Lower Columbia River Integrated Dredged Material Management Plan and Environmental Impact Statement

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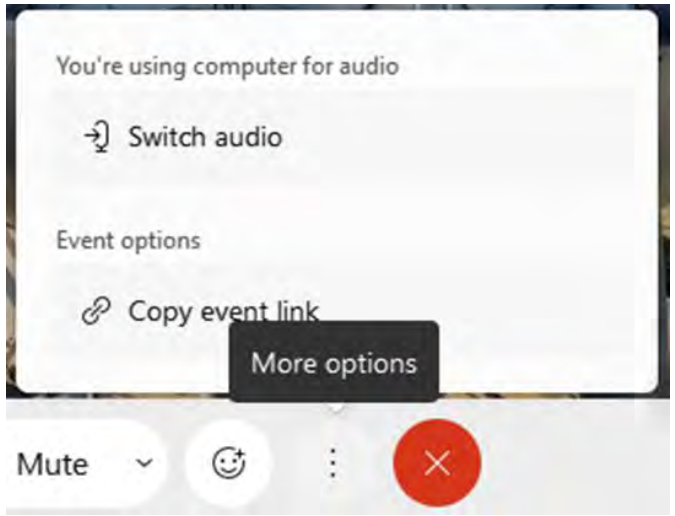
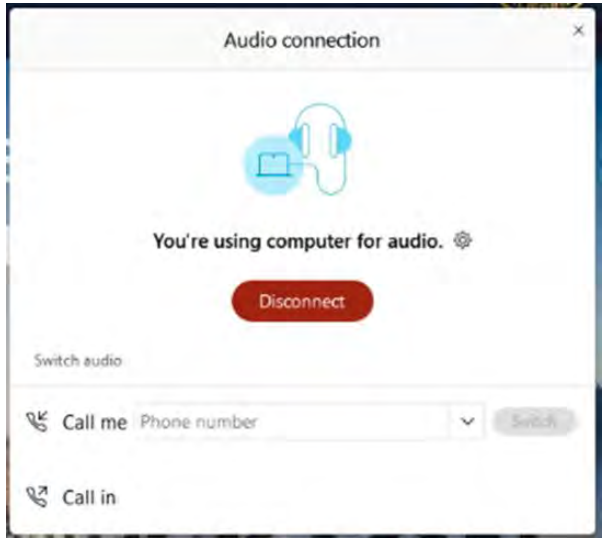
  - Computer audio
  - Phone/have the webinar call you





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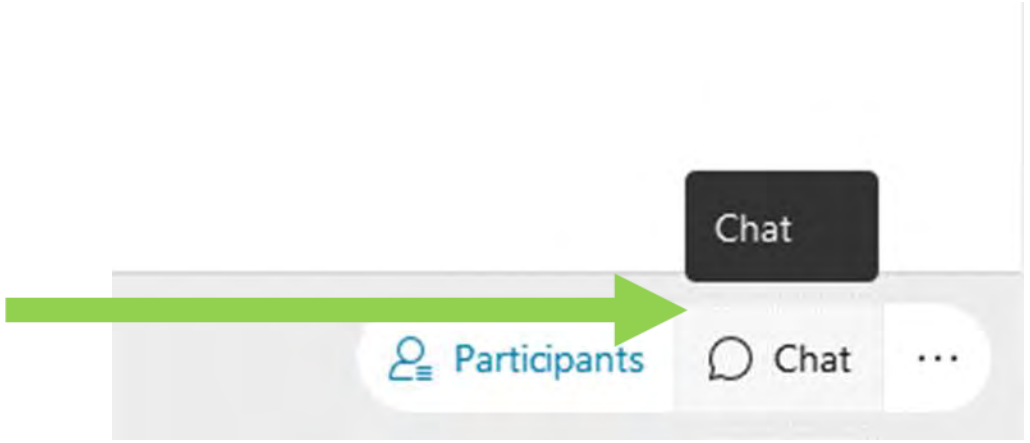
- Use the chat box to request assistance



How to ask questions

- All participants will remain muted.
- Please use the chat box to submit your questions at any time. We will bring them to the attention of the presenter.
- You may also ask questions at the end of the presentation.

This meeting is being recorded

- We will post a video recording of one of the presentations online after the meeting
- All comments in chat will be captured and responses posted by general topic on the Corps website
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Lower Columbia River Integrated Dredged Material Management Plan and Environmental Impact Statement

AGENDA

- Introduction and purpose
- Corps study process
- Background
- Corps planning process
- Channel maintenance process
- Alternatives and plan formulation
- Environmental review process and coordination

Lower Columbia River Integrated Dredged Material Management Plan and Environmental Impact Statement

April Open House

Sarah Knowles
Project Manager
April 2022

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COLUMBIA RIVER PORTS
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PURPOSE OF MEETING

- **Update the public:** Corps' planning process for the Lower Columbia River Integrated Dredged Material Management Plan and Environmental Impact Statement (Report) since November 2017

- **Outline next steps:** Schedule of release of the draft report for public review and comment

- **Provide a facilitated session of questions and feedback**

LEAD AGENCIES

- The U.S. Army Corps of Engineers (Corps) is the lead agency under the National Environmental Policy Act (NEPA).

