODFW concluded that if the air temperature mask is indicative of those stream sections that are unable to produce coho salmon during summer, then it is likely that stream segments farther downstream are also unlikely to be cool enough to allow for the survival of juvenile coho salmon during the summer months, regardless of the condition of the riparian zones or ambient air temperatures.

Table 2. Summary of water availability in Oregon streams during summer, organized by historic coho populations identified by the SONCC TRT. Flow (cfs) estimates are relevant to the mouth of each stream, unless otherwise noted. Natural flows represent the estimated 50% exceedance level. Instream flows represent water rights held by the state of Oregon. Use represents an estimate of current use, and does not include water rights held in reserve. Streams inhabited by all coho populations are closed to the appropriation of additional surface water, with the exception of the Winchuck River population (stream remains open for appropriation in July).

	July			August			September		
Coho population	Natural	Instream	Use	Natural	Instream	Use	Natural	Instream	Use
INDEPENDENT OR POTENTIALLY INDEPENDENT POPULATIONS									
Upper Rogue[a]	1,560	1,200	546	1,290	1,200	500	1,290	1,200	432
Middle Rogue[b]	1,920	2,000	683	1,460	2,400	624	1,490	2,400	605
Lower Rogue[c]	2,690	2,000	715	1,980	2,400	693	1,930	2,400	557
Elk River	94	93	8	61	60	5	52	51	2
Chetco River	216	213	29	130	129	29	102	101	27
Winchuck River[d]	38	20	2	22	20	1	13	20	1

[a] As measured upstream of Savage Rapids Dam.
[b] As measured upstream of Shasta Costa Creek (near mouth of Illinois River).
[c] As measured at the mouth.
[d] As measured upstream of the California border.

Confusing Language

The draft viability document identifies the historic populations for the SONCC coho ESU, but does not identify which populations should be assessed for viability. While it is apparent to ODFW that only independent populations should be assessed for viability, the draft document never provides such guidance. ODFW recommends that the document clearly identify that functionally and potentially independent populations are the only populations that should be assessed for viability.

The draft viability document creates some confusion in how to use the viability criteria. There is discussion in the Introduction section that suggests that the criteria should not be viewed as "knife-edge," and that each population should be evaluated on how many of the criteria it does or does not meet. In the Approach section (2.1) however, it is stated that a population's extinction risk assignment is made based on the criteria rated as the

highest risk regardless of what the other risk ratings were for the other criteria. Both of these discussions need to be revised to make it clear how recovery planners are to interpret population extinction risk.

There is also confusing language related to how this framework document should be used. The draft document states that it was developed "to provide guidance on the types of population and ESU performance measures (i.e., VSP) needed to assess the viability of the SONCC Coho Salmon ESU." This suggests that recovery planners should formulate viability performance measures based on the guidance in the document. Yet the document goes into great detail to define viability criterion, how to calculate population scores and the thresholds for low, moderate or high risk categories. This implies that the criteria described in the draft viability document are to be used exactly as written to assess population and ESU viability. Clarification on the use of this framework is needed. As mentioned above, ODFW would like to see this viability document provide guidance on how criteria should be developed to assess viability that allows for flexibility in the use of available information.

Marine Survival

Marine survival has a significant effect on coho adult abundance that can mask the actual viability status of a population. As an example, assessing coho populations under the draft "effective population size / total population size" criterion without information on the marine survival conditions experienced during the period assessed can result in misleading results. A population that is assessed as having a total population size per generation of 2,600 spawners at an average of two percent marine survival may likely be considered viable for this criterion. However, a population that is assessed to have the same 2,600 total population size per generation during a period of four percent marine survival may not necessarily be considered viable due to the doubling of survival encountered for this population as compared to the first example. ODFW recommends that thresholds for any criteria that rely on adult abundance should vary based on the level of marine survival encountered by the adults, or should be standardized for marine survival. In Part 2 of the State of Oregon's *Oregon Coastal Coho Assessment* (State of Oregon, 2005), measurement of Oregon Coast ESU coho marine survival was incorporated into developing spawner/recruit relationships that were used in Population Viability Assessment modeling to assess population persistence. Oregon used hatchery coho survival estimates (Oregon Production Index), adjusted by population, to describe wild coho marine survival. ODFW recommends that the TRT consider a similar method to describe the marine survival of SONCC coho and use the estimates to standardize or account for marine survival in the viability criteria thresholds.

Criteria-Specific Comments

Table 3

It is not clear as to whether the proposed viability criteria, proposed in Table 3, apply to all populations (functionally independent, potentially independent, dependent, and ephemeral), or whether the criteria apply only to a portion of the populations listed in the document. ODFW recommends that the title of the table be modified to clarify this point.

Within footnote "a" of Table 3, we were unable to determine which populations were included in the statement "Historically small but stable populations not included." ODFW recommends that the terms "Historically small" and "stable" be clarified or quantitatively defined.

Population Decline

The VSP parameter this criterion is seeking to address is not identified in the draft viability document, but appears to be seeking to assess population growth rate or productivity. It is not clear to ODFW why the TRT chose to analyze annual spawner abundance estimates in this manner, rather than assessing spawner-to-spawner estimates of productivity. The same quality of data would be necessary to assess either metric, but the spawner-to-spawner estimate of productivity would more directly measure population growth rate. ODFW recommends that the TRT consider replacing the population decline metric with a more direct metric of productivity.

As was stated earlier, ODFW recommends that marine survival be incorporated into how thresholds are developed for this criterion. Estimates of productivity or population decline can be taken out of context if marine survival is not factored into the analyses. As an alternative, ODFW recommends that the TRT include an exercise showing that marine survival conditions cannot create a situation where viability is not accurately reflected by the metric and thresholds proposed. As an example, it appears a scenario could occur where lower marine survival conditions over twelve years could create a population decline of $\geq$ 10 percent per year that does not bring the population to 500 spawners (meeting the high risk threshold of the criterion). These conditions could be followed by a period of improved marine survival and a concurrent population increase. Such a scenario appears to ODFW to indicate a population fluctuating with fluctuations in marine survival and does not represent a non-viable population. Some of ODFW's concerns with this criterion could be dispelled if the TRT can show that such a scenario is not possible.

Catastrophe

The draft document does not explain how this criterion is related to the VSP parameters and is an indicator of population viability. Catastrophes can occur to any population, regardless of whether it is highly productive or not. A population may become non-viable as a result of a catastrophe if conditions are such that the population is brought down to critical abundance levels and cannot rebound. It would seem more appropriate for a criterion to measure the response a population shows to a catastrophe rather than just the fact that it encountered such an event. As such, it would seem that the TRT's criterion for effective population size would serve as the criterion that could measure whether or not a population's abundance after a catastrophe stays at critical levels. ODFW recommends that discussion be added to this section to explain how this criterion addresses one of the VSP parameters that is not addressed by any of the other criteria.

Spatial Structure and Diversity
ODFW does not believe the spatial structure and diversity criterion as described in the draft document is an adequate measure of true spatial structure and diversity. ODFW recommends that the TRT consider new criteria that more directly address the VSP parameters of spatial structure and diversity. For spatial structure, this could be done by developing a metric that looks at the percent of occupation of available habitat by coho. We direct the TRT to the distribution criterion ODFW developed for the *Oregon Coastal Coho Assessment* (State of Oregon, 2005). For diversity, a metric that measures the frequency of historic life-histories being expressed by coho would better assess the level of diversity in each independent population.

The process of dividing a population estimate by the number of IP kilometers, as outlined for the low risk metric of this criterion, is not an appropriate way to measure spatial structure. Being able to show high levels of spawner densities does not necessarily translate into high spatial distribution. Coho salmon spawners often congregate in high densities in a few select areas of a population and can weight the average density to appear better than it truly is. While it may be possible to select high enough average spawner densities as a threshold to ensure that an adequate level of spawner distribution occurs, such an approach could lead to an unnecessarily high total spawner population threshold. In essence, the bar has to be set unreasonably high because the metric is not designed to directly measure the intended parameter.

It seems odd for the spatial structure and diversity criterion to have two different metrics – one for high risk and another for low risk. It appears that you are trying to address two different issues – diversity through avoidance of depensation, and spatial structure through density of spawners. It might be best to separate the two metrics into two criteria.

Discussion in the draft document on development of the high risk threshold for the spatial structure and diversity criteria references the Oregon Coast coho TRT Workgroup's (OCC TRT) threshold of 1 spawner per mile. The OCC TRT's criterion for depensation was based on spawners per mile of spawning habitat, whereas the SONCC TRT has used this to compare to a criterion that uses spawners per IP*km – a measurement of all coho habitat. In the OCC ESU, approximately 1/3rd of the coho habitat miles are considered spawning habitat. This proportion, if applied to IP*km in the SONCC, means that in actuality the SONCC TRT high risk threshold is significantly higher than the 1 spawner per mile threshold described by the OCC TRT. While this may have been the intent with the SONCC TRT, the discussion on this metric is inaccurate and should be revised. It should also be made clear throughout this document what the actual metrics are when citing a particular source's use of spawners or fish per mile or kilometer. Spawner densities are typically measured in relation to miles or kilometers of spawning habitat and readers may assume this is the case if not explicitly stated.

If the TRT carries the draft spatial structure and diversity criterion forward into the final viability document, ODFW recommends that the focus of this criterion be on the ability of each population to utilize a diversity of historical habitats, and therefore the same

criterion for spawner density should be applied to all populations regardless of size. In the discussion on the spatial structure and diversity criterion, a statement is made that the further a population diverges from historical habitats the greater the extinction risk. ODFW agrees with this statement. Later in the same paragraph, it is stated that larger populations can deviate further from historical conditions and remain viable. ODFW does not agree with this argument. A 50 percent loss of spatial structure and diversity has the same impact to the viability of both large and small populations. While a larger population, after such a loss, may have more spawners remaining than a smaller population, both populations have lost the same amount of historical spatial structure and diversity and face the same risk of becoming non-viable from the loss of phenotypic and genotypic characteristics.

It is not appropriate, based on this faulty logic, to assume larger populations can have lower densities of spawners and be at the same risk of extinction as smaller populations at higher densities. It appears that this faulty logic stems from the concern that small populations will reach critical abundance levels at higher densities than larger populations. If this logic was followed, it would seem that the high risk threshold for this criterion should have used a higher spawner/IP-km for small populations as opposed to large populations. This was not done. This low risk metric of the criterion appears to be seeking to ensure that spawners are spatially distributed. If this is the case, then the thresholds should be viewed solely on this aspect and a consistent spawner density for both small and large populations should be developed that takes into consideration only the loss of spatial distribution.

The concern ODFW has with the low risk criterion for spatial structure and diversity is increased when this criterion is applied to coho populations where we have the necessary data, the Oregon Coast (OC) ESU. ODFW compared the results of applying the criterion as proposed in the draft viability document to the OC coho ESU, with both the State of Oregon's (State of Oregon, 2005) and the Oregon Coast TRT's (Wainwright et al., 2007) assessment of distribution for the same populations. Almost all of the populations (86%) were assessed as being at moderate or high risk under the SONCC draft criterion. Several populations (5) that both Oregon and the OC TRT had a high level of certainty that distribution was adequate were assessed as at moderate risk under the draft spatial structure and diversity criterion. These five coho populations are among the healthiest in the OC ESU, and the evaluation using the SONCC draft criterion suggests that the criterion's threshold is too high.

ESU Redundancy and Connectivity Criteria

ODFW agrees with most of the rationale behind the four criteria for ESU redundancy and connectivity. Viable independent populations should be spread throughout each stratum and the ESU to ensure ESU diversity, and those populations should remain connected to other populations to provide some level of genetic exchange between populations. We also agree that dependent populations, as defined by the TRT, may have value in contributing some level of genetic diversity to independent populations. There is little, if any, scientific information on how important dependent populations are to the genetic viability of an ESU, or how those populations provide that benefit. ODFW does not

agree that criteria "c" and "d" of the ESU redundancy and connectivity criteria should be applied to dependent populations. We believe there may be other ways to ensure these populations fulfill their role in ESU viability that do not require extensive monitoring.

Dependent populations, by the TRT's definition, are not viable and are influenced more by immigrants from other populations than from natural production within the population. Since it would be expected that dependent populations would not always have coho present, it is not clear how to assess the "sufficiency of immigration" or what constitutes an extant dependent population under criteria "c" and "d". Any criteria that call for a certain level of abundance or immigration suggest a level of understanding of dependent population function that we are not aware exists. Any scientific information that provides that understanding should be cited in the viability document. Lacking that understanding, ODFW recommends that a criterion be developed for dependent populations that seeks to ensure that there is sufficient coho habitat available to accommodate immigration. This requirement would allow dependent populations to function and would not presume what it would look like. This type of criterion would also be easier to assess in dependent populations than the criteria currently called for in the draft viability document.

Thank you again for the opportunity to comment on the SONCC TRT's draft viability document. As is apparent from our comments above, the Oregon Department of Fish and Wildlife has some concern with the viability criteria outlined in the draft viability document. Our two biggest concerns relate to the use of criteria that do not directly address the four VSP parameters, and the reliance on spawner data that cannot be collected in two of the Oregon SONCC coho populations. We hope that the TRT will consider our concerns and modify the draft criteria. Thank you again for the opportunity to comment on the draft viability document. Please feel free to contact me at (503) 947-6250 or Kevin.W.Goodson@state.or.us if you have any questions about our comments.

Sincerely,

Kevin Goodson
Conservation Planning Coordinator – Fish Division
Oregon Department of Fish and Wildlife

Cc: Stauff, Satterthwaite

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February 15, 2006

Tommy Williams
Chair, SONCC TRT Workgroup
National Marine Fisheries Service
Southwest Fisheries Science Center
110 Shaffer Road
Santa Cruz, CA 95060

Dear Dr. Williams:

Thank you for the opportunity to comment on the draft TRT report "Historical population structure of coho salmon in the Southern Oregon/Northern California Coasts Evolutionarily Significant Unit". We believe that the work of the TRT represents a significant advance in our understanding of coho population structure within the SONCC ESU and is particularly strong in the development of new modeling approaches to assess the effects of local climatic conditions on coho distribution. However, because of the considerable uncertainty associated with the models we believe that the TRT should proceed carefully and continue to refine and test these models as your work turns to the evaluation of population viability within the ESU.

The TRT document acknowledges that the identification of populations was made in the context of considerable uncertainty, and that the review process is intended to solicit additional information and comments that will help improve the process. We hope that these comments from the Oregon Department of Fish and Wildlife (ODFW) are helpful in that respect. ODFW is in substantial agreement with most of the population determinations identified by the TRT. This fact should not be overlooked as you consider our comments with respect to those populations where we question the classifications made by the TRT.

ODFW's Rogue Watershed District staff has prepared a detailed review that generally agrees with the TRT's approach, but that raises specific questions about the identification of the applicability of the approach to classifying coho populations in small to medium sized direct ocean tributaries on Oregon's portion of the SONC ESU. ODFW District Staff question the ability of the Intrinsic Potential model developed from central and north Oregon coast data to predict historical population structure on the southern Oregon coast (attached).

Some of the concerns expressed by District Staff are supported by the pattern of coho abundance and distribution we observe in the Oregon Coast ESU. A cursory assessment of Oregon Coast streams that share similar geologic origins shows a clear association with viable steelhead populations and limited, most likely Dependent, coho populations. There is a strong geologic influence on the pattern of coho abundance and distribution of coho in the Oregon Coast ESU. Generally, populations and population segments located in watersheds with volcanic or "hard" geologic origins show the lowest productivity for coho. A clear expression of this pattern comes from the Salmonberry River tributary to the Nehalem which, because of very low habitat potential, was excluded from ESU Critical Habitat designation. Other populations or areas within populations show similar patterns (Tillamook and Siletz for example). We do not have good examples of situations similar to the south Oregon coast where steep, hard geologic watersheds with low intrinsic potential quickly transition into coastal plains with potentially very high intrinsic potential. We ask that the TRT consider the questions raised by our District staff as you revise the document.

We have little new information that could directly help with you the analysis of historical populations. The District document does provide evidence from recent surveys, but we realize that this information does not equate to historic patterns of distribution. However, an analysis of rainfall and hydrologic data conducted by the Oregon Department of Forestry (ODF) does suggest that these small coastal basins function very differently from similar watersheds further north. The ODF study was intended to predict peak flows at 50-year recurrence intervals for use in developing design criteria for road-stream crossings. ODF found that streams on the extreme Oregon south coast deliver 500-600 cfs/square mile of drainage area. This is far higher than of the rest of the Oregon coast where average peak flows are less than 200 cfs/square mile (ODF 2002). Only Ecola Creek, a Dependent Population on the northern Oregon coast has peak flows (400+ cfs/square mile) similar to those modeled for Euchre Cr. and Pistol River.

This pattern of intense peak flows has the potential to influence historical population structure. Although speculative, it seems reasonable to suggest that coho in these direct ocean tributaries experienced frequent potentially catastrophic disturbances associated with high flow events. If they were repeatedly extirpated and recolonized with strays from the mainstem Rogue, then it would seem that these would more appropriately be considered Dependent Populations.

We recommend the TRT undertake additional hydrologic analysis for these streams to assess local patterns of peak flows and the potential effect on population classification. This might entail some direct measures of stream morphology in transitional and response reaches that most likely represent the areas identified as High Intrinsic Potential. We believe that there is sufficient uncertainty about the appropriate delineation of these populations to justify further investigation into the potential of these streams to have supported historic Independent Coho Populations.

I hope these comments will assist in the TRT Workgroup to complete your work to delineate historic population structure and may also prove helpful for you upcoming work on viability analyses and recovery planning.

My personal experience with the Oregon Coast TRT Workgroup may provide some perspective. That is, while the classification and identification of populations as Independent or Dependent was a critical first step, it was the assessment of these populations through the Viability Assessment process that resulted in the greatest advance in our understanding. As you progress through the process, you may want to revisit some of your classifications, with or without regard to these comments. We at ODFW will be most interested in reviewing the Viability Assessment and expect to gain additional understanding of the SONCC ESU's status as a result of the TRT's work.

Thank you for the opportunity to comment.

Sincerely,

Kelly Moore
NW Region Research Program Manager
ODFW Fish Research Laboratory
28655 Highway 34
Corvallis, OR 97303

cc: Ed Bowles, ODFW
Bruce McIntosh, ODFW
Kevin Goodson, ODFW
Russ Stauff, ODFW

Attachments:

Rogue Watershed District Comments 12/27/2005

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Date: December 27, 2005

To: Kevin Goodson

From: Rogue Watershed District

Subject: Review comments from Rogue Watershed District

The Rogue Watershed District reviewed the draft report titled **Historical population structure of coho salmon in the Southern Oregon/Northern California Coasts Evolutionarily Significant Unit** (draft of November 18, 2005). The district appreciates the chance to review the draft, and would like to submit the following comments:

Population Boundaries in the Rogue River Basin

Methods developed to delineate boundaries of possible historic populations of coho salmon within the Rogue River Basin appear to be appropriate, given the information that is currently available.

Air Temperature Mask

Development of an air temperature mask, as a proxy for water temperature, is a promising tool that, in our opinion, significantly increases the accuracy associated with trying to identify those reaches of those streams that may have historically produced subyearling coho salmon. The district agrees with the approach employed in the draft, and recommends that the approach be expanded, as explained below.

Thermal loading of SONCC streams, during the summer months, generally increases progressively with distance downstream. An applied example of the thermal loading of SONCC streams can be found by examining water temperatures recorded in the Chetco River. While no portion of the Chetco River Basin was covered by the water temperature mask employed in the draft, summer water temperatures in the Chetco River commonly exceed 74°F in the mainstem and in the lower portion of the North Fork (Gross 2003). It is unlikely that juvenile coho salmon could be produced in areas characterized by these water temperatures (Eaton et al. 1995; Welsh et al. 2001). Much of the thermal loading occurs naturally, as exemplified by water temperatures that can exceed 73°F in the Chetco River at Boulder Creek. This location marks the downstream edge of the Kalamiopsis Wilderness Area. Warm water temperatures may have also limited the historic production potential for coho salmon in other coastal basins as well, particularly in the lower portion of the Pistol River.

Application of Intrinsic Potential Methodology

The approach outlined in the draft makes two primary assumptions, reproduced below:

1. Suitability curves that translate information on geomorphic and hydrologic characteristics into IP apply to watersheds in the SONCC Coho Salmon ESU as they do for the Oregon Coast Range (page 53), and
2. The differences in geomorphic structure and processes between the Oregon Coast Range and the SONCC Coho Salmon ESU, although present, do not require us to modify the IP components (page 54).

These assumptions appeared to be necessary because the authors could not find a defensible alternative to the IP index adopted from the OCC (page 54).

However, there is some information that, in our opinion, strongly suggests that there are fundamental differences in the historic production potential of SONCC river basins as compared to the historic production potential of OCC river basins. First, historic landing and cannery pack data indicate that the northern portion of the SONCC tended to differentially produce chinook salmon (rather than coho salmon), as compared to the southern portion of the OCC. Second, historic information indicates that the proportion of streams with runs of coho salmon was lower in the northern portion of the SONCC as compared to the southern portion of the OCC. Third, juvenile salmon are rarely encountered in the small and medium sized coastal basins in the Oregon portion of the SONCC, although the IP index suggests that the species should be present in significant numbers.

Historic Landing and Cannery Pack Records

We tested the hypothesis that the proportion of coho salmon among the salmon landings did not differ in the southern portion of the OCC as compared to the northern portion of the SONCC. Three sources of information appeared to have sufficient data that could be interpreted with statistical analyses.

First, we found that during the period of 1889 through 1892, coho salmon accounted for an average of 92% (range = 89-93%) of the salmon landed annually in the southern portion of the OCC (Table 1). In contrast, coho salmon accounted for an average of 42% (range = 31-55%) of the salmon landed annually in the northern portion of the SONCC (Table 1). Annual estimates of the proportion of coho in the salmon landings differed at $P=0.03$, as estimated by a Mann-Whitney Rank Sum Test.

Second, we found that during the period of 1892 through 1927, coho salmon accounted for an average of 91% (range = 39-100%) of the salmon canned annually in the southern portion of the OCC (Table 3). In contrast, coho salmon accounted for an average of 23% (range = 0-74%) of the salmon canned annually in Curry County (Table 3). Annual estimates of the proportion of coho among canned salmon differed at $P<0.0001$, as estimated by a Mann-Whitney Rank Sum Test.

Third, we found that during the period of 1923 through 1937, coho salmon accounted for an average of 87% (range = 78-97%) of the salmon landed annually in the southern portion of the OCC (Table 6). In contrast, coho salmon accounted for an average of 7% (range = 0-28%) of the salmon landed annually in Curry County (Table 6). Annual estimates of the proportion of coho in the salmon landings differed at $P<0.0001$, as estimated by a Mann-Whitney Rank Sum Test.

We recognize that multiple factors could contribute to the significant differences in the composition of salmon landed (or packed) in the SONCC river basins as compared to the OCC river basins. Such factors may, or may not directly relate to the abundance of the different species of salmon. In addition, the historical records included in the analyses are likely dominated by salmon produced by the largest river basins. However, given that the differences are so pronounced, we concluded that there is a good possibility that differences between the ESUs in (1) fish community structure and (2) geomorphic structure and processes are likely primary factors that contributes to the differences in species composition within the salmon landings.

Historic Presence

We found some evidence that indicates few coho salmon were naturally produced in the smaller coastal basins within the Oregon portion of the SONCC. Hutchinson (1962) characterized salmonid resources in the Chetco River, Pistol River, Winchuck River, and Hunter Creek: *"All four stream systems possess good to excellent runs of fall chinook salmon and steelhead. Silver salmon are near the southern limit of their range, but a fair run does occur in the Chetco River system"*. Hutchinson (1962) also characterized salmonid resources in the Elk River, Sixes River, Euchre Creek, Floras Creek, Fourmile Creek, Brush Creek, and Mussel Creek: *"Large runs of steelhead and fall chinook exist in the subbasin. Silver salmon are present, but with the exception of Floras and Fourmile Creeks, the known runs are not large in magnitude"*.

Hutchinson (1962) listed the presence or absence of adult coho salmon in streams on the southern coast of Oregon. Within the SONCC, coho salmon were listed as present in 10 streams and were listed as not present in 17 streams (37% habitation rate). In contrast, in the area from the Coquille River Basin to the Sixes River Basin, coho salmon were listed as present in 58 streams and were listed as absent in only 4 streams (93% habitation rate). These listings indicate that, at least in the early 1960s, proportionally fewer streams had runs of coho salmon in the SONCC as compared to areas farther north in the southern portion of the OCC.

Current versus Historic Presence

The draft noted that the current distribution of coho salmon in the upper portions of the Klamath and Trinity river basins appears to be comparable to the distribution of coho salmon in these areas during the 1950s. Similarly, a cursory assessment of historic data indicates a similar situation in the upper portion of the Rogue and Illinois river basins (USFWS 1955;attached maps). With the appearance of commonality among four widely distributed areas within the interior areas of the larger river basins of the SONCC, and given that anthropogenic impacts are generally lower within the small to medium sized coastal basins, one would assume that the current and historic distribution of coho salmon would also be similar within these basins.

We compared the current and historic presence of coho salmon within the small to medium sized coastal basins in the Oregon portion of the SONCC. We relied on Hutchinson's 1962 assessment to represent historic distribution and juvenile sampling conducted during 1999 through 2004 to represent current distribution. Locations for juvenile sampling were randomly chosen from stream segments thought to be inhabited by anadromous salmonids. In 1999-2001, coho salmon densities were estimated by electrofishing four successive pools at sampling sites in first through third order streams. In 2002-2004, coho salmon densities were estimated by snorkeling pools in one kilometer reaches of first through sixth order streams. Comparisons for singular streams are listed in Table 8.

Coho salmon were present in 4 of 138 sites electrofished in 1999-2001 (4% habitation rate), and were present in 23 of 111 reaches snorkeled in 2002-2004 (21% habitation rate). Markedly larger sampling sites in 2002-2004 probably account for much of the difference in habitation rates. These results indicate that coho salmon are not commonly encountered in the small to medium sized coastal basins in the Oregon portion of the SONCC.

More readily apparent is the extremely low densities of juvenile coho salmon in these basins (Table 8). At all sites, density estimates derived from electrofishing in 1999-2001

averaged 0.001 fish/m^2, while density estimates derived from snorkeling in 2002-2004 averaged 0.007 fish/m^2. Similar to indexes of habitation rates, these densities also indicate that coho salmon are rarely encountered in the small to medium sized coastal basins in the Oregon portion of the SONCC. Densities at these levels would seem to suggest that populations of coho salmon were either extirpated or that viable populations were never present in these areas. Given that coho salmon were persistent within significant portions of the nearby Rogue River basin, and that anthropogenic impacts are greater in the Rogue River Basin as compared to nearby smaller coastal basins, we concluded that it is more likely that viable populations of coho salmon were never present in the smaller basins.

Summary

Singularly, our assessments of historic landing and pack records, historic presence, and current versus historic presence, fail to provide guidance as to whether viable coho populations historically existed in the small to medium sized coastal basins in the Oregon portion of the SONCC. Collectively, however, our findings seem to indicate that there is a good chance that most, if not all, of these basins failed to support functionally independent populations of coho salmon.

Methods employed within the draft document titled **Historical population structure of coho salmon in the Southern Oregon/Northern California Coasts Evolutionarily Significant Unit** resulted in population classifications of (1) functionally independent for Elk River, Euchre Creek, and the Chetco River, (2) potentially independent for Pistol River and the Winchuck River, and (3) dependent for the remaining 10 coastal stream basins in Oregon. We concluded that there is a good possibility that one or both of the primary assumptions of (1) suitability curves developed for the OCC ESU also apply to the SONCC ESU and (2) differences in geomorphic structure and processes between the OCC and the SONCC do not require modification of the IP components account for the differences in population assessments outlined in the above text and in the draft document.

Recommendations for Revisions

1. The draft states that the purpose of the assessment is to document the historic population structure of coho salmon in the SONCC. We recommend that the draft be revised to indicate that the purpose of the assessment is to attempt to identify historic population structure.

2. Given the uncertainty associated with identification of population structure, we recommend that the draft be revised to convey that population structure is proposed. Current verbiage sometimes conveys the impression that classifications are definitive.

3. We recommend an expanded application of the temperature mask by excluding, from the IP estimates and analyses, those stream segments located downstream of where the lowest mean August air temperature in the each basin exceeded 21.5°C.

4. Because the approach employed in the draft resulted in positive IP estimates in areas where water temperatures naturally exceed those tolerated by juvenile coho salmon, we recommend that the authors consider incorporation of a simplified water temperature model into the assessment. For example, the data we present for the Chetco River shows that the air temperature mask does not account for all areas where natural water temperatures limit the production of coho salmon.

5. We were unable, from the draft, to determine whether IP estimation procedures excluded those areas which are naturally inaccessible to adult coho salmon. We recommend that the draft be modified to address this issue. If IP estimation procedures did not exclude inaccessible areas, we recommend that those areas be excluded and revised IP estimates be developed.

6. On pages 53-54, the draft presents a discussion of the assumption of how differences in geomorphic structure and processes between the OCC and the SONCC do not require modification of the IP components, and that little was found to suggest that a revision to IP gradient curves was warranted. We recommend that the assessment that produced this conclusion be clarified, particularly if there was an analysis of data obtained from SONCC streams.

7. Biological factors also may have a pronounced affect on IP components. Estimation procedures employed in the draft resulted in the conclusion that most of the potential coho salmon habitat in the small to moderate sized coastal basins is located in the lower portions of those basins. These areas, within the some of the Oregon streams, produce very large numbers of chinook salmon. Production estimates of juvenile chinook salmon averaged 7,300 fish per mile in the Pistol River Basin during 1992-2002, and averaged 4,600 fish per mile in the Winchuck River Basin during 1991-2003 (ODFW unpublished data). Partitioning of rearing habitat by juvenile chinook and coho salmon has been documented (Lister and Genoe 1970; Shirvell 1994), which suggests that the species compete for various resources. We recommend that this issue be addressed in the report.

8. The draft conveys that a value of 24 IP km was used as a threshold value by which to aid in classification of potential populations. The draft acknowledges that the application of this threshold value was based on assessments derived from OCC data. In this note, we present information that collectively indicates that the production potential for coho salmon in SONCC streams is markedly lower as compared to OCC streams. Consequently, we recommend that the authors consider a significant increase to the threshold value. It may be that a doubling of the threshold value is warranted in this particular case.

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Table 1. Relative abundance (proportion) of coho salmon among chinook and coho salmon landed in commercial fisheries of southern Oregon and northern California, 1889-1892. Estimates were derived from data in Table 2.

County	1889	1890	1891	1892
OCC ESU				
Douglas	0.79	0.78	0.77	0.93
Coos	0.93	0.93	0.93	0.92
Total	0.89	0.93	0.92	0.93
SONC ESU				
Curry	0.53	0.31	0.22	0.37
Del Norte	0.62	0.58	0.53	0.59
Shasta	0.00	0.00	0.00	0.00
Total	0.55	0.40	0.31	0.41

Table 2. Estimated numbers of coho salmon and chinook salmon landed in commercial fisheries of southern Oregon and northern California, 1889-1892. Estimates were derived from poundage data included in the Report of the commissioner, part XIX. U.S. Commission of Fish and Fisheries, 1889-1892. Poundage estimates were assumed to represent whole fish (10.5 pounds for coho salmon and 20 pounds for chinook salmon).

	Coho salmon				Chinook salmon			
County	1889	1890	1891	1892	1889	1890	1891	1892
OCC ESU								
Douglas	51,110	1,238	1,333	71,867	13,567	350	400	5,250
Coos	125,668	38,667	43,573	46,667	9,317	2,875	3,668	4,250
SONC ESU								
Curry	55,329	25,896	17,227	21,138	48,289	57,368	61,176	35,405
Del Norte	18,020	23,845	17,381	9,440	10,944	17,263	15,438	6,678
Shasta	0	0	0	0	1,438	1,291	1,456	1,572

Table 3. Estimated proportion of coho salmon among salmon canned in adjacent coho management areas in southern Oregon and northern California, 1892-27. Estimates were developed from data listed in Table 4 and Table 5.

Year	OCC ESU	SONCC ESU
1892	1.00	0.53
1893	0.97	0.14
1894	0.99	0.23
1895	0.83	0.38
1896	0.68	0.27
1897	0.39	0.30
1898	0.88	0.07
1899	0.92	0.31
1900	0.87	--
1901	0.93	0.74
1902	0.96	0.54
1903	0.99	0.51
1904	0.95	0.23
1905	0.83	0.13
1906	0.92	0.48
1907	0.99	0.30
1908	1.00	0.53
1909	0.97	0.18
1910	0.95	0.37
1911	0.94	0.05
1912	0.93	0.00
1913	1.00	0.32
1914	0.98	0.49
1915	0.96	0.19
1916	0.94	0.19
1917	0.97	0.15
1918	0.91	0.32
1919	0.96	0.11
1920	0.91	0.00
1921	1.00	0.00
1922	1.00	0.00
1923	0.99	0.00
1924	0.95	0.04
1925	0.81	0.04
1926	0.70	0.00
1927	0.86	0.02
Mean	0.91	0.23

Table 4. Estimated numbers of coho and chinook salmon canned in the southern portion of the ESU for Oregon Coastal Coho, 1892-27. Estimates were developed from cannery records reported by Cobb (1930), with assumed dressed weights of 7.7 pounds for coho salmon and 14 pounds for chinook salmon.