- The Ports of Longview, Kalama, Woodland, and Vancouver (Washington Ports) along with the Port of Portland in Oregon (collectively, the Sponsor Ports) are cooperating agencies under NEPA.

- In addition, the Washington Ports are co-lead agencies under the State Environmental Policy Act (SEPA) with the Port of Longview serving as the SEPA nominal lead agency.

SPONSOR PORTS

Oregon	Washington
Port of Portland	Port of Longview Port of Kalama Port of Woodland Port of Vancouver

CORPS STUDY PROCESS RE-WORK

Completed	Present	25 Nov 2022 – 19 Jan 2023	Mar 2024
• Notice of Intent 8 Sep – 16 Nov 2017 • Public input received • Data gathering • Environmental coordination began	• Formulate, evaluate alternatives • Draft Report released for public review, comment	• Further refine recommended plan; • Revision to recommended plan and ESA BiOp Requirements • Final Report released	• Report to Northwestern Division for approval • NEPA Record of Decision • Environmental compliance complete • SEPA Adoption

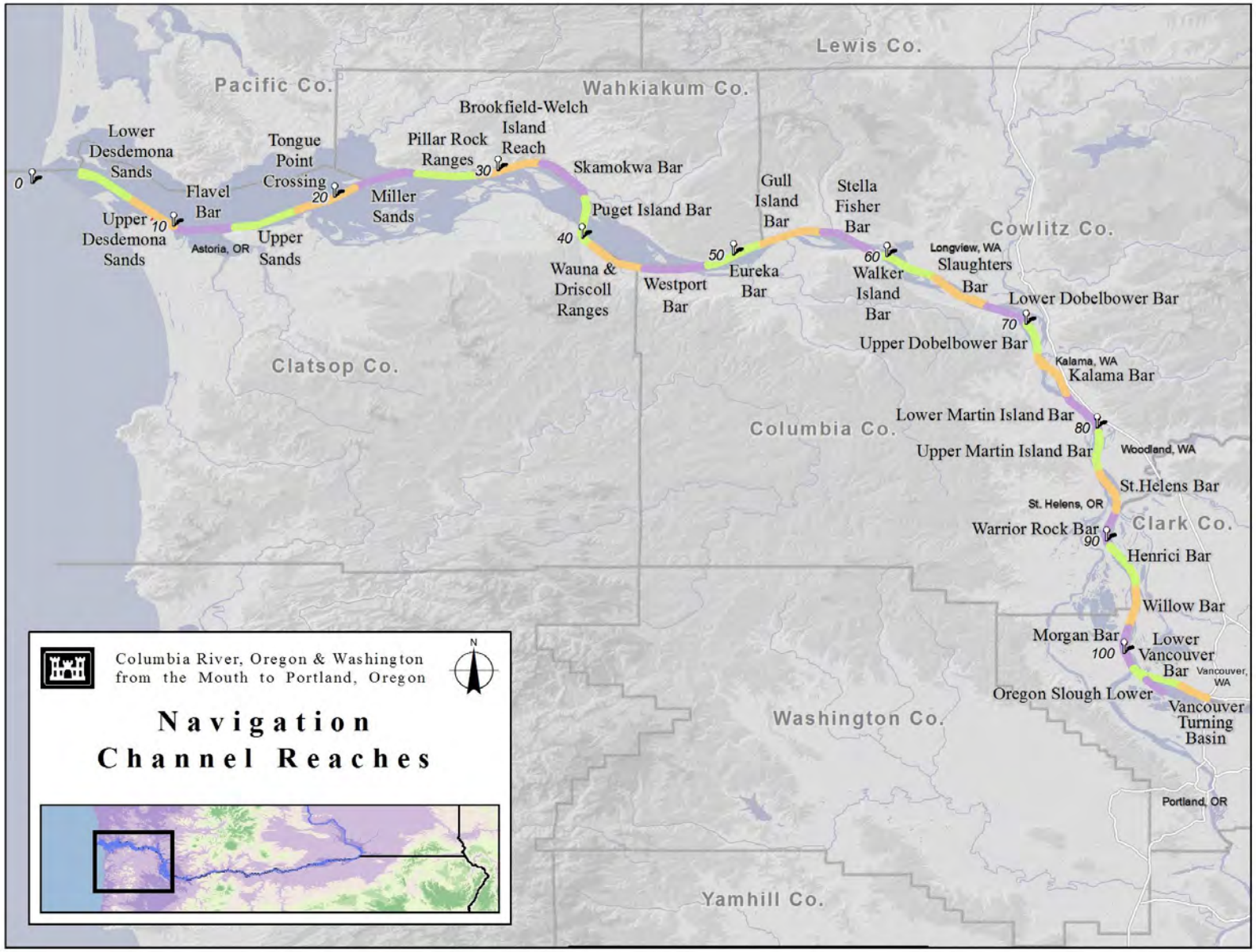
BACKGROUND

PROJECT AUTHORIZATIONS

- 1878: original authorization with a 20-foot minimum depth
- 1899: authorized construction to 25 feet deep
- 1912: authorized construction to 30 feet deep and 300 feet wide
- 1930: authorized construction to 35 feet deep by 500 feet wide
- 1962: authorized construction to 40 feet deep and 600 feet wide, completed in 1976
- 1999: authorized construction to 43 feet deep and 600 feet wide, and ecosystem restoration features