	Coho salmon			Chinook salmon		
Year	Umpqua	Coos	Coquille	Umpqua	Coos	Coquille
1892	88,312	--	44,156	0	--	0
1893	28,295	27,597	57,403	3,929	0	0
1894	60,714	74,429	17,662	1,141	792	0
1895	67,974	20,594	77,043	4,818	24,820	3,400
1896	70,649	17,662	68,883	6,314	63,143	5,950
1897	--	19,429	--	--	30,114	--
1898	--	63,408	66,101	--	15,261	2,628
1899	66,905	45,692	66,675	4,493	6,183	4,614
1900	--	--	84,788	--	--	12,803
1901	--	36,049	45,004	--	5,901	646
1902	--	23,314	51,901	--	2,001	1,389
1903	59,460	--	76,699	112	--	1,608
1904	83,896	63,584	120,863	2,429	9,875	2,914
1905	92,727	--	100,172	29,629	--	10,200
1906	49,569	15,499	158,776	5,552	9,923	3,988
1907	--	--	116,748	--	--	1,486
1908	--	--	169,329	--	--	0
1909	68,468	34,963	86,704	2,429	1,336	1,214
1910	97,143	48,571	146,924	9,714	2,429	2,040
1911	54,029	64,114	147,269	1,457	12,774	3,473
1912	33,196	35,228	53,340	146	7,077	1,831
1913	--	65,201	78,686	--	0	0
1914	17,662	82,130	106,831	4,857	0	0
1915	45,039	30,909	45,313	0	0	5,241
1916	25,610	21,945	23,420	0	0	4,221
1917	47,388	--	70,694	0	--	3,371
1918	30,105	33,558	89,159	8,272	0	6,402
1919	66,234	--	44,244	0	--	4,988
1920	--	--	25,275	--	--	2,628
1921	--	--	41,904	--	--	0
1922	--	--	41,904	--	--	0
1923	74,182	--	91,385	0	--	1,107
1924	134,269	--	50,700	7,917	--	1,506
1925	94,211	--	13,503	25,005	--	0
1926	35,916	--	--	15,460	--	--
1927	75,824	--	--	12,449	--	--

Table 5. Estimated numbers of coho and chinook salmon canned in the ESU for coho salmon in northern California and southern Oregon, 1892-27. Estimates were developed from cannery records reported by Cobb (1930), with assumed dressed weights of 7.7 pounds for coho salmon and 14 pounds for chinook salmon.

	Coho salmon			Chinook salmon		
Year	Rogue	Smith	Klamath	Rogue	Smith	Klamath
1892	79,481	--	0	48,571	--	21,371
1893	0	4,416	0	15,543	7,286	5,085
1894	--	4,416	0	--	7,286	7,771
1895	38,725	0	3,532	50,403	10,929	8,257
1896	26,494	--	--	72,857	--	--
1897	32,260	--	--	74,581	--	--
1898	4,424	--	--	62,968	--	--
1899	15,410	--	0	26,622	--	7,771
1900	--	--	--	--	--	--
1901	36,950	--	--	13,022	--	--
1902	36,128	--	0	18,452	--	12,143
1903	42,319	--	--	40,887	--	--
1904	28,745	--	0	77,714	--	16,514
1905	13,247	--	--	89,857	--	--
1906	52,987	--	--	58,286	--	--
1907	15,861	--	--	36,608	--	--
1908	23,403	--	--	21,148	--	--
1909	6,173	--	0	903	--	27,360
1910	23,941	--	0	1,127	--	38,935
1911	--	--	1,802	--	--	35,943
1912	--	--	0	--	--	87,429
1913	21,221	--	0	14,669	--	30,969
1914	8,716	26,494	30,909	33,699	0	36,429
1915	4,548	9,520	22,078	92,742	9,496	50,514
1916	4,424	8,743	21,195	109,966	7,359	31,494
1917	5,829	0	25,610	120,005	30,600	24,917
1918	23,879	5,405	37,903	99,421	19,628	26,981
1919	5,926	0	10,112	83,723	21,206	30,556
1920	0	0	0	49,567	1,107	55,085
1921	0	0	0	60,695	14,571	35,826
1922	0	--	0	51,330	--	47,114
1923	0	--	0	45,162	--	29,143
1924	4,477	0	0	57,703	16,466	46,366
1925	1,122	6,623	0	68,359	33,757	71,104
1926	442	0	0	59,670	2,429	53,608
1927	2,649	0	0	62,623	11,171	64,527

Table 6. Estimated proportion of coho salmon among salmon landed in four rivers in southern Oregon, 1923-37. Estimates were developed data listed in Table 7.

	Umpqua	Coos	Coquille	OCC ESU	Rogue
1923	0.91	0.72	0.95	0.88	--
1924	0.92	0.73	0.66	0.84	0.00
1925	0.84	0.79	0.58	0.80	0.02
1926	0.80	0.74	0.94	0.84	0.02
1927	0.85	0.85	0.93	0.87	0.04
1928	0.80	0.83	0.83	0.82	0.10
1929	0.83	0.58	0.91	0.83	0.28
1930	0.93	0.72	0.93	0.92	0.17
1931	0.92	0.61	0.91	0.88	--
1932	0.88	0.77	0.95	0.89	0.00
1933	0.87	0.81	0.93	0.88	0.05
1934	0.89	0.89	0.95	0.91	0.05
1935	0.97	0.94	0.94	0.96	--
1936	0.78	0.82	0.80	0.78	--
1937	0.86	0.87	0.93	0.88	
Mean	0.87	0.78	0.88	0.86	0.07

Table 7. Estimated numbers of coho and chinook salmon landed in four coastal rivers of southern Oregon, 1923-37. Estimates were developed from records reported by Cleaver (1951).

	Coho salmon				Chinook salmon			
Year	Umpqua	Coos	Coquille	Rogue	Umpqua	Coos	Coquille	Rogue
1923	134,163	34,389	64,094	--	14,081	13,340	3,239	43,872
1924	233,928	48,862	41,291	3	21,079	17,828	20,944	54,357
1925	101,300	54,967	11,649	1,666	19,604	14,609	8,526	71,568
1926	66,146	19,122	59,800	907	16,373	6,660	3,699	54,789
1927	73,573	28,318	31,148	1,376	12,971	4,957	2,518	31,788
1928	47,488	44,073	25,921	1,394	12,102	9,234	5,323	13,031
1929	29,407	4,768	20,066	4,058	5,840	3,433	1,955	10,578
1930	86,163	6,620	12,616	1,928	6,260	2,589	891	9,705
1931	76,926	8,127	13,619	--	6,306	5,274	1,410	13,388
1932	103,748	8,870	25,339	59	13,798	2,712	1,357	26,419
1933	54,444	4,677	14,840	889	8,109	1,075	1,103	17,358
1934	54,727	5,752	30,315	489	7,044	677	1,451	8,700
1935	172,709	19,276	30,568	--	5,528	1,214	2,121	--
1936	60,808	7,064	12,098	--	17,332	1,575	3,078	--
1937	91,183	7,260	40,563	--	15,000	1,039	3,234	--

Table 8. Presence of coho salmon in the Oregon portion of the SONCC, outside of the Rogue River Basin, in 1962 as compared to recent years. Presence data from 1962 is qualitative assessments reported by Hutchinson (1962). Presence data from later years are reported in terms of the density of subyearlings in pools at sampling sites that were randomly chosen over the understood distribution of anadromous salmonids. In 1999-2001, four pools were electrofished at each sample site. In 2002-04, pools within a one kilometer reach were snorkeled at each sample location.

			Fish/m^2 (*n*)	
Stream Basin	Stream	1962	1999-2001	2002-2005
Elk River	Elk River	present	0.000(2)	0.005(15)
Elk River	Anvil Creek	present	0.000(1)	--
Elk River	Bald Mountain Creek	present	0.000(2)	--
Elk River	Blackberry Creek	absent	0.000(1)	0.017(1)
Elk River	Butler Creek	absent	0.000(1)	--
Elk River	North Fork	absent	0.062(1)	--
Elk River	South Fork	absent	0.000(1)	0.000(1)
Elk River	Panther Creek	present	0.000(1)	0.005(1)
Elk River	Red Cedar Creek	absent	0.015(3)	0.001(1)
Hunter Creek	Big South Fork	absent	--	--
Hunter Creek	Little South Fork	absent	--	--
Brush Creek	Brush Creek	present	0.000(5)	0.018(4)
Mussel Creek	Mussel Creek	present	0.000(2)	0.000(3)
Mussel Creek	Myrtle Creek	absent	0.000(4)	--
Euchre Creek	Euchre Creek	present	0.000(2)	0.030(3)
Euchre Creek	Boulder Creek	absent	0.000(1)	0.000(1)
Euchre Creek	Cedar Creek	absent	0.000(3)	0.010(2)
Euchre Creek	Crooked Bridge Creek	absent	0.000(1)	--
Hunter Creek	Hunter Creek	present	0.000(3)	0.020(5)
Hunter Creek	Big South Fork	absent	--	--
Hunter Creek	Little South Fork	absent	--	--
Myers Creek	Myers Creek	absent	0.000(2)	--
Pistol River	Pistol River	absent	0.000(2)	0.000(9)
Pistol River	Crook Creek	absent	0.000(2)	--
Pistol River	Deep Creek	absent	0.000(1)	0.000(1)
Chetco River	Chetco River	present	0.000(6)	0.000(23)
Chetco River	North Fork	absent	0.000(5)	0.000(4)
Chetco River	South Fork	present	0.000(5)	0.000(3)
Chetco River	Quail Prairie Creek	absent	0.000(2)	0.000(1)
Chetco River	Jack Creek	present	0.000(6)	--
Winchuck River	Winchuck River	absent	0.000(2)	0.000(1)
Winchuck River	Bear Creek	absent	0.000(1)	--
Winchuck River	Wheeler Creek	absent	0.000(3)	0.000(1)
Winchuck River	East Fork	absent	0.000(2)	0.062(3)
Winchuck River	Fourth of July Creek	absent	0.000(2)	0.018(2)

Linton, Judy L NWP

From: Rich Angstrom [rich@ocapa.net]
Sent: Monday, June 14, 2010 10:12 AM
To: Charland, Jay; byocum@hughes.net; Linton, Judy L NWP; Moynahan, Kevin NWP
Cc: bob.bailey@state.or.us; LOBDELL Robert; cdl@lidstone.com; Chuck.Wheeler@noaa.gov; eric.metz@dsl.state.or.us; frittsj@co.curry.or.us; Janine_M_Castro@fws.gov; Joe_Zisa@fws.gov; GERMOND Jon P; Joy@UmpquaSand.com; ken.phippen@noaa.gov; Moynahan, Kevin NWP; kim.kratz@noaa.gov; kljones@usgs.gov; liverman.alex@deq.state.or.us; Monty_Knudsen@fws.gov; oconnor@usgs.gov; SNOW Patty; PrattD@co.curry.or.us; puent.sally@deq.state.or.us; relayer@twcontractors.com; rosewall@usgs.gov; Szerlog.Michael@epa.gov; tedf@hughes.net; CONFER Todd A; Vallette.Yvonne@epa.gov; william.ryan@state.or.us
Subject: RE: 2009 and 2010 sediment volume estimates

I agree that the year should be consistent and obviously, as Jay has stated, not double counting. Alex points out an issue in the public notice that should be addressed. With changing weather paterns, events from April 1 through March 31 of the subsequent year (example April 1, 2009 through March 31, 2010) seems like an appropriate period inorder to allow for a timely yearly review, not double count, and preserve the spirit of the agreement that annual recruitment of gravel drives the process.

Kevin, I would ask these comments be included in the public record and we address in the final permit Alex's comment that the public notice only provides for 5 months of recruitment review not a full year.

Richard Angstrom
President
Oregon Concrete & Aggregate Producers Association
737 13th St. SE, Salem, OR 97301
Phone: 503-588-2430 ext.8
Fax: 503-588-2577

-----Original Message-----
From: Charland, Jay [mailto:jay.charland@state.or.us]
Sent: Monday, June 14, 2010 8:06 AM
To: byocum@hughes.net; Judy.L.Linton@usace.army.mil
Cc: bob.bailey@state.or.us; LOBDELL Robert; cdl@lidstone.com; Chuck.Wheeler@noaa.gov; eric.metz@dsl.state.or.us; frittsj@co.curry.or.us; Janine_M_Castro@fws.gov; jay.charland@state.or.us; Joe_Zisa@fws.gov; GERMOND Jon P; Joy@UmpquaSand.com; ken.phippen@noaa.gov; Kevin.Moynahan@usace.army.mil; kim.kratz@noaa.gov; kljones@usgs.gov; liverman.alex@deq.state.or.us; Monty_Knudsen@fws.gov; oconnor@usgs.gov; SNOW Patty; PrattD@co.curry.or.us; puent.sally@deq.state.or.us; relayer@twcontractors.com; Rich Angstrom; rosewall@usgs.gov; Szerlog.Michael@epa.gov; tedf@hughes.net; CONFER Todd A; Vallette.Yvonne@epa.gov; william.ryan@state.or.us
Subject: RE: 2009 and 2010 sediment volume estimates

June 14

We need to ensure we don't count a flow event twice. Over the long term, recruited gravel will be available at some point, nothing is ever 'lost'. The larger issue is potential manipulation of the water years versus the trigger volume. I would strongly oppose adjusting the boundaries of a water year to try to get to 26,000 cy each winter (which is the opposite of what would happen here if the June 4 event were included in the 09-10 year). I suggest we create and stick with a clear definition of the water year.

Jay

From: Bill Yocum [byocum@hughes.net]
Sent: Sunday, June 13, 2010 8:31 AM
To: Judy.L.Linton@usace.army.mil
Cc: william.ryan@state.or.us; bob.bailey@state.or.us; PrattD@co.curry.or.us; jay.charland@state.or.us; Joe_Zisa@fws.gov; GERMOND Jon P; Joy@UmpquaSand.com; ken.phippen@noaa.gov; kim.kratz@noaa.gov; Szerlog.Michael@epa.gov; Monty_Knudsen@fws.gov; Kevin.Moynahan@usace.army.mil; rich@ocapa.net; relayer@twcontractors.com; Puent.sally@deq.state.or.us; tedf@hughes.net; liverman.alex@deq.state.or.us; LOBDELL Robert; cdl@lidstone.com; Chuck.Wheeler@noaa.gov; Janine_M_Castro@fws.gov; oconnor@usgs.gov; frittsj@co.curry.or.us; kljones@usgs.gov; SNOW Patty; rosewall@usgs.gov; CONFER Todd A; Vallette.Yvonne@epa.gov; eric.metz@dsl.state.or.us
Subject: Re: 2009 and 2010 sediment volume estimates

Hi Judy,

I reviewed the computed bed-material influx for water year 2010 and noticed that the calculated volumes did not include the most recent Chetco high water event of June 4th. The flow was measured at 26,400 cfs. I think that this significant event that transported sediment and should be included in the 2010 calculations. Do you agree?

Bill

On Jun 11, 2010, Linton, Judy L NWP <Judy.L.Linton@usace.army.mil> wrote:

Forwarding link for sediment volume estimates. See message below.

-----Original Message-----
From: Jim O'Connor [mailto:oconnor@usgs.gov]
Sent: Thursday, June 10, 2010 3:43 PM
To: Linton, Judy L NWP
Cc: J. Rose Wallick; Terrence D Conlon; OCONNOR, JIM
Subject: 2009 and 2010 sediment volume estimates

Hi Judy,
We've posted the sediment volume estimates on our Chetco website:
http://or.water.usgs.gov/chetco/index.html
Distribute freely.
Give Rose or I a buzz if you have questions or concerns. Rose will be out of the office until Monday, but I will be in.
....Jim

--
Jim O'Connor
U.S. Geological Survey
2130 SW 5th Ave
Portland, OR 97201
Phone: 503 251 3222
email: oconnor@usgs.gov<mailto:oconnor@usgs.gov>

Linton, Judy L NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Monday, June 14, 2010 9:04 AM
To: Linton, Judy L NWP; Moynahan, Kevin NWP
Subject: Fwd: RE: FW: 2009 and 2010 sediment volume estimates

---------- Forwarded message ----------
From: Ted Freeman <tedf@hughes.net>
Date: Jun 14, 2010
Subject: RE: FW: 2009 and 2010 sediment volume estimates
To: byocum@hughes.net

Bill, it seems that we have opened one of those boxes…in all fairness to the system, a better date would be from end of operational season to June 15th which gives enough time for the survey work to be done. What Alex is saying, I believe is what is written, but that certainly does not capture all the material that could possible enter into the system. We certainly want to be sure that the Chetco is well taken care of. The way our permit is, it will not be long before there is going to be flooding problems anyway.

tF

From: Bill Yocum [mailto:byocum@hughes.net]
Sent: Sunday, June 13, 2010 8:32 AM
To: Judy.L.Linton@usace.army.mil
Cc: william.ryan@state.or.us; bob.bailey@state.or.us; PrattD@co.curry.or.us; jay.charland@state.or.us; Joe_Zisa@fws.gov; Jon.P.Germond@state.or.us; Joy@UmpquaSand.com; ken.phippen@noaa.gov; kim.kratz@noaa.gov; Szerlog.Michael@epa.gov; Monty_Knudsen@fws.gov; Kevin.Moynahan@usace.army.mil; rich@ocapa.net; relayer@twcontractors.com; Puent.sally@deq.state.or.us; tedf@hughes.net; liverman.alex@deq.state.or.us; Bob.Lobdell@state.or.us; cdl@lidstone.com; Chuck.Wheeler@noaa.gov; Janine_M_Castro@fws.gov; oconnor@usgs.gov; frittsj@co.curry.or.us; kljones@usgs.gov; Patty.Snow@state.or.us; rosewall@usgs.gov; Todd.A.Confer@state.or.us; Vallette.Yvonne@epa.gov; eric.metz@dsl.state.or.us
Subject: Re: FW: 2009 and 2010 sediment volume estimates

Hi Judy,

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Bill

On Jun 11, 2010, Linton, Judy L NWP <Judy.L.Linton@usace.army.mil> wrote:

> Forwarding link for sediment volume estimates. See message below.
>
> -----Original Message-----
> From: Jim O'Connor [mailto:oconnor@usgs.gov]
> Sent: Thursday, June 10, 2010 3:43 PM
> To: Linton, Judy L NWP
> Cc: J. Rose Wallick; Terrence D Conlon; OCONNOR, JIM
> Subject: 2009 and 2010 sediment volume estimates
>
> Hi Judy,
> We've posted the sediment volume estimates on our Chetco website:
> http://or.water.usgs.gov/chetco/index.html
> Distribute freely.
> Give Rose or I a buzz if you have questions or concerns. Rose will be out of the office until Monday, but I will be in.
> ....Jim
>
> --
> Jim O'Connor
> U.S. Geological Survey
> 2130 SW 5th Ave
> Portland, OR 97201
> Phone: 503 251 3222
> email: oconnor@usgs.gov

Linton, Judy L NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Thursday, June 17, 2010 9:41 AM
To: Moynahan, Kevin NWP
Cc: Janine_M_Castro@fws.gov; Chuck.Wheeler@noaa.gov; liverman.alex@deq.state.or.us; rich@ocapa.net; Jay.Charland@state.or.us; Linton, Judy L NWP; Bob.Bailey@state.or.us; Bob.Lobdell@state.or.us; CDL@lidstone.com; Eric.Metz@state.or.us; frittsj@co.curry.or.us; Joe_Zisa@fws.gov; Jon.p.Germond@state.or.us; Joy@UmpquaSand.com; ken.phippen@noaa.gov; Kim.Kratz@noaa.gov; kljones@usgs.gov; Monty_Knudsen@fws.gov; oconnor@usgs.gov; Patty.Snow@state.or.us; prattd@co.curry.or.us; sally.puent@state.or.us; relayer@twcontractors.com; rosewall@usgs.gov; szerlog.michael@epa.gov; tedf@hughes.net; Todd.A.Confer@state.or.us; vallette.yvonne@epa.gov; william.ryan@state.or.us; karmen.fore@mail.house.gov; Molly_McCarthy@wyden.senate.gov; rep.waynekrieger@state.or.us; jeanne_atkins@merkley.senate.gov; jabar40@dishmail.net; darreln@hughes.net
Subject: Conversion factor for the 2009 and 2010 Chetco sediment volume estimates

Categories: Chetco Issues

Hello Kevin,

It appears that we have an additional consistency problem between the federal and state agencies dealing with converting pounds to cubic yards. Our Chetco Removal License with DSL uses 1.33 US Tons/cubic yard which equals 2,663 pounds/cubic yard. The recent USGS measurement of bed-material influx, calculated by the Parker equation uses metric tons and listed a conversion factor of 1.6 metric tons/cubic yard which equal 3,528 pounds/cubic yard.

Applying the DSL factor to the metric tons (1 metric ton = 2,205 pounds) of bed-material influx for 2009 (4/1/08-3/31/09) would increase the cubic yards from 52,900yd3 to 70,133yd3 (2,205 pounds/metric ton X 84,700 metric tons / 2,663 pounds/cubic yard). Applying the DSL factor to metric tons of bed-material influx for 2010 (4/1/09-3/31/10) the cubic yards would increase the cubic yards from 27,900yd3 to 37,012yd3.

I would strongly suggest that the federal and state agencies use the same conversion factor for pounds to cubic yards when dealing with Chetco aggregate. Let me know if you have any questions. Thanks.

Bill Yocum

Freeman Rock Inc.

541-482-2789

Linton, Judy L NWP

From: Chris Lidstone [CDL@lidstone.com]
Sent: Tuesday, June 22, 2010 7:27 PM
To: Linton, Judy L NWP; Janine Castro
Cc: Bill Ryan; Bob Bailey; David Pratt; Jay Charland; Joe Zisa; Jon Germond; Joy Smith; Ken Phippen; Moynahan, Kevin NWP; Kim Kratz; Michael Szerlog; Monty Knudsen; Rich Angstrom; Robert Elayer; Sally Puent; Ted Freeman; eric.metz@dsl.state.or.us
Subject: RE: Conversion factor for Chetco River sediment volumes (ORUSG101)

Judy and Janine:

To clarify the controversy and add a bit more:

The Caterpillar Handbook, which is an industry reference identifies the unit weight of sand and gravel (wet) in bank cubic yard (in place) at 3750#/BCY or a conversion of 1.88. The unit weight of sand and gravel, after it has been extracted and placed in a bucket and weighed (Loose Cubic Yards) is 3400#/CY or 1.70 T/CY (per the CAT handbook). This latter number is very close to the USGS number which is 3534#/CY or 1.77 T/CY. When addressing sediment transport calculations the USGS or Cat Handbook (LCY) number is appropriate.

I am sure the DSL number (2663#/CY or 1.33T/CY) is supported by their own studies and certainly Tidewater seems to support it based on their own on site measurements. This has some weight with me. This difference in conversion may be a difference in porosity, specific gravity of the material or packing. It clearly appears to be a dry weight and certainly a Loose Cubic Yard (LCY) number (ie. after the material has been dried and maybe in stockpile).

I agree with Jay Charland and Bill Yokum-in that it is more important to be consistent than right. Obviously the conversion affects not only the recruitment volume, but also the reserve and influx volume-so things will balance. In order to maintain consistency with royalty calculations and as supported by Robert's measurements, I think it would be okay to stay with the 1.33 T/CY conversion.

Reality wise, the USGS number (3534#/CY) is supported by sediment transport studies and mechanics. It is the "professional" factor in evaluating stream loads. However and in contrast to this statement, normal construction calculations measure material (and generate pay quantities) on a Bank Cubic Yard basis since it is more accurate to survey an excavation than try to measure a fill (because of variable material swell factor) or inconsistencies in load factors

My summary is use your DSL conversion (1.33 T/CY) since royalty payments (conversion factor) can parallel the Chetco recruitment factor and you can achieve consistency. It appears that there is an onsite technical basis for this number.

I hope this helps rather than confuse. All my best.

Chris

Christopher D. Lidstone

President, Lidstone and Associates, Inc.

4025 Automation Way, Bldg. E

Fort Collins, CO 80525

970 223 4705 office

970 223 4706 facsimile

970 420 5257 cell

From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Monday, June 21, 2010 2:35 PM
To: Chris Lidstone; Janine Castro
Cc: Bill Ryan; Bob Bailey; David Pratt; Jay Charland; Joe Zisa; Jon Germond; Joy Smith; Ken Phippen; Moynahan, Kevin NWP; Kim Kratz; Michael Szerlog; Monty Knudsen; Rich Angstrom; Robert Elayer; Sally Puent; Ted Freeman; eric.metz@dsl.state.or.us; Linton, Judy L NWP
Subject: Conversion factor for Chetco River sediment volumes

Chris and Janine: As you may have seen, a concern has been raised regarding apparent inconsistencies in the conversion factor used by state and federal agencies to go from pounds to cubic yards – I believe you both received the June 17 email from Bill Yocum on this issue. The concern expressed is that DSL uses 1.33 US Tons/cubic yard equivalent to 2,663 pounds/cubic yard while USGS in the Parker Equation uses 1.6 metric tons/cubic yard equivalent to 3,528 pounds/cubic yard. Using the DSL conversion factor to estimate recruitment volume would increase the 2009 volume from 52,900 cy to 70,133 cy and increase the 2010 estimate from 27,900 cy to 37,012 cy.

USGS was asked to clarify and provides the following:

For the Chetco report, we used a bulk density of 2.1 metric tons per cubic meter to calculate volumes. This value comes from measurements conducted by Milhouse (2001), which were summarized by Bunte and Abt(2001). The values reported by Milhouse (2001) range 1.87 to 2.19 metric tons per cubic meter; values from other studies range from 1.7 to 2.6 metric tons per cubic meter (Bunte and Apt, 2001). These bulk density values were made for in-situ deposits (see measurement methods as described by Bunte and Abt (2001), and thus are almost certainly higher than they would be for deposits once excavated. In the absence of actual measurements, the 2.1 value seems quite reasonable. This bulk density value is equivalent a situation of particle density of 2.65 grams per cubic centimeter and a deposit porosity of 21 percent.

Because the original transport calculations and measurements (aside from the morphologic analysis) were done in units of mass, a change in the volume conversion factor would apply to all numbers in the report, as well as for volumes considered by the technical team for regulatory purposes.

Your thoughts on the concern summarized above and the USGS response would be appreciated. Also, if the conversion factor were changed (to the DSL # of 1.33 US tons/cubic yard) would we expect to see the reserve volume (currently 26,000 cy) and the 5-year influx volume (currently 118,000 cy) increase on the same order as the recruitment volume?

Thanks in advance for your assistance in evaluating this issue – let me know if any questions. Judy

Linton, Judy L NWP

From: Janine_M_Castro@fws.gov
Sent: Wednesday, June 23, 2010 7:34 AM
To: CDL@lidstone.com
Cc: Linton, Judy L NWP; Bill Ryan; Bob Bailey; David Pratt; Jay Charland; Joe_Zisa@fws.gov; Jon Germond; Joy@UmpquaSand.com; ken.phippen@noaa.gov; Moynahan, Kevin NWP; Kim Kratz; Michael Szerlog; Monty_Knudsen@fws.gov; rich@ocapa.net; Robert Elayer; Sally Puent; Ted Freeman; Eric.Metz@dsl.state.or.us
Subject: RE: Conversion factor for Chetco River sediment volumes (ORUSG101)

Judy:

I concur with Chris. I am not nearly as concerned about the absolute accuracy of the conversion factor, but that we use the same conversion throughout the entire process. Once a number is chosen, we should ensure that all applicable changes are made and that it is very clear in the documentation what factor we are using. It may be worthwhile considering how much additional work it would be to go back through all of the existing documentation to change the conversion factor -- I am sure that USGS could give you a sense of this workload.

Thanks,
Janine

Janine M. Castro, PhD, RG
Geomorphologist

If you dam the river it stagnates.
Running water is beautiful.
So be a channel.
D.H. Lawrence

US Fish and Wildlife Service
2600 SE 98th Ave., Suite 100
Portland, OR 97266
503.231.6179

-----Chris Lidstone <CDL@lidstone.com> wrote: -----

To: "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>, Janine Castro <Janine_M_Castro@fws.gov>
From: Chris Lidstone <CDL@lidstone.com>
Date: 06/22/2010 07:26PM
cc: Bill Ryan <bill.ryan@dsl.state.or.us>, Bob Bailey <bob.bailey@state.or.us>, David Pratt <PrattD@co.curry.or.us>, Jay Charland <jay.charland@state.or.us>, Joe Zisa <Joe_Zisa@fws.gov>, Jon Germond <Jon.P.Germond@state.or.us>, Joy Smith <Joy@UmpquaSand.com>, Ken Phippen <ken.phippen@noaa.gov>, "Moynahan, Kevin NWP" <Kevin.Moynahan@usace.army.mil>, Kim Kratz <kim.kratz@noaa.gov>, Michael Szerlog <Szerlog.Michael@epa.gov>, Monty Knudsen <Monty_Knudsen@fws.gov>, Rich Angstrom <rich@ocapa.net>, Robert Elayer <relayer@twcontractors.com>, Sally Puent <Puent.sally@deq.state.or.us>, Ted Freeman <tedf@hughes.net>, "eric.metz@dsl.state.or.us" <eric.metz@dsl.state.or.us>
Subject: RE: Conversion factor for Chetco River sediment volumes (ORUSG101)

Chris and Janine: As you may have seen, a concern has been raised regarding apparent inconsistencies in the conversion factor used by state and federal agencies to go from pounds to cubic yards – I believe you both received the June 17 email from Bill Yocum on this issue. The concern expressed is that DSL uses 1.33 US Tons/cubic yard equivalent to 2,663

pounds/cubic yard while USGS in the Parker Equation uses 1.6 metric tons/cubic yard equivalent to 3,528 pounds/cubic yard. Using the DSL conversion factor to estimate recruitment volume would increase the 2009 volume from 52,900 cy to 70,133 cy and increase the 2010 estimate from 27,900 cy to 37,012 cy.

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For the Chetco report, we used a bulk density of 2.1 metric tons per cubic meter to calculate volumes. This value comes from measurements conducted by Milhouse (2001), which were summarized by Bunte and Abt(2001). The values reported by Milhouse (2001) range 1.87 to 2.19 metric tons per cubic meter; values from other studies range from 1.7 to 2.6 metric tons per cubic meter (Bunte and Apt, 2001). These bulk density values were made for in-situ deposits (see measurement methods as described by Bunte and Abt (2001), and thus are almost certainly higher than they would be for deposits once excavated. In the absence of actual measurements, the 2.1 value seems quite reasonable. This bulk density value is equivalent a situation of particle density of 2.65 grams per cubic centimeter and a deposit porosity of 21 percent.

Because the original transport calculations and measurements (aside from the morphologic analysis) were done in units of mass, a change in the volume conversion factor would apply to all numbers in the report, as well as for volumes considered by the technical team for regulatory purposes.

Your thoughts on the concern summarized above and the USGS response would be appreciated. Also, if the conversion factor were changed (to the DSL # of 1.33 US tons/cubic yard) would we expect to see the reserve volume (currently 26,000 cy) and the 5-year influx volume (currently 118,000 cy) increase on the same order as the recruitment volume?

Thanks in advance for your assistance in evaluating this issue - let me know if any questions. Judy

Linton, Judy L NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Thursday, June 24, 2010 8:27 AM
To: Linton, Judy L NWP
Cc: prattd@co.curry.or.us; Jay.Charland@state.or.us; jabar40@dishmail.net; joy@umpquasand.com; Kim.Kratz@noaa.gov; Monty_Knudsen@fws.gov; rich@ocapa.net; robert.lobdell@dsl.state.or.us; relayer@twcontractors.com; Puent.Sally@deq.state.or.us; tedf@hughes.net; louise.c.solliday@dsl.state.or.us; karmen.fore@mail.house.gov; jeanne_atkins@merkley.senate.gov; Molly_McCarthy@wyden.senate.gov; Moynahan, Kevin NWP; janet.morlan@state.or.us; Janine_M_Castro@fws.gov; cdl@lidstone.com; rosewall@usgs.gov; oconnor@usgs.gov
Subject: Chetco Cubic Yard Conversion

Hi Judy,

I have reviewed Janine's June 22nd email in which she states that she is not concerned about the absolute accuracy of the conversion factor as long as the same conversion is used throughout the process. I would agree with her if we were just involved with one process and one agency but we are involved with multiple processes with multiple governmental and private organizations. The standard aggregate unit of measurement is the cubic yard. One use of the Chetco cubic yard measurement is directly associated with the DSL/Freeman Rock State License which deals with the royalty fee paid to the State of Oregon.

When you recently asked the USGS to clarify the rational for the their conversion factor they stated, "…In the absence of actual measurements, the 2.1 value seems quite reasonable…" I cannot overemphasize the point that aggregate has been annually removed from Freeman Bar for over 40 years and a wealth of information exist. Actual measurements do exist for the Freeman Bar aggregate as outlined below.

The DSL conversion of 2,663 pounds/cubic yard was based on actual state and federal sampling and testing procedures as outlined by ODOT Standard Specifications, CalTrans Standard Specifications, AASHTO[1] and ASTM[2]. The Freeman Bar (Chetco) aggregate samples were collected by an ODOT certified Aggregate Technician and tested in an ODOT Certified Lab. The results have been verified numerous times by the 3rd party annual removal survey preformed by a Stuntzner Engineering (State Licensed Surveyor).