PROJECT AREA – COLUMBIA RIVER ONLY

29 BARS ON THE COLUMBIA RIVER



Reach #	Segment Name
1	Lower Desdemona
	Upper Desdemona
	Flavel Bar
	Upper Sands
2	Tongue Point Crossing
	Miller Sands
	Pillar Rock Ranges
3	Brookfield-Welch
	Skamokawa Bar
	Puget Island
4	Wauna Driscoll
	Westport Bar
	Eureka Bar
5	Gull Island Bar
	Stella-Fisher Bar
	Walker Island Bar
6	Slaughters Bar
	Lower Dobelbower Bar
	Upper Dobelbower Bar
7	Kalama Bar
	Lower Martin Island Bar
	Upper Martin Island Bar
8	St. Helens Bar
	Warrior Rock Bar
	Henrici Bar
9	Willow Bar
	Morgan Bar
	Lower Vancouver Bar**
	Vancouver Turning Basin***

STUDY AUTHORITY

- Basic authority for preparation of a DMMP comes from the USACE authority to maintain the Columbia and Lower Willamette rivers as authorized by: Rivers and Harbors Acts of 1878, 1892, 1902, 1912, 1930, and 1962; Water Resources Development Act of 1999, and Consolidated Appropriations Act of 2004.

- ER1105-2-100 requires DMMPs where there is an indication of insufficient dredged material placement capacity to accommodate maintenance dredging needs for the next 20 years.

CORPS PLANNING PROCESS

PRELIMINARY ASSESSMENT FINDINGS

DECEMBER 2017 POSTED TO CORPS WEBSITE

- Insufficient dredged material management capacity currently exists for the 20-year forecasted due to insufficient remaining capacity.