It is very important to have an accurate and consistent cubic yard conversion factor between federal, state, local and industrial organization. I strongly suggest using the most accurate existing Chetco data that is currently being used by other state, local and industrial organizations.

Thanks,

Bill

[1] American Association of State Highway and Transportation Officials (AASHTO): A leading source of technical information on design, construction and maintenance of highways and other transportation facilities, including aviation, highways, public transit, rail, and water. http://www.techstreet.com/info/aashto.tmpl

[2] American Society for Testing and Materials (ASTM): An international standards organization <http://en.wikipedia.org/wiki/Standards_organization> that develops and publishes voluntary consensus technical standards <http://en.wikipedia.org/wiki/Standard> for a wide range of materials, products, systems, and services. http://en.wikipedia.org/wiki/ASTM_International

Linton, Judy L NWP

From: Linton, Judy L NWP
Sent: Wednesday, June 30, 2010 3:17 PM
To: 'Bill Ryan'; 'Bob Bailey'; 'David Pratt'; 'Jay Charland'; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; Moynahan, Kevin NWP; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Robert Elayer'; 'Sally Puent'; 'Ted Freeman'
Cc: Linton, Judy L NWP; 'METZ Eric'; Zinszer, Shawn H NWP
Subject: Chetco River Gravel RGP/GP issues for resolution

This message is sent on behalf of the USACE (Kevin Moynahan) and DSL (Bill Ryan)

To members of the Regional Gravel Initiative Exec Team:

Several issues have come up since our last Exec Team meeting requiring interpretation/consideration. USACE and DSL do not believe these are substantive issues that require redirection of current efforts leading towards finalizing the federal and state permit actions. USACE and DSL request you provide any comments back on the following issues to Bill Ryan (copy also Eric Metz) and myself (copy also Judy Linton and Shawn Zinszer) by COB 06 July.

The three issues are listed below.

1. USACE/DSL recommend the gravel year sediment budget and the 26,000 c/y reserve for 2009 be included with the 2010 gravel year results and reserve in determining how much aggregate may be available for removal under the federal and state authorizations for the Chetco for the 2010 in-water work season.

Based on the USGS report on the gravel years (April 1 - March 31) for 2009/2010 the results look like this: Gravel Year April 1, 2008-March 31,

2009: Parker equation = 52,900 cubic yards; Gravel Year April 1, 2009-March 31, 2010: Parker equation = 27,900 cubic yards = a total of 80,800 c/ys.

The reserve for the 2 years would equal 52,000 c/ys leaving an exceedance of 28,000 c/ys over the reserve. Pursuant to the 80% limitation, this would result in a total of 23,040 c/ys being available for this season under appropriate limitations as set forth in the proposed permits.

The rationale for this is the agencies committed to making permit decisions in time for the 2009 in-water work season last year and missed that schedule by a year. Further, including the 2009 gravel year results with 2010 and adding the reserve amount from 2009 to the 2010 reserve, along with the limitation of 80% applied to that amount, should ensure that reserve concerns are addressed and the appropriate amounts of material remain in the system even after combining the two years. This is in accord with the structure set forth in the proposed federal and state permit actions.

2. USACE/DSL recommend that if, in any given year under the permit where the reserve is exceeded, the operators choose not to remove material over the reserve that may be available, that amount may be carried over into the next year. In this case the reserve from that year will be added to the total for the next year (26,000 + 26,000 = 52,000 c/y reserve for the following year) that will apply before any material is available for extraction - subject again to the 80% limitation.

The rationale for this is the reserve may be exceeded in any given year in an amount the operators determine is not economically feasible to remove. They could bank this amount for the next removal year while providing a rest year for the system.

3. USACE/DSL recommend that, if any given year under the permit where the reserve is exceeded and some extraction occurs, the operators may not carry over any authorized amounts they do not pull from the system in that year into a future extraction year.

The rationale for this is that if the operators utilize the opportunity to take material in that year they should take what they are allowed and able to sell or stockpile. The intent behind number 2 above is to incent gravel extraction companies to allow rest years when recruitment above the reserve volume has been modest and therefore extraction might not be economically desirable. Calculating the amount available for extraction in a given year would be a simple and straight forward exercise - adding the calculated available volumes from each year. However, allowing carry over from years in which extraction did occur would not provide incentive for rest years. It would also require creation and upkeep of a ledger for each site i.e. amount available for extraction, amount actually extracted, and amount available to carry over. This is an undesirable administrative burden.

Kevin P. Moynahan

Chief, Regulatory

NWP-RDP

Kevin.Moynahan@usace.army.mil

Bill Ryan

Assistant Director

Wetlands and Waterway Conservation Division, DSL

503-986-5259

Linton, Judy L NWP

From: Szerlog.Michael@epamail.epa.gov
Sent: Thursday, July 01, 2010 2:42 PM
To: Bill Ryan; Moynahan, Kevin NWP
Cc: METZ Eric; Linton, Judy L NWP; Zinszer, Shawn H NWP; Vallette.Yvonne@epamail.epa.gov
Subject: Re: Chetco River Gravel RGP/GP issues for resolution

Kevin and Bill,

I appreciate the opportunity to weigh in on these issues. I know that I have not been able to be as involved with this process as I would have liked, but Yvonne Vallette has been actively involved in the Technical Team and has done a great job keeping me informed of the progress to date. Please find EPA's responses to the issues below.

Thanks

Michael J. Szerlog, Manager
Aquatic Resources Unit
Ecosystems, Tribal, and Public Affairs Office United States Environmental Protection Agency
1200 Sixth Avenue, Suite 900, Mailstop ETPA-083 Seattle, Washington 98101
(206) 553-0279

From: "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>

To: "Bill Ryan" <bill.ryan@dsl.state.or.us>, "Bob Bailey" <bob.bailey@state.or.us>, "David Pratt" <PrattD@co.curry.or.us>, "Jay Charland" <jay.charland@state.or.us>, "Joe Zisa" <Joe_Zisa@fws.gov>, "Jon Germond" <Jon.P.Germond@state.or.us>, "Joy Smith" <Joy@UmpquaSand.com>, "Ken Phippen" <ken.phippen@noaa.gov>, "Moynahan, Kevin NWP" <Kevin.Moynahan@usace.army.mil>, "Kim Kratz" <kim.kratz@noaa.gov>, Michael Szerlog/R10/USEPA/US@EPA, "Monty Knudsen" <Monty_Knudsen@fws.gov>, "Rich Angstrom" <rich@ocapa.net>, "Robert Elayer" <relayer@twcontractors.com>, "Sally Puent" <Puent.sally@deq.state.or.us>, "Ted Freeman" <tedf@hughes.net>

Cc: "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>, "METZ Eric" <eric.metz@state.or.us>, "Zinszer, Shawn H NWP" <Shawn.H.Zinszer@usace.army.mil>

Date: 06/30/2010 03:17 PM

Subject: Chetco River Gravel RGP/GP issues for resolution

This message is sent on behalf of the USACE (Kevin Moynahan) and DSL (Bill Ryan)

To members of the Regional Gravel Initiative Exec Team:

Several issues have come up since our last Exec Team meeting requiring interpretation/consideration. USACE and DSL do not believe these are substantive issues that require redirection of current efforts leading towards finalizing the federal and state permit actions. USACE and DSL request you provide any comments back on the following issues to Bill Ryan (copy also Eric Metz) and myself (copy also Judy Linton and Shawn Zinszer) by COB 06 July.

The three issues are listed below.

1. USACE/DSL recommend the gravel year sediment budget and the 26,000 c/y reserve for 2009 be included with the 2010 gravel year results and reserve in determining how much aggregate may be available for removal under the federal and state authorizations for the Chetco for the 2010 in-water work season.

Based on the USGS report on the gravel years (April 1 - March 31) for 2009/2010 the results look like this: Gravel Year April 1, 2008-March 31,

2009: Parker equation = 52,900 cubic yards; Gravel Year April 1, 2009-March 31, 2010: Parker equation = 27,900 cubic yards = a total of 80,800 c/ys.

The reserve for the 2 years would equal 52,000 c/ys leaving an exceedance of 28,000 c/ys over the reserve. Pursuant to the 80% limitation, this would result in a total of 23,040 c/ys being available for this season under appropriate limitations as set forth in the proposed permits.

The rationale for this is the agencies committed to making permit decisions in time for the 2009 in-water work season last year and missed that schedule by a year. Further, including the 2009 gravel year results with 2010 and adding the reserve amount from 2009 to the 2010 reserve, along with the limitation of 80% applied to that amount, should ensure that reserve concerns are addressed and the appropriate amounts of material remain in the system even after combining the two years.
This is in accord with the structure set forth in the proposed federal and state permit actions.

EPA understands this is a clarification of the water year for which gravel extraction amounts would be calculated. We realize this is a change from the latest RPG public notice, however, we feel the rationale for the adjustment is adequate and represents a common sense approach since the industry did not remove material last year and there should be an excess recruitment of gravel that has occurred with this "resting" period. Therefore, EPA concurs.

2. USACE/DSL recommend that if, in any given year under the permit where the reserve is exceeded, the operators choose not to remove material over the reserve that may be available, that amount may be carried over into the next year. In this case the reserve from that year will be added to the total for the next year (26,000 + 26,000 = 52,000 c/y reserve for the following year) that will apply before any material is available for extraction - subject again to the 80% limitation.

The rationale for this is the reserve may be exceeded in any given year in an amount the operators determine is not economically feasible to remove. They could bank this amount for the next removal year while providing a rest year for the system.

EPA concurs with this rationale and with the 80% limitation given the annual monitoring and adaptive management approaches that the RPG proposes. EPA feels this should give us some

good information to make better decisions in the 5 years of operations that this permit will be covering.

3. USACE/DSL recommend that, if any given year under the permit where the reserve is exceeded and some extraction occurs, the operators may not carry over any authorized amounts they do not pull from the system in that year into a future extraction year.

The rationale for this is that if the operators utilize the opportunity to take material in that year they should take what they are allowed and able to sell or stockpile. The intent behind number 2 above is to incent gravel extraction companies to allow rest years when recruitment above the reserve volume has been modest and therefore extraction might not be economically desirable. Calculating the amount available for extraction in a given year would be a simple and straight forward exercise - adding the calculated available volumes from each year.
However, allowing carry over from years in which extraction did occur would not provide incentive for rest years. It would also require creation and upkeep of a ledger for each site i.e. amount available for extraction, amount actually extracted, and amount available to carry
over. This is an undesirable administrative burden.

EPA concurs with this rationale.

Kevin P. Moynahan
Chief, Regulatory
NWP-RDP
Conservation Division, DSL
Kevin.Moynahan@usace.army.mil
503-808-4370 - office
503-260-5001 - cell

Bill Ryan
Assistant Director
Wetlands and Waterway

503-986-5259
541-261-0336 cell

Linton, Judy L NWP

From: Robert Elayer [relayer@twcontractors.com]
Sent: Tuesday, July 06, 2010 11:50 AM
To: Linton, Judy L NWP; 'Bill Ryan'; 'Bob Bailey'; 'David Pratt'; 'Jay Charland'; 'Joe Zisa'; 'Jon Germond'; 'Joy Smith'; 'Ken Phippen'; Moynahan, Kevin NWP; 'Kim Kratz'; 'Michael Szerlog'; 'Monty Knudsen'; 'Rich Angstrom'; 'Sally Puent'; 'Ted Freeman'
Cc: 'METZ Eric'; Zinszer, Shawn H NWP
Subject: RE: Chetco River Gravel RGP/GP issues for resolution

Here are my comments on the three issues for resolution….

1. I AGREE with this recommendation and feel it is in all fairness to the operators. However, in your example, we need to recalculate the cubic yards available for harvest according to Jay's calculation (Judy's email of July 1) modified by my email of July 1.

2. I AGREE with this recommendation also and think it is a very fair action to take, but do not think that it should be limited to two years only. Especially in South Coast case, their allotment of 6% can be very small each year but accumulated over several year and it would be economically feasible to remove. Also, I do not think we need to treat this carry over with multiple reserve amounts as you illustrated. We need to carry over ONLY the year's allotment, not the Parker Equation results minus 26,000 – 20%. It would be simpler to restrict this calculation to each year and if there is a carry over, carry only the allotment. After all, the 26,000 number and the 20% for "habitat improvement" numbers may change with time.

3. I DO NOT AGREE with this recommendation. Since we (Tidewater) have lost our estuary site as a source of gravel, that leaves us with only the 2nd Bridge (aka Fitzhugh Bar) as our only source. This is not a large bar so in some rock-plentiful years Tidewater may not be able to get their allotment through no fault of their own. This would be unfair to Tidewater while it would probably not affect Freeman at all with their large bar area. For example, if this year we are able to combine last year's allotment with this year's, we would be able to take 20,743 cubic yards as calculated in my email of July 1. We are restricted by County permit from taking more than 20,000 cy, but more importantly, with the agency imposed restrictions and safety considerations for the downstream bridge, we can only take about 11,000 cy (based on 2008 extraction records). So, this restriction would create a situation that is totally unfair to Tidewater.

Robert Elayer

Tidewater Contractors, Inc.

From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: June 30, 2010 3:17 PM

Linton, Judy L NWP

From: Kim Kratz [Kim.Kratz@noaa.gov]
Sent: Tuesday, July 06, 2010 4:50 PM
To: Moynahan, Kevin NWP; bill.ryan@dsl.state.or.us
Cc: Linton, Judy L NWP; Zinszer, Shawn H NWP
Subject: Re: Chetco River Gravel RGP/GP issues for resolution

Kevin, Bill,
We appreciate the opportunity to comment on the Corp's proposed revision to the proposed Chetco River Gravel action that was submitted to us in your biological assessment (BA), dated June 2, 2010. As you know, we are working to fulfill our commitment to expedite completion of our Biological Opinion (BO) in order to permit industry to extract aggregate during this year. You have proposed three revisions to the action transmitted in your BA. These revisions caught us by surprise. To our knowledge, none of these were raised as part of any earlier discussion with the Gravel Execs group or Gravel Technical group, or included as part of any previous public comment. Given the short review and comment period provided to us, we can only make general comments.

On the whole, these changes to the proposed action already under consultation are not insignificant, constitute a substantial change in the proposed action already under consultation, and if incorporated, would result in significant delays in the completion of the BO and may result in greater adverse effects of this action. Revisions #2 and #3 concern industry's flexibility in "storing" surplus material in any given year for extraction in future years. This may be feasible with appropriate sidebars which preserve the maintenance recruitment in any given year. However, those sideboards are not identified in your email and would need to be clearly articulated and distributed for review and approval. Development of and agreement with those sideboards could require significant involvement by biologists currently completing the BO, which would result in commensurate delays in its completion. Revision #1, including FY2009 recruitment into the FY2010 season for removal, is problematic for two reasons. First, since we are currently drafting the BO, we have not had time for adequate internal discussions to consider how this modification of the action would impact our analysis and conclusions regarding the effects of the new action on the Chetco. Consequently, we are not comfortable agreeing to a modification that we have not yet been able to analyze. I am wary of asking our consultation biologists to stop work on the BO to evaluate the effects of these revisions, since that would further delay its completion. Second, this modification represents a potentially significant change to the proposed action. Incorporation of this change would require substantial revision and redrafting of our developing BO. We have already committed to an accelerated completion of this BO so that industry could operate this year. Changing the action at this date, with a change of this significance, will result in significant delays in completing the BO and is likely to ensure that extraction will not occur this year.

NMFS remains committed to complete our consultation on the action agreed to by the Regional Gravel Initiative Exec Team, as described in your June 2, 2010 BA, in time to permit aggregate extraction this year.

I am available to talk further if needed.
Thanks,
Kim

Linton, Judy L NWP wrote:

This message is sent on behalf of the USACE (Kevin Moynahan) and DSL (Bill Ryan)

Linton, Judy L NWP

From: Chris Lidstone [CDL@lidstone.com]
Sent: Tuesday, July 06, 2010 11:50 PM
To: Moynahan, Kevin NWP; bill.ryan@state.or.us; Linton, Judy L NWP
Cc: eric.metz@state.or.us; carolinelobdell@gmail.com; rich@ocapa.net; joy@umpquasand.com; karmen.fore@mail.house.gov; jeanne_atkins@merkley.senate.gov; Molly_McCarthy@wyden.senate.gov; rep.waynekrieger@state.or.us; robert.lobdell@dsl.state.or.us; Todd.A.Confer@state.or.us; prattd@co.curry.or.us; Jay.Charland@state.or.us; Bill Yocum
Subject: RE: Chetco River Gravel RGP/GP issues for resolution

Judy and Kevin:

I apologize but I have been on vacation the last ten days and am on the road this week.

1. There certainly appears to be confusion on the 26,000 CY per year and I suspect that this confusion stems from the arbitrary selection of this figure. Obviously our research over the next five year period must be directed at resolving and/or discretizing this numeric. Based on our earlier discussions, it is my understanding that the 26KCY is a volume factor of material which must be left in the system to support bar maintenance. In the case where no mining occurred at all, it seems that the bars were fully maintained that year. Once that year is passed, the ecological function of that reserve volume has also passed. Based on my understanding of the purpose of the reserve volume, it is not an accrual factor, but rather a balance volume (reserve volume) for years where material is extracted from the system.

2. Addressed under my comments for #1.

3. Again, I don't think the concept of the value of rest years along the Chetco is scientifically established and the COE/DSL statement #3 presupposes that this is the case. From a geomorphic position and given the active aggradation on the bars along the Chetco, I think this is something which needs to be addressed. I also question if we should make these decisions on the basis of administrative burdens any more than we are making these decisions based on market economics.

My conclusions are make the process simple these first five years and allow the process to generate good scientific data. By the end of this five year period, I hope we have data to support or modify the 26,000 CY reserve volume, the ecological value, if any, of rest periods and the need for any other factors that suggest additional or less controls on the removal process. Again I caution us all to not make decisions or dictate protocol based on some perceived notions.

Christopher D. Lidstone

President, Lidstone and Associates, Inc.

Linton, Judy L NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Tuesday, July 06, 2010 3:51 PM
To: Moynahan, Kevin NWP; bill.ryan@state.or.us
Cc: Linton, Judy L NWP; eric.metz@state.or.us; carolinelobdell@gmail.com; cdl@lidstone.com; rich@ocapa.net; joy@umpquasand.com; karmen.fore@mail.house.gov; jeanne_atkins@merkley.senate.gov; Molly_McCarthy@wyden.senate.gov; rep.waynekrieger@state.or.us; robert.lobdell@dsl.state.or.us; Todd.A.Confer@state.or.us; prattd@co.curry.or.us; Jay.Charland@state.or.us
Subject: FW: Chetco River Gravel RGP/GP issues for resolution

Dear Kevin Moynahan, Regulatory Chief for the USACE and Bill Ryan, Assistant Director for DSL,

Follow are the comments from Freeman Rock on the June 30, 2010 email from Judy Linton (USACE) titled "Chetco River Gravel RGP/GP issues for resolution".

1. Freeman Rock does not agree with the 26,000 cy annual reserve and the 80% limitation unless it is based on a rational connection to the best available Chetco science (2009 USGS Chetco Report). Freeman also believes that the reserve volumes would increase the risk of downstream flooding while affecting the social/economic impacts to the southern Oregon and northern California coastal communities.
2. and 3. Freeman Rock supports all decisions that are based on the best available science and the public interest.

Freeman Rock understands that the reserve volumes are for maintenance and improvement of biological habitat associated with gravel bars and the Chetco River channel. Aggregate removal from Freeman Bar is just above Social Security Bar which is the last bar not to have a tidal influence from the Pacific Ocean. Freeman Rock believes that past and future removals have a "no affect" to non-tidal Chetco gravel bars except for Social Security and Freeman Bar which both are massive in size and elevation. The past and present use of Social Security Bar is for private and commercial recreation where Freeman Bar has been used as a commercial aggregate source. Freeman Rock has not seen any agency mention, analysis or documentation to the massive Joe Hall Creek Slide that inputted thousands of cubic yards of aggregate material to the tidally influenced Chetco system.

Freeman Rock supports your efforts in finalizing the federal and state permit actions. Thank you for the opportunity to comment and your interest in the management of the Chetco River system.

Ted Freeman Jr. and Bill Yocum

Freeman Rock Inc.

541-469-2444

Linton, Judy L NWP

From: PUENT Sally [PUENT.Sally@deq.state.or.us]
Sent: Wednesday, July 07, 2010 3:58 PM
To: bill.ryan@dsl.state.or.us; Moynahan, Kevin NWP
Cc: Zinszer, Shawn H NWP; Linton, Judy L NWP; METZ Eric; PUENT Sally
Subject: RE: Chetco River Gravel RGP/GP issues for resolution

Hi Judy: Thanks for discussing this with me by phone yesterday:

Here are DEQ's comments for the three issues you raise:

Issue #1)–Including the gravel year 2009 in the Regional General Permit /General Permit was never discussed during the gravel executive and technical team meetings. USACE's public notice and biological assessment for the regional general permit clearly state that the permit covers 2010 - 2015. DEQ has diligently been working on its 401 certification analysis per our rules to meet the industry's desire to operate in the 2010 in-water work period, but has not considered this additional information in its review of water quality standards compliance (OAR 340-048-0042). We will have to go back and reanalyze water quality standards compliance considering this new information. This will take more time and may result in delays for mining operations.

DEQ's public notice and comment period relates to the June 7, 2010 USACE joint public notice which states that the permit covers 2010 through 2015. This is a change in the project and would require DEQ to renotice the certification action under OAR 340-048-0027. This also would likely cause a delay for this year's mining work. We have received a number of public comments during the joint public notice which closes today.

Including the 2009 gravel year under this proposed RGP also raises some questions for us.

- Does this change the permit coverage from 2009 to 2014?

- How does this affect the multi-year evaluation? Does this move up the evaluation components; LIDAR, bar analysis, etc.; one year?

- DEQ is also concerned that by making this RGP retroactive by one year that we are potentially setting a precedent for other river systems that will be considered for RGPs under this process. For example, if gravel years prior to permit issuance are productive, will they also be included in future RGPs for the other river systems that are proposed for this process?

Issue #2)–This is DEQ's understanding as well-- that whenever removal does not take place it could be added to the subsequent year, as long as the reserve volume and % limit restrictions apply.

Issue #3) -This seems reasonable.

Please let me know if you would like to discuss this further. Thank you. Sally

From: Linton, Judy L NWP [mailto:Judy.L.Linton@usace.army.mil]
Sent: Wednesday, June 30, 2010 3:17 PM
To: Bill Ryan; BAILEY Bob; David Pratt; CHARLAND Jay; Joe Zisa; GERMOND Jon P; Joy Smith; Ken Phippen; Moynahan, Kevin NWP; Kim Kratz; Michael Szerlog; Monty Knudsen; Rich Angstrom; Robert Elayer; PUENT Sally; Ted Freeman
Cc: Linton, Judy L NWP; METZ Eric; Zinszer, Shawn H NWP
Subject: Chetco River Gravel RGP/GP issues for resolution

This message is sent on behalf of the USACE (Kevin Moynahan) and DSL (Bill Ryan)

To members of the Regional Gravel Initiative Exec Team:

Several issues have come up since our last Exec Team meeting requiring interpretation/consideration. USACE and DSL do not believe these are substantive issues that require redirection of current efforts leading towards finalizing the federal and state permit actions. USACE and DSL request you provide any comments back on the following issues to Bill Ryan (copy also Eric Metz) and myself (copy also Judy Linton and Shawn Zinszer) by COB 06 July.

The three issues are listed below.

1. USACE/DSL recommend the gravel year sediment budget and the 26,000 c/y reserve for 2009 be included with the 2010 gravel year results and reserve in determining how much aggregate may be available for removal under the federal and state authorizations for the Chetco for the 2010 in-water work season.

Based on the USGS report on the gravel years (April 1 - March 31) for 2009/2010 the results look like this: Gravel Year April 1, 2008-March 31,

2009: Parker equation = 52,900 cubic yards; Gravel Year April 1, 2009-March 31, 2010: Parker equation = 27,900 cubic yards = a total of 80,800 c/ys.

Linton, Judy L NWP

From: Janine_M_Castro@fws.gov
Sent: Thursday, July 08, 2010 11:12 AM
To: Linton, Judy L NWP
Cc: Bob Lobdell; Chuck Wheeler; METZ Eric; Charland, Jay; Linton, Judy L NWP; Alex Liverman; Patty Snow; Todd Confer; Yvonne Vallette
Subject: Re: Bar retention strategy - adaptive management

Hi Judy et al.,

I will discuss the various bar form retention strategies with Brian Cluer in the near future. The bar form retention method was not developed just for mid-channel bars, but there should probably be more discussion about other bar forms, such as lateral and transverse bars. And I completely agree that these are the exact types of issues that should be addressed by the adaptive management team.

Thanks,
Janine

Janine M. Castro, PhD, RG
Geomorphologist

If you dam the river it stagnates.
Running water is beautiful.
So be a channel.
D.H. Lawrence

US Fish and Wildlife Service
2600 SE 98th Ave., Suite 100
Portland, OR 97266
503.231.6179

"Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>

06/25/2010 01:46 PM To
"Alex Liverman" <liverman.alex@deq.state.or.us>, "Bob Lobdell" <Bob.Lobdell@state.or.us>, "Chuck Wheeler" <Chuck.Wheeler@noaa.gov>, "Linton, Judy L NWP" <Judy.L.Linton@usace.army.mil>, "Todd Confer" <Todd.A.Confer@state.or.us>, "Yvonne Vallette" <Vallette.Yvonne@epa.gov>, "Charland, Jay" <jay.charland@state.or.us>, "Patty Snow" <Patty.Snow@state.or.us>, "Janine Castro" <Janine_M_Castro@fws.gov>, "METZ Eric" <eric.metz@state.or.us> cc Subject Bar retention strategy - adaptive management

Hi, folks: questions and concerns have been floating around for a while regarding the bar form retention method and how the strict adherence to this method may affect the Tidewater upper bar (second bridge) site in particular. Bob Lobdell put together a document that discusses the potential issues associated with this method (attached).

We have talked about the use of the adaptive management process to adjust some of the requirements based on site specific conditions. I want to see if we're all still thinking along those lines and if so find out how that will play out in reality. The Corps/DSL June 2010 notice stated "specific requirements of this method may be modified prior to extraction based on site specific conditions." Do we need to be more specific? How will the BiOp, water quality cert, and coastal concurrence identify the ability to modify project requirements based on adaptive management?

Thanks for your thoughts - Judy[attachment "BarForm Issues_June2010.pdf" deleted by Janine M Castro/OSO/R1/FWS/DOI]

PREPARED BY
BOB LOBDELL
JUNE 2010

Potential issues with the bar retention method "horseshoe method"

Chetco River is extremely flashy, that is the flows come up rapidly and recede rapidly following the ceasing of the rains. The nature of this river acting the way it does matters greatly on how you chose to apply removal strategies. Also, Tidewaters upper operation is in the canyon stretch of this river, it is highly contained as compared to the river reach at either S. Coast Lumber or Freeman's operation near the N. F which have much more open floodplains.

Some risks come up with flashy systems due to the unpredictability of the flows. The duration of the rains may not be very long for any given storm event and generally the longer duration the high water event, the more gravel that gets moved around.

1) Enough flows to backwater the excavation areas but not enough to really fill anything in, or at least not completely which poses a fish entrapment issue due to the design and the location where it is applied.
2) Massive flows come up and stay up for a few days, this is where the river does what it wants to and you just hope you didn't mess with the channel hydraulics too much with the implemented design.

Since the water in the Chetco can rise and fall so quickly, fish entrapment needs to be avoided wherever possible and a consideration of any proposed removal stategy.

Figure 1- illustrates where the horseshoe bar retention should be applied. Brian Cluer-NOAA Fisheries California mentioned during our gravel symposium (2009) that the bar retention technique chosen was not intended for use on lateral bars, it was a mid channel bar (island) design. This method calls for leaving the top 1/3 buffer and lateral buffers along either side channel to maintain bar form.

Now apply something that is designed to retain an island form to a lateral gravel bar and see what happens. Figure 2 is taken from Tidewater Contractors survey taken prior to requesting modification to the permits in 2008. Figure 2 generally shows the bar retention method implemented on Tidewaters upper bar and the anticipated impacts over-winter. Figure 3 shows water elevations shaded on the bar to show how different flows interact with the gravel bar.

Two potential issues exist as pointed out above from implementing the horseshoe method.

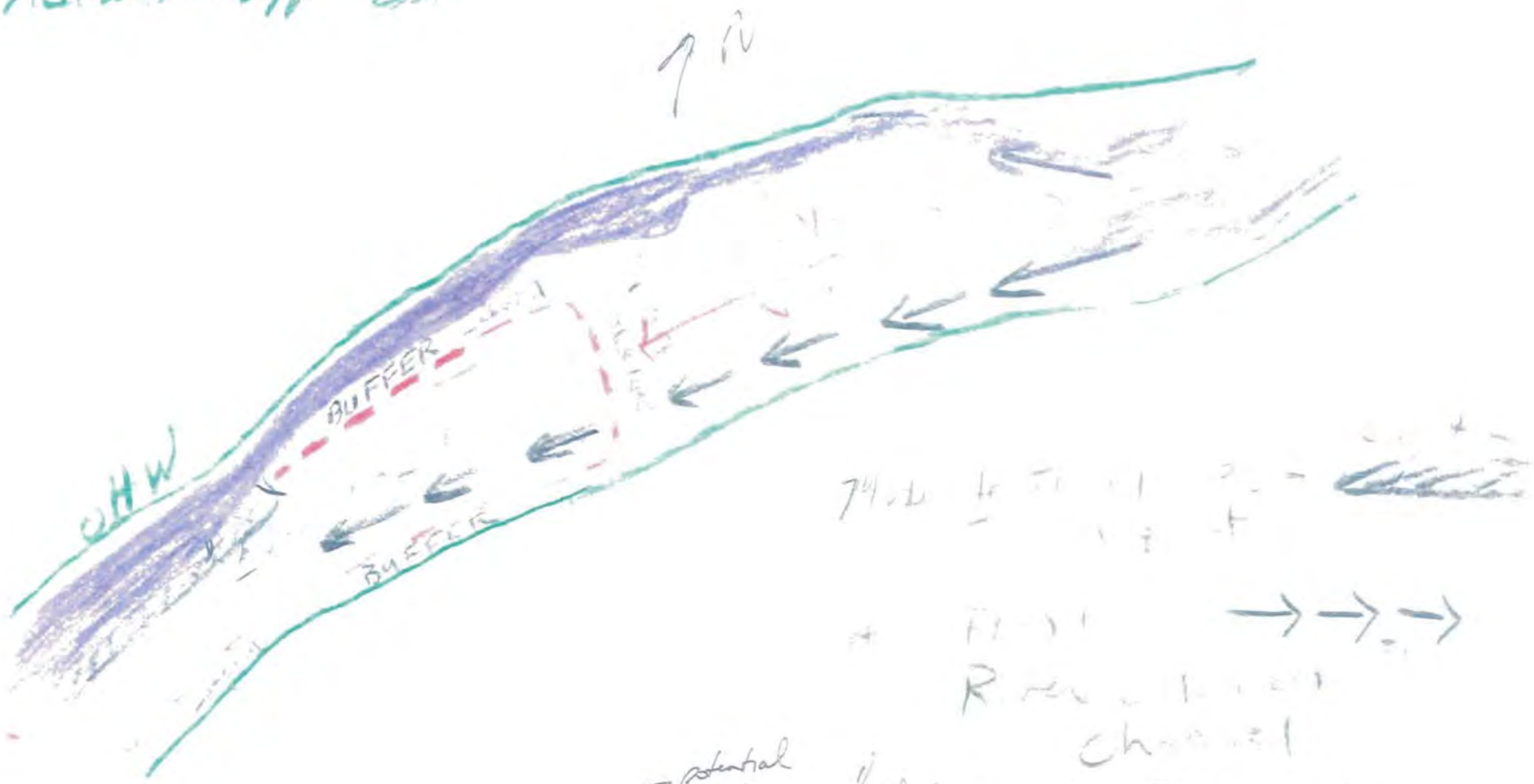
1) Not enough flows for long enough duration to fill in the extraction area. When waters recede, the river loses its energy and will drop its bedload. This is where the fish entrapment potential exists. The river main channel will follow the north bank along the lateral buffer

and stay contained until the river gets below the lateral buffer, the back-eddy effect will take over in the immediate area of the extraction area and start filling in (Figure 4).

2) Multiple high water events are possible on the Chetco. A massive flow that overtops the entire removal area could cause a channel shift or split in this case. Figure 3 illustrates different water levels and how they interact with the bar during high flow periods. The contours are accurate for the map but the flow (cfs) listed in the legend is a gross approximation for example only. The 54 foot contour line provides enough water to backwater the entire excavation area and looking immediately upstream from the top of the extraction area, the water following that contour is also following a secondary high flow channel (Figures 3 and 4). All it takes is a little more flow and then the water can flow over the top into the extraction area. This is where the 6-7 hydraulic drop is a problem. The river can simply head cut a new channel at that point which is what happened.