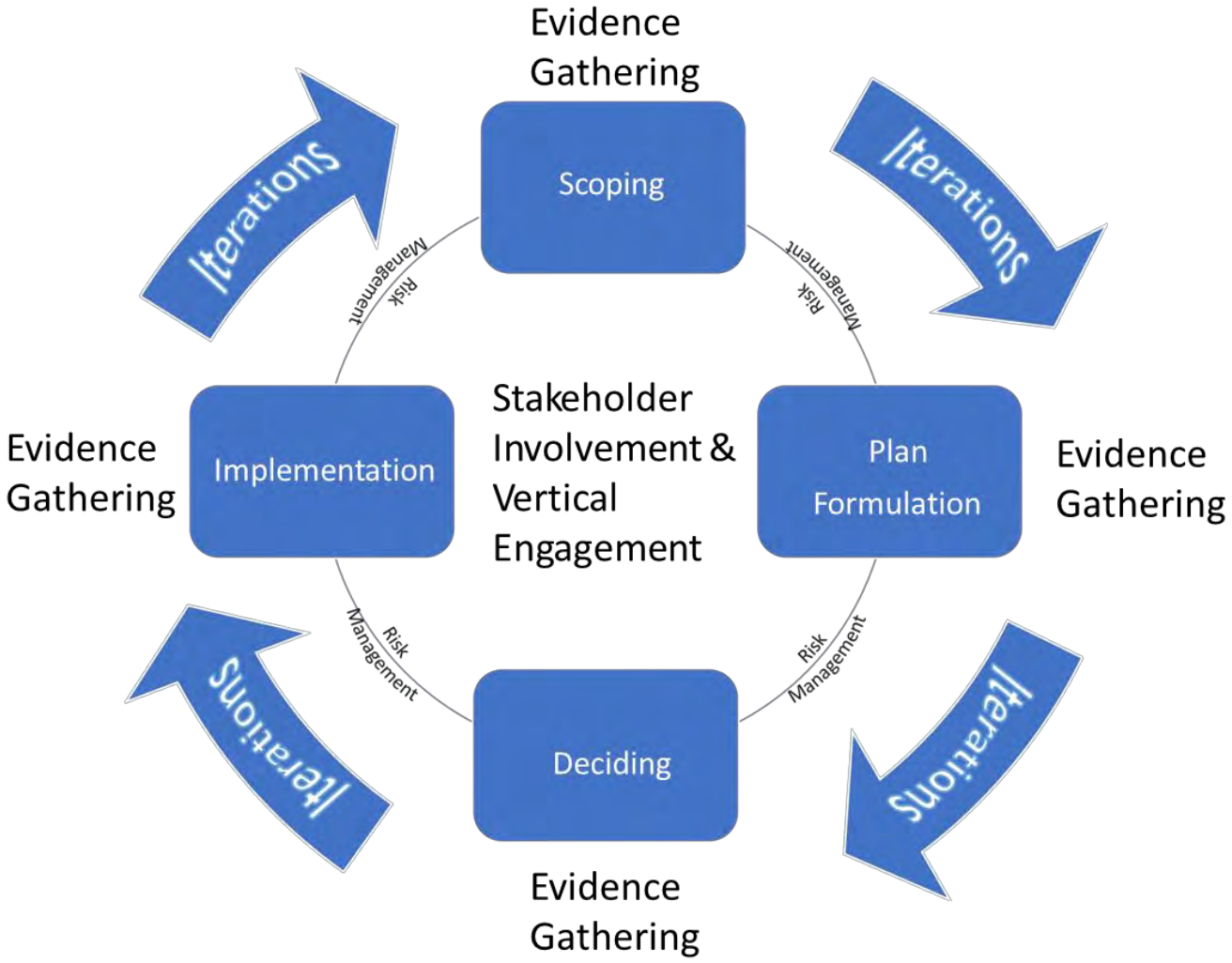
- Recommends a new DMMP

- Assumptions for DMMP
  - Continue to operate in a budget-constrained environment, which should be addressed with innovative and creative solutions.
  - Evaluate new approaches to channel maintenance with the assistance of regional stakeholders like RSM-informed dredging and placement, programmatic environmental compliance, and improved equipment utilization.

FEDERAL INTEREST/PRELIMINARY ASSESSMENT

- Annually, the Columbia-Snake River Navigation System moves over 50 million tons of cargo, worth **$24 billion**, while the cost to maintain the authorized channel dimensions is $43 million.
- The Lower Columbia River is nationally significant.
  - #1 in US for wheat export
  - #2 soy and corn export
  - #3 largest grain export in the **world**
  - #1 on the West Coast for forest and mineral bulk exports
- Over $1 billion invested by Ports since the deepening in 2010, and increases in the metric tons of cargo both **imported** and exported from ports of call. It is extremely important that this vital gateway for global trade continue as a national priority into the future.

THE PLANNING PROCESS IS ITERATIVE



PROBLEMS

- Sediment movement, shoaling, and sand waves cause portions of the FNC to be less than the authorized depth of 43 feet for portions of any given year; if the channel is not available at authorized depth during low Columbia River levels, there are commercial ship draft restrictions.
- Dredging equipment and the existing fleet of dredge vessels have limitations that impact the operation and maintenance of the LCR navigation channel.
- Current dredged material placement sites are at or nearing capacity.
- Sedimentation and shoaling rates vary each year, making it difficult to accurately estimate annual dredging needs to support budget requests.
- Pile dikes, islands, and other channel training structures are not functioning efficiently or effectively in various locations throughout the project.
- Real estate land available along the Columbia River is scarce for placement sites.

OPPORTUNITIES AND CONSTRAINTS

Opportunities

- Identify potential in-water confined disposal and new upland disposal sites and prioritize project
- Identify optimum dredging equipment per shoal to guide implementation
- Identify optimum placement options per shoal to inform capital equipment contracts or purchases
- Identify suitable economic and environmental beneficial uses for dredged material, including habitat creation opportunities with the use of dredge placement. Additional environmental features would be accomplished under separate authorities with different potential sponsors.

Constraints

- Federal dredge fleet remains the same; no change to federal dredge fleet or the Dredge Oregon
- Dredging equipment safety limitations related to water depth, river flow and sea conditions cannot be violated, and therefore limit what dredging equipment can safely perform work at various dredging, transfer, and placement sites.
- Cannot translocate shoaling problems from the federal navigation channel to adjacent non-federal infrastructure such as marinas, ship berths, and facilities.

OBJECTIVES

1. Identify adequate suite of placement locations/areas.

2. Investigate beneficial use opportunities for placement of dredging material.

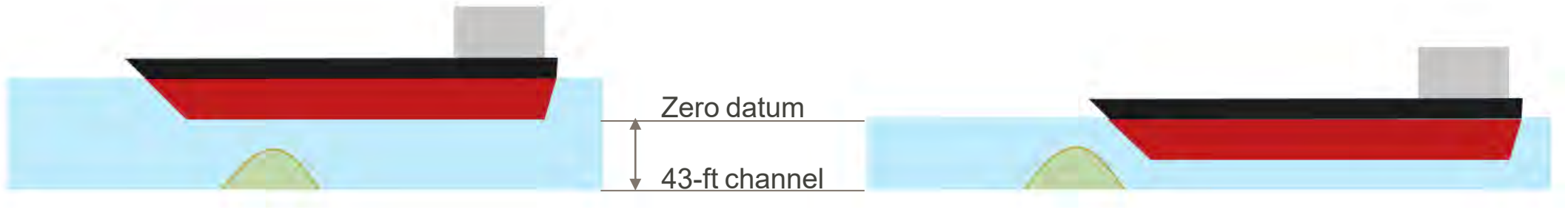
3. Identify options for reducing reliance on dredging as a channel maintenance method.

4. Identify dredging equipment resources that improve maintenance efficiencies.

CHANNEL MAINTENANCE PROCESS

MAINTAINING THE CHANNEL TO 43-FOOT DEPTH

- Different shoals occur within nearly every mile.
- Maintained using a combination of channel training features and dredging
- Currently, we dredge 6 to 8 million cubic yards of sand annually.
- Relative to fixed “Low water datum” in the Columbia River
- Authorized navigation channel depth is 43 feet below zero datum.
- Zero datum roughly corresponds to the river level at minimum operating discharge from Bonneville Dam (70,000 cubic feet per second).
- Tidal range = about 0 to 8 feet above zero datum near the river mouth
- Annual river flow range = about 0 to 12 feet above zero datum at Vancouver, WA

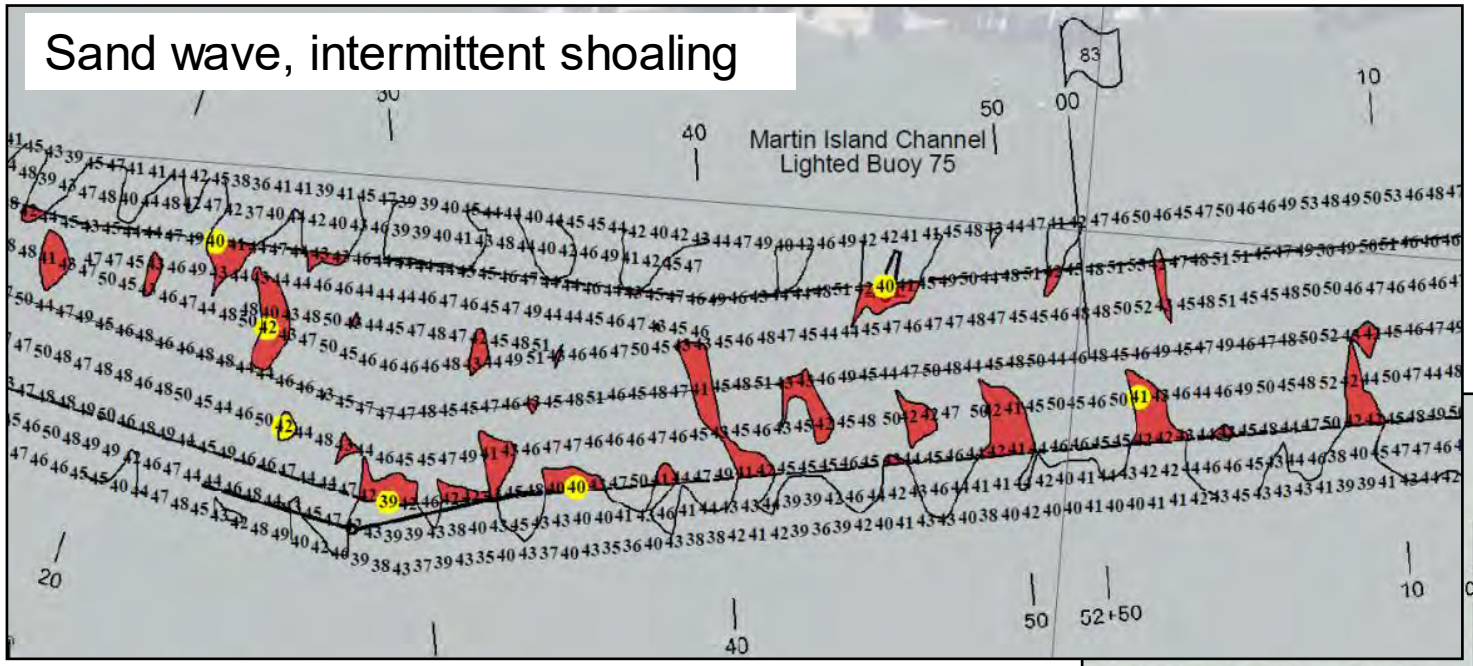


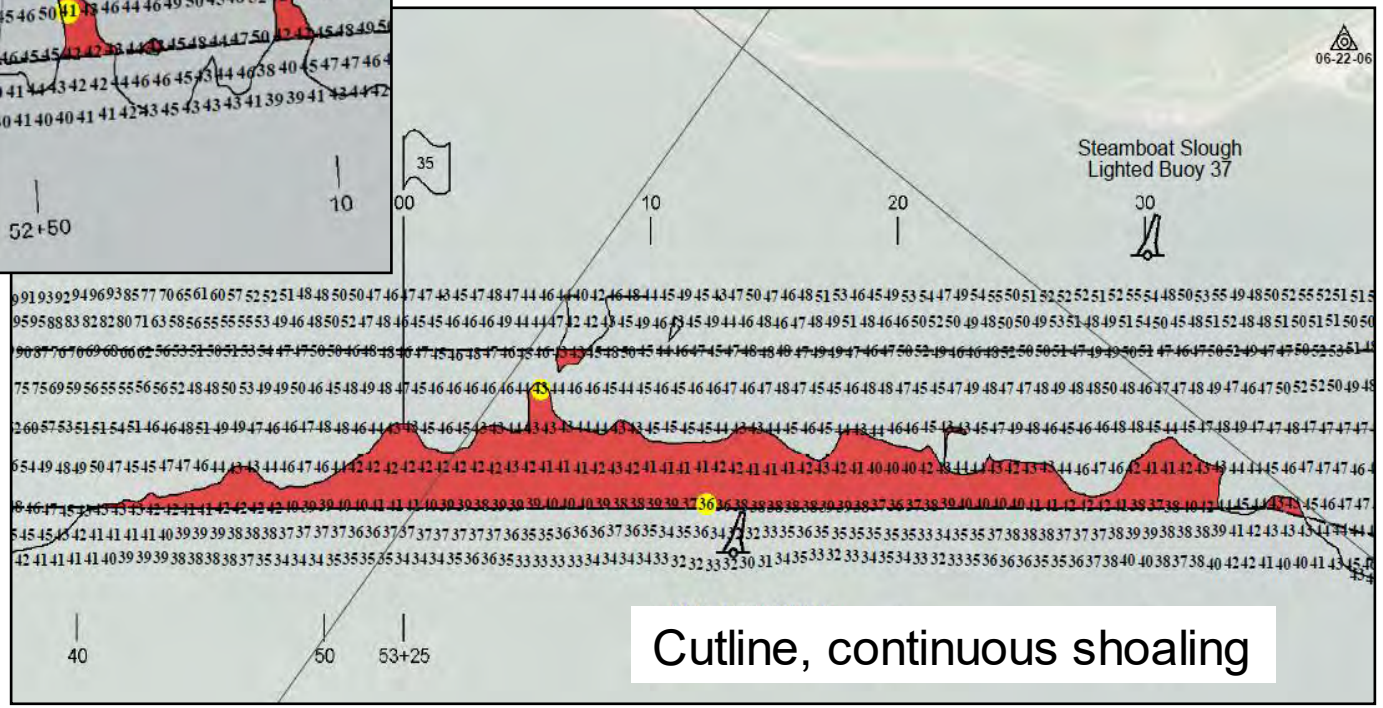
Higher river levels = ships pass over top of sand deposits in channel

NOT TO SCALE

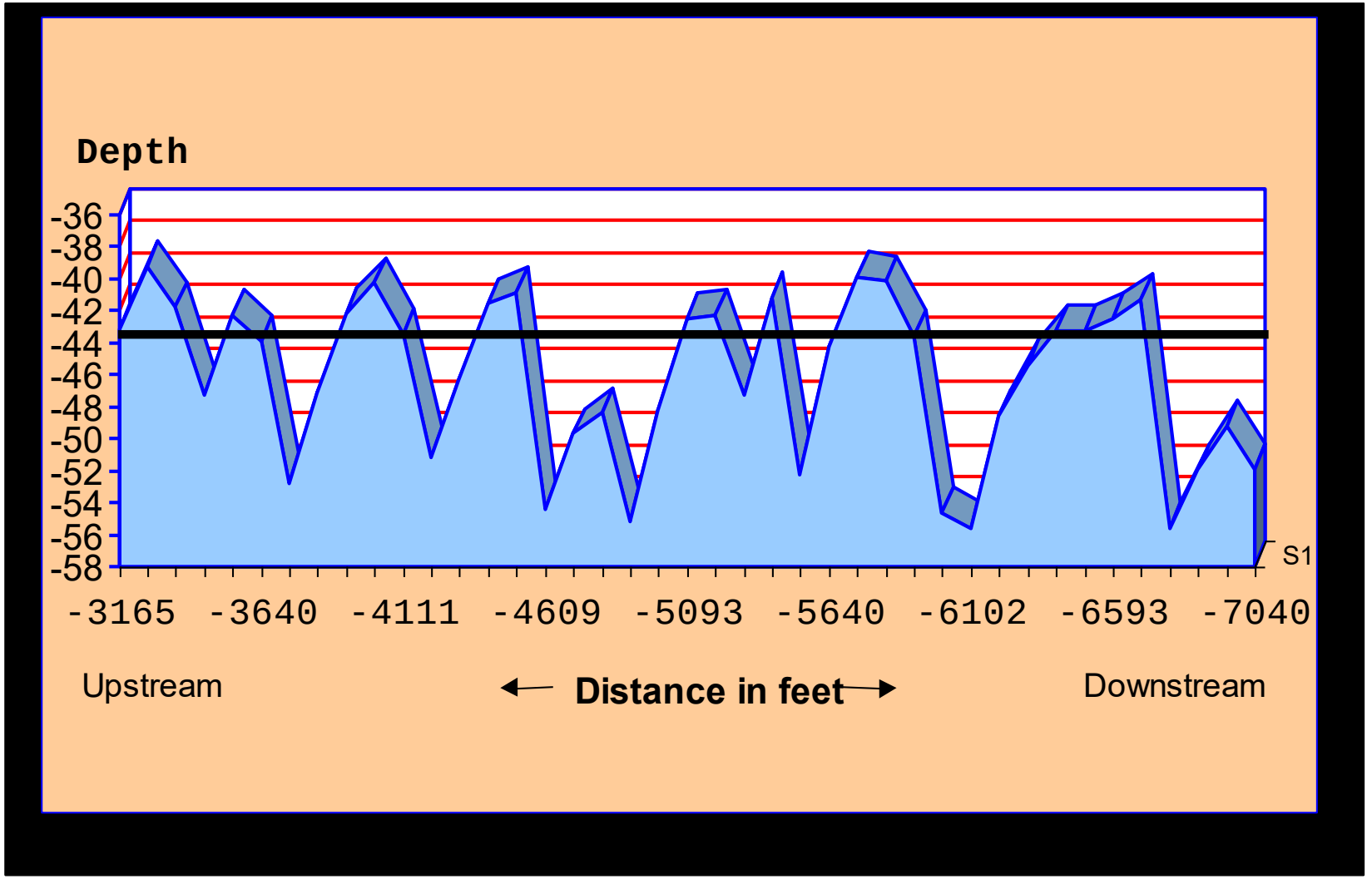
Lower river levels = ships cannot pass over; if sand is not removed, ships are restricted