Figure 5 is a representation of past removal techniques used at Tidewaters upper bar. The top 1/3 was protected, no lateral buffer imposed beyond staying at least 1 foot above low flow channel elevation at the time of operation. The removal area was to be sloped from upstream to downstream and towards the low flow channel. The reason why this was done over a number of years is the site is sloped not to create any hydraulic jumps as we know the water comes up quickly overtopping this bar most every year at least once. Since previous designs had no hydraulic jumps or drops, no head cuts were likely to be focused anywhere. The sloping of the operation allowed these flashy flows to rise and fall with minimal fish entrapment possible due to the sloping of the removal operation without interruption to the low flow channel. If a minimal flow came up, it could recede without stranding fish. If a massive flow comes up, it could overtop like it always does and not erode the bar, it would just flow over the top of it rebuilding it. The majority of the flow and scour potential would be located along the north bank.

Tidewater Upper Bar



2 potential problems – 1) Not enough flows, water directs to the N side and the lateral buffer acts like a dike. This changes river hydraulics in a negative way. Water finds the path of least resistance and will drop bedload material wherever possible. This could block off the extraction area from the low flow channel.

2) Too much flow, water has incredible energy. This extraction method [illegible]

Figure 2

Not to Scale
MINNESOTA
OHIO

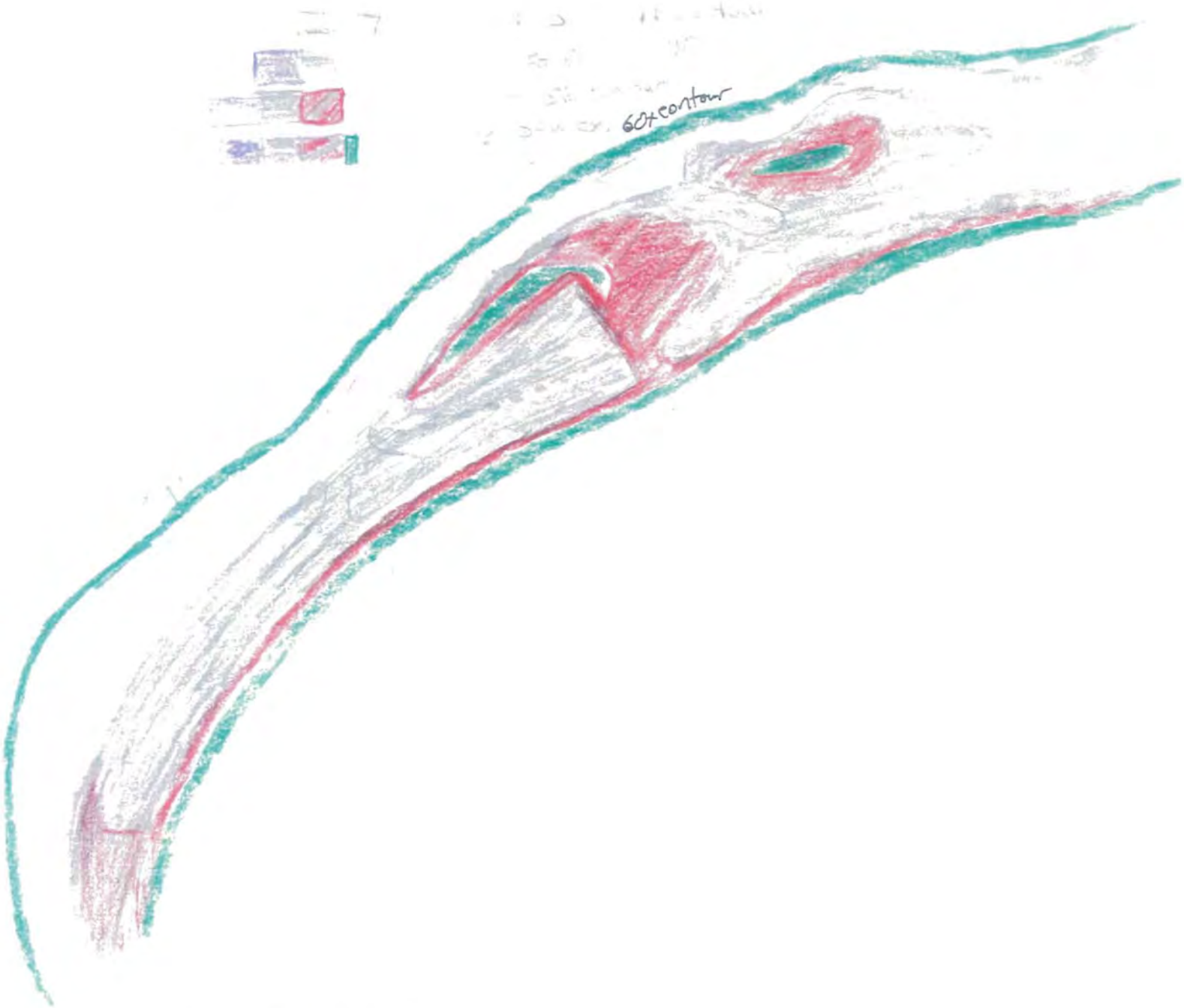


Figure 3

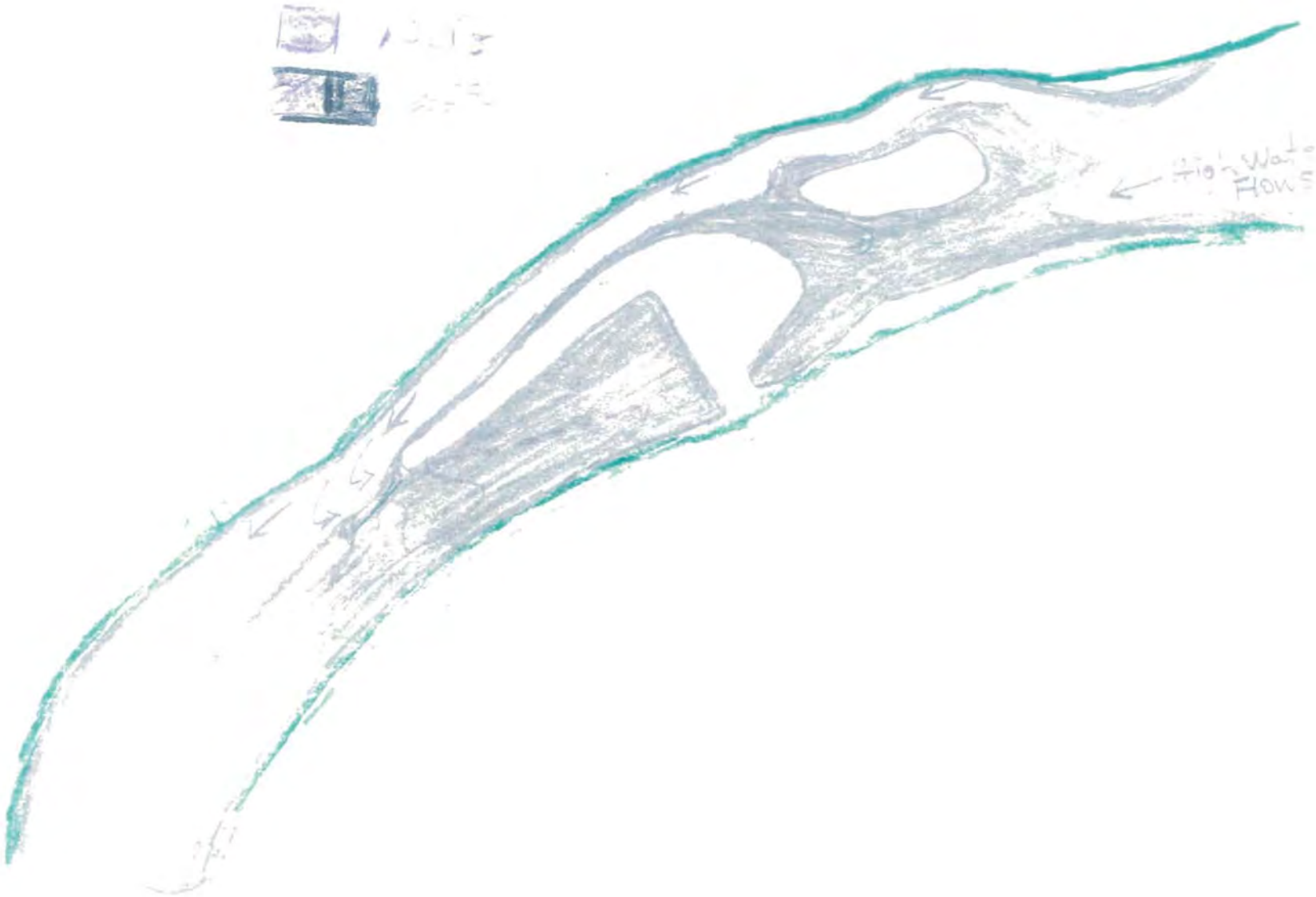


Figure 4

High water flows — hydrolic drop into removal area is minimal.

Typical Removal Plan — prior to 2008.

~~no potential~~ little potential for fisheritrapment as water can rise & fall & fish escape due to sloping of excavation area towards the low flow channel.

Figure 5

Linton, Judy L NWP

From: Bill Yocum [byocum@hughes.net]
Sent: Wednesday, July 14, 2010 8:23 AM
To: Linton, Judy L NWP; Lori.Warner-Dickason@state.or.us
Cc: liverman.alex@deq.state.or.us; Bob.Lobdell@state.or.us; cdl@lidstone.com; Chuck.Wheeler@noaa.gov; Janine_M_Castro@fws.gov; jay.charland@state.or.us; oconnor@usgs.gov; frittsj@co.curry.or.us; kljones@usgs.gov; Patty.Snow@state.or.us; rich@ocapa.net; relayer@twcontractors.com; rosewall@usgs.gov; Todd.A.Confer@state.or.us; Vallette.Yvonne@epa.gov; Moynahan, Kevin NWP; bill.ryan@dsl.state.or.us; prattd@co.curry.or.us; darreln@hughes.net; tedf@hughes.net
Subject: Re: RE: Site Reviews for Chetco River
Attachments: Spring Survey.pdf; Freeman Proposed 2010 Removal Plan.pdf

Categories: Chetco Issues

Hi Judy and Lori,

Freeman Rock information for the July 21st site review includes the attached Survey Topo Map prepared by Stuntzner Engineering and the Proposed Aggregate Removal Plan for Freeman Bar. Has a time been set for the site visit at Freeman Bar? We should probable meet at the Freeman Rock Office prior to going out to the bar.

Bill Yocum
Freeman Rock Inc.
541-661-4577

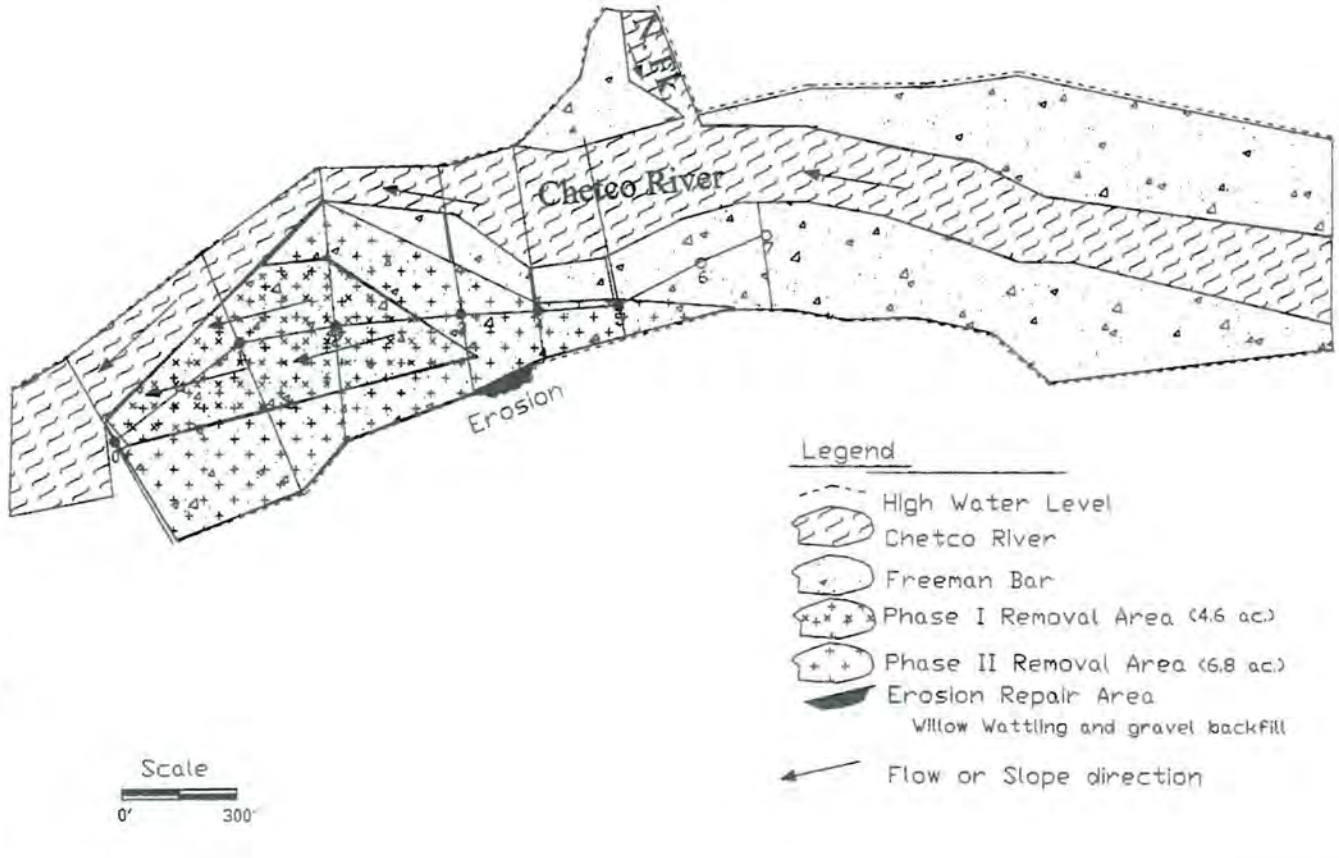
On Jun 14, 2010, Linton, Judy L NWP <Judy.L.Linton@usace.army.mil> wrote:

> Please block out Wednesday July 21 as the date for the pre-excavation site review. We should also plan to talk via conference call a week or two before that date so we can plan a clear itinerary and discuss any issues/questions we need to focus on during the visit. I've attached the email Lori sent a few weeks ago that outlines what we need prior to the visit and decisions/recommendations that need to be made during the site visit. Judy
>
> -----Original Message-----
> From: Linton, Judy L NWP
> Sent: Monday, June 07, 2010 12:16 PM
> To: 'Alex Liverman'; 'Bill Yocum'; 'Bob Lobdell'; 'Chris Lidstone'; 'Chuck Wheeler'; 'Janine Castro'; 'Jay Charland'; 'Jim O'Connor'; 'Jodi Fritts'; Linton, Judy L NWP; 'Krista Jones'; 'Lori Warner-Dickason'; 'Patty Snow'; 'Rich Angstrom'; 'Robert Elayer'; 'Rose Wallick'; 'Todd Confer'; 'Yvonne Vallette'
> Subject: Site Reviews for Chetco River
>
> Folks - we need to schedule time to do the pre-excavation site reviews for the Chetco general permits. Please let me know your availability for the weeks of July 12 and 19. I'm thinking we would focus on Tuesday, Wednesday, or Thursday as the actual evaluation day(s) with the Monday and/or Friday as travel, but let me know if you have other thoughts. Questions or comments? Judy

Freeman Bar
2010 Proposed Aggregate Removal Plan

Section 34&35, T40S, R13W Will.Mer.