WHAT IS A SHOAL?





WHAT DOES A SAND WAVE LOOK LIKE? (EXAMPLE - WILLOW BAR)



WHAT DO THE DREDGES LOOK LIKE?

Dredges are specialty equipment. There are a limited number of dredges available to maintain this project.

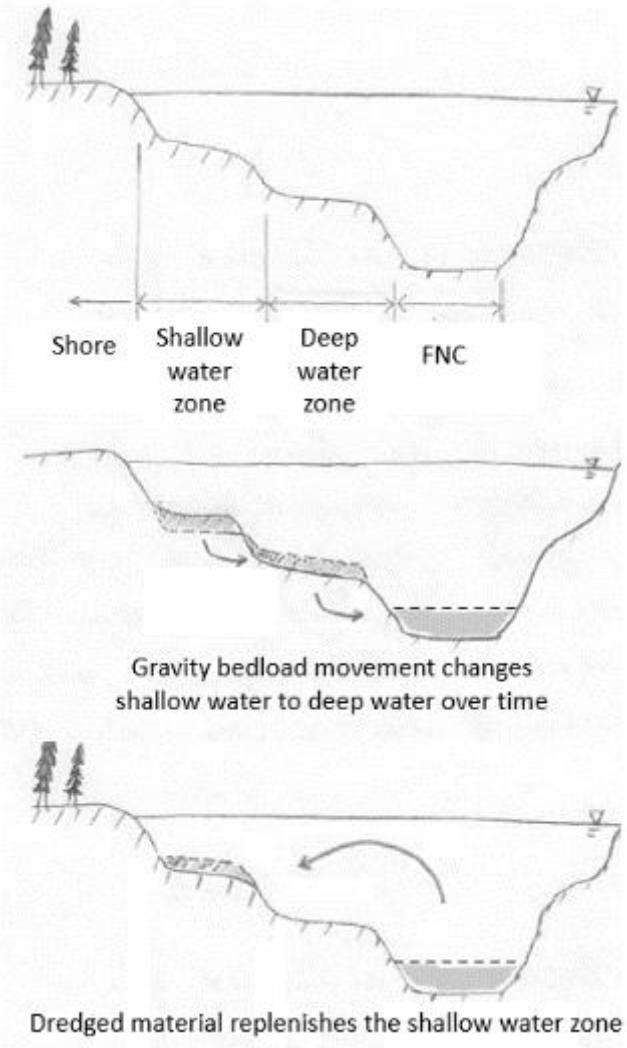
These hopper dredges are regional resources.

This project represents a significant portion of the annual workload of each hopper dredge.

PLACEMENT SITES – UPLAND

PLACEMENT – IN-WATER (SHALLOW)