Curry County, Oregon



July 2010. WHY

Freeman Rock / Chetco River

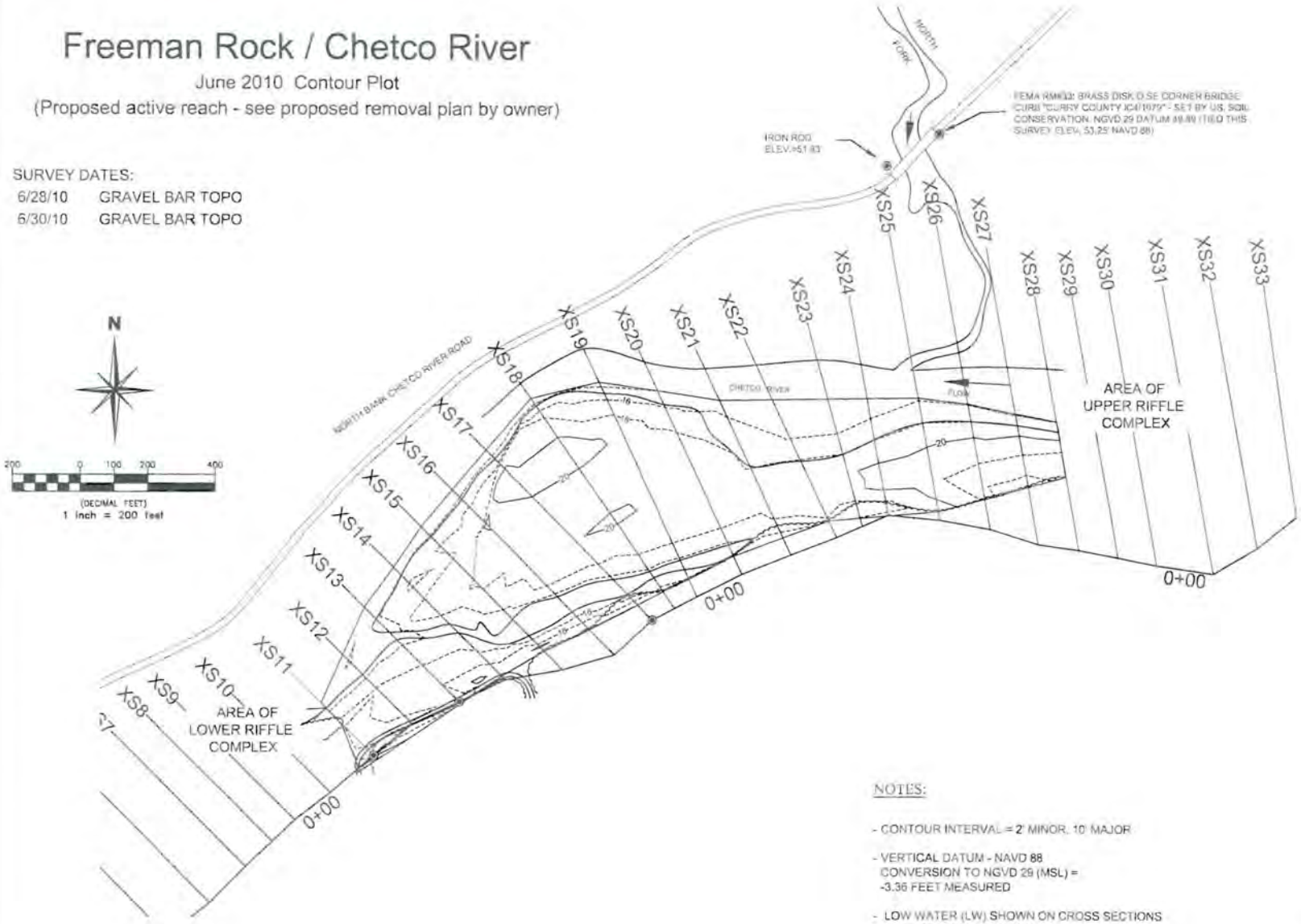
June 2010 Contour Plot

(Proposed active reach - see proposed removal plan by owner)

SURVEY DATES:

6/28/10 GRAVEL BAR TOPO

6/30/10 GRAVEL BAR TOPO



NOTES:

- CONTOUR INTERVAL = 2' MINOR, 10' MAJOR
- VERTICAL DATUM - NAVD 88
  CONVERSION TO NGVD 29 (MSL) =
  -3.36 FEET MEASURED
- LOW WATER (LW) SHOWN ON CROSS SECTIONS ARE BASED ON 2005 SURVEYS.

REGISTERED PROFESSIONAL LAND SURVEYOR

PRELIMINARY

OREGON
JUNE 21, 1995
THOMAS M. HOSHALL
2727

EXPIRES: JUNE 30, 2011

Stuntzner Engineering & Forestry, LLC

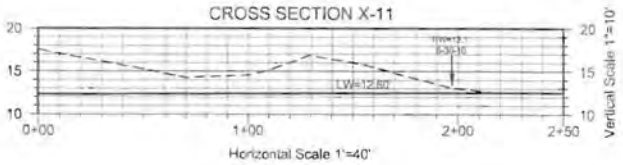
PROJECT NAME: Freeman Rock Chetco River Operation

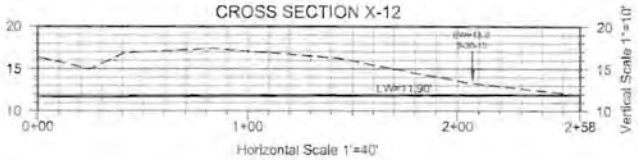
SHEET NAME: PLAN SHEET

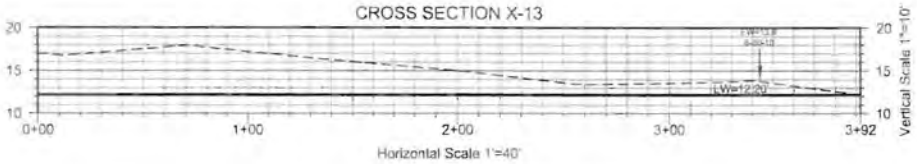
DATE: 6-30-10

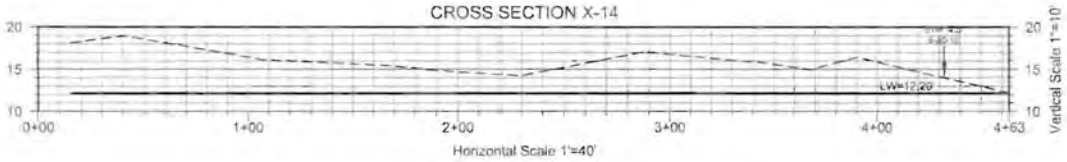
DRAWN BY: A.S.

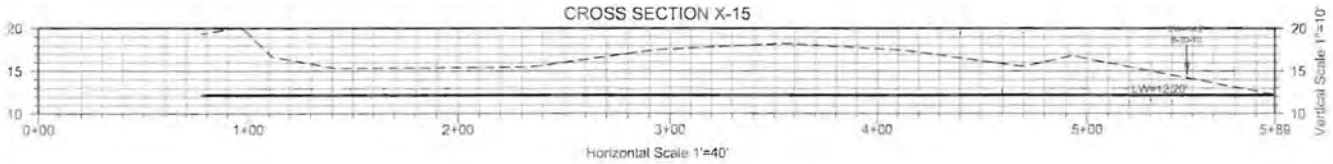
DRAWING: P1

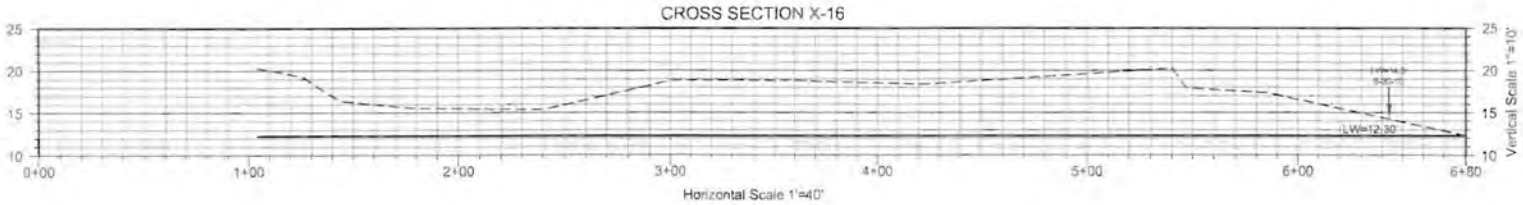












REGISTERED
PROFESSIONAL
LAND SURVEYOR

PRELIMINARY

OREGON
JUNE 31, 1995
THOMAS M. HOSHALL
2727

EXPIRES: JUNE 30, 2011

REV.	DATE	BY	DESCRIPTION
3			
2			
1			

PROJECT NAME: Freeman Rock Chetko River Operation

SHEET NAME: CROSS SECTION X-11 to X-16

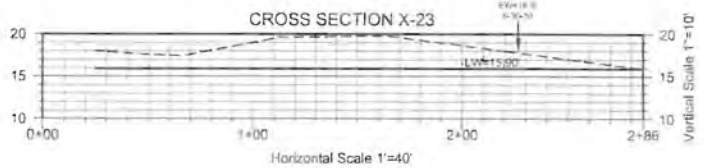
JOB # 2004-18
DATE 06/30/10
DRAWN BY: JB
CHECKED BY: TMH

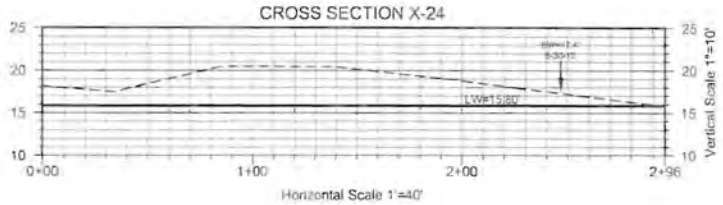
Stuntzner Engineering & Forestry, LLC

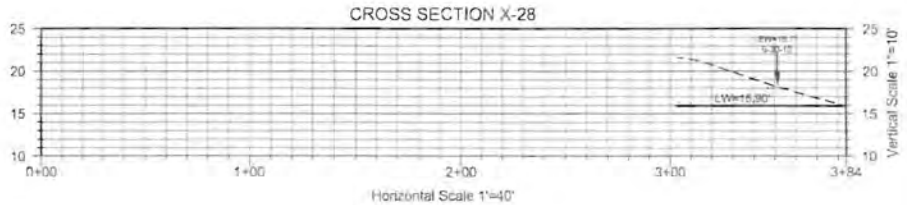
PHONE (541) 884-0024
FAX (541) 884-0088
4055 Aviation Way
Medford, Oregon 97504

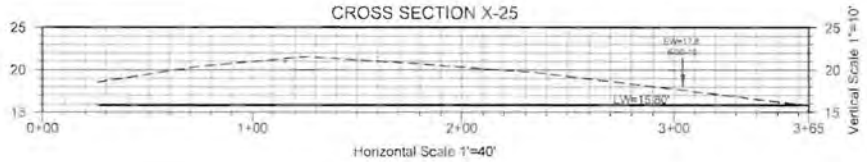
Licensed in Oregon, California, Washington, Idaho, Montana, New Mexico

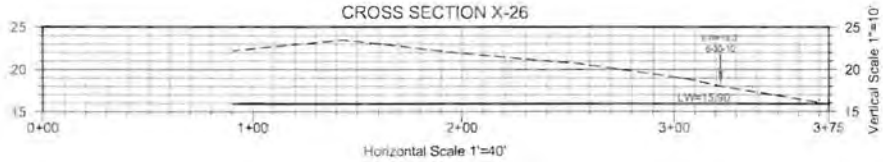
DRAWING
X1
SCALE

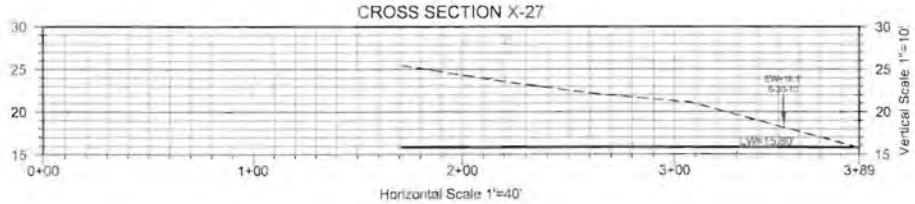












REGISTERED
PROFESSIONAL
LAND SURVEYOR

PRELIMINARY

OREGON
JUNE 31, 1995
THOMAS M. HOSHALL
2727

EXPIRES: JUNE 30, 2011

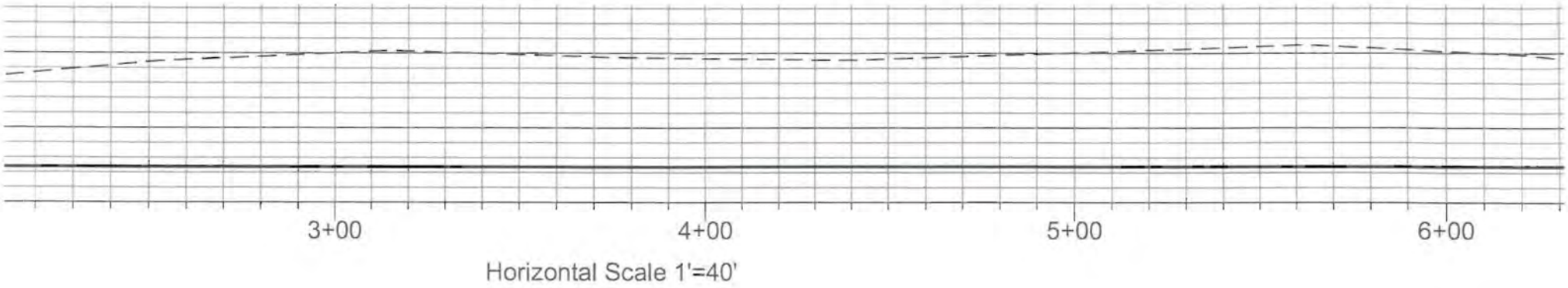
PROJECT NAME: Freeman Rock Chetco River Operation

SHEET NAME: CROSS SECTION X-23 to X-28

Job # 2043-075
DATE 6-6-11
DRAWN BY: JJS

Stuntzner Engineering & Forestry, LLC

DRAWING: X3



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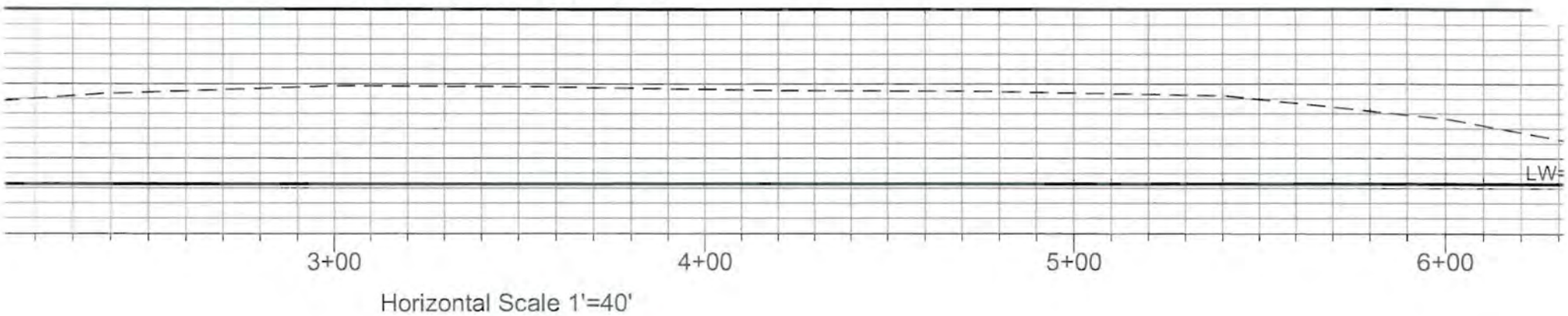
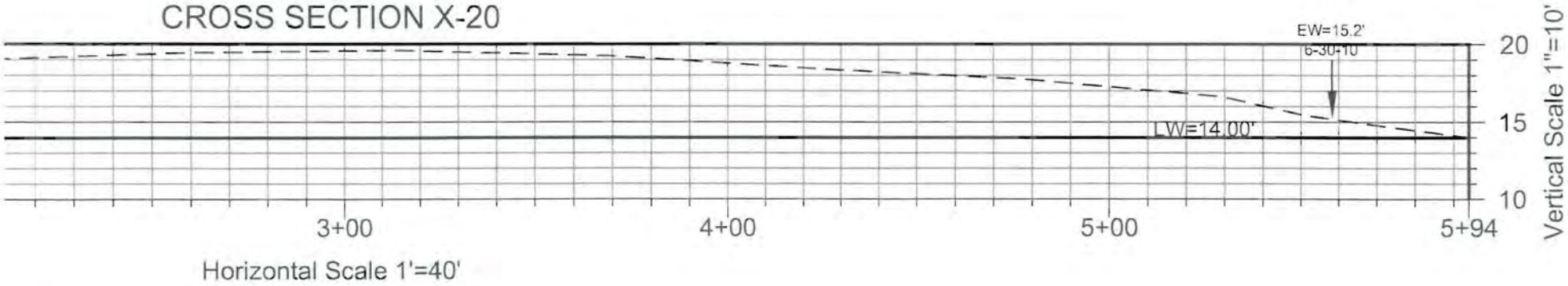
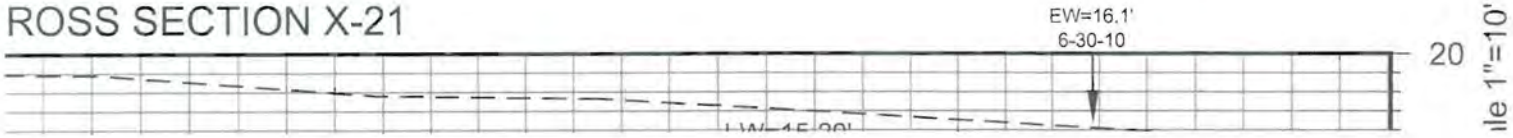


CROSS SECTION X-20



ROSS SECTION X-21