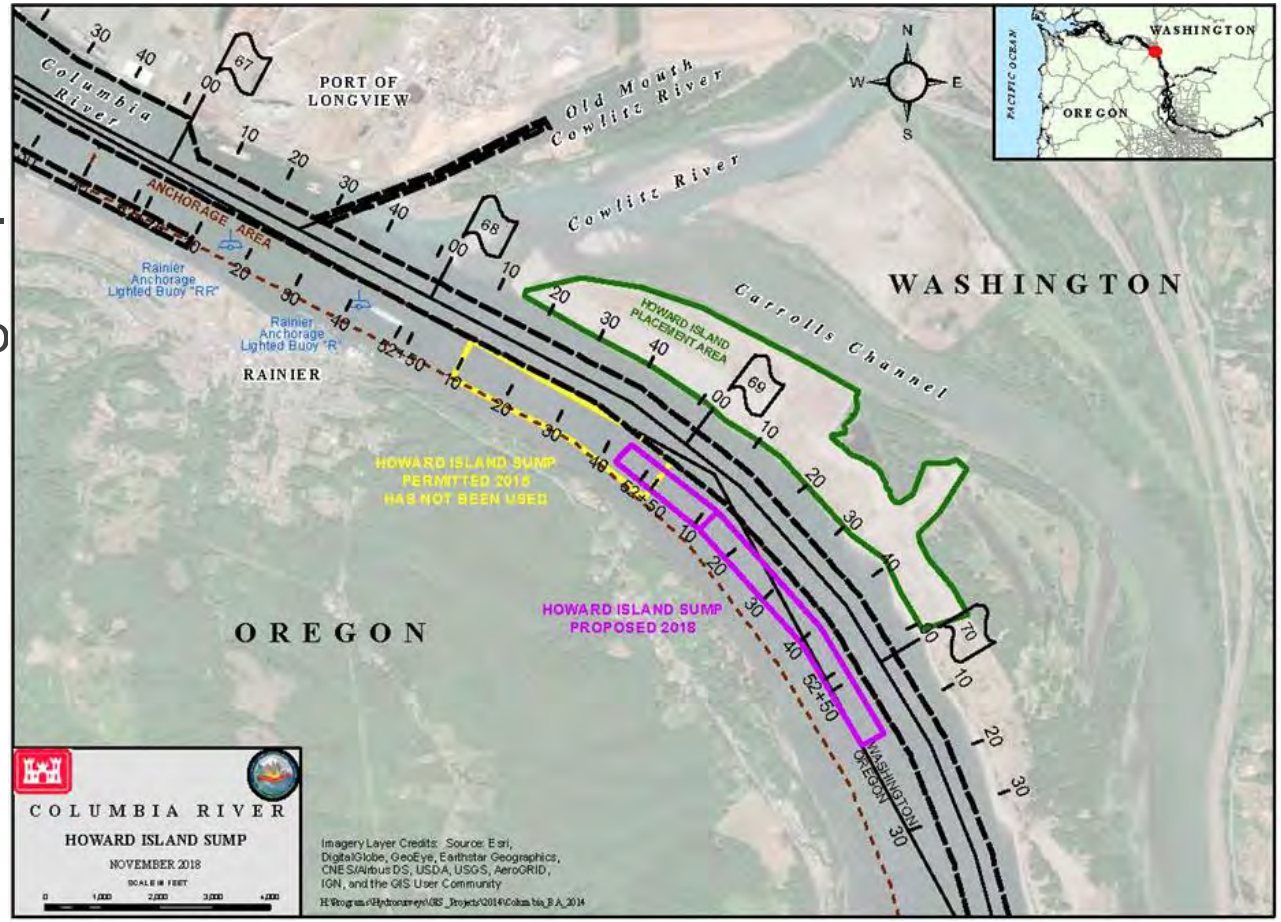
- Shallow water placement occurs in water depths less than 20 ft.
- Material placement by pipeline dredge or hopper pump out.
- Material pumped to site directly from a shoal or from a transfer site.
- Shallow water placement sites have potential for creating or improving shallow water habitat.



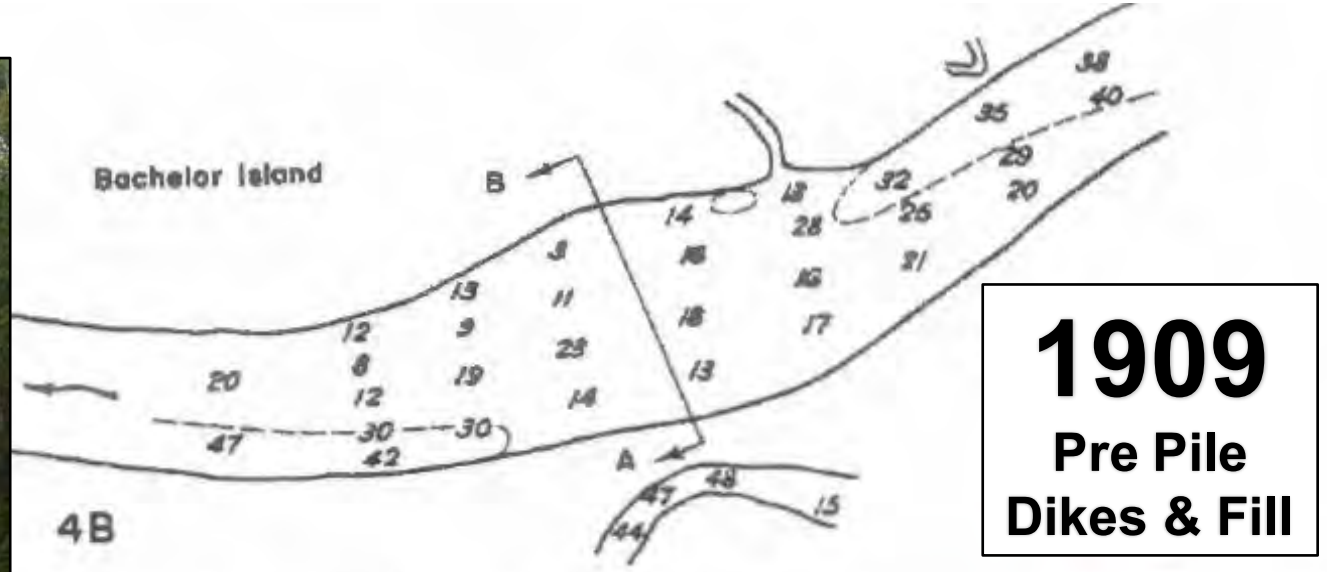
PLACEMENT – SHORELINE

BASICS – WHAT IS A TRANSFER SITE?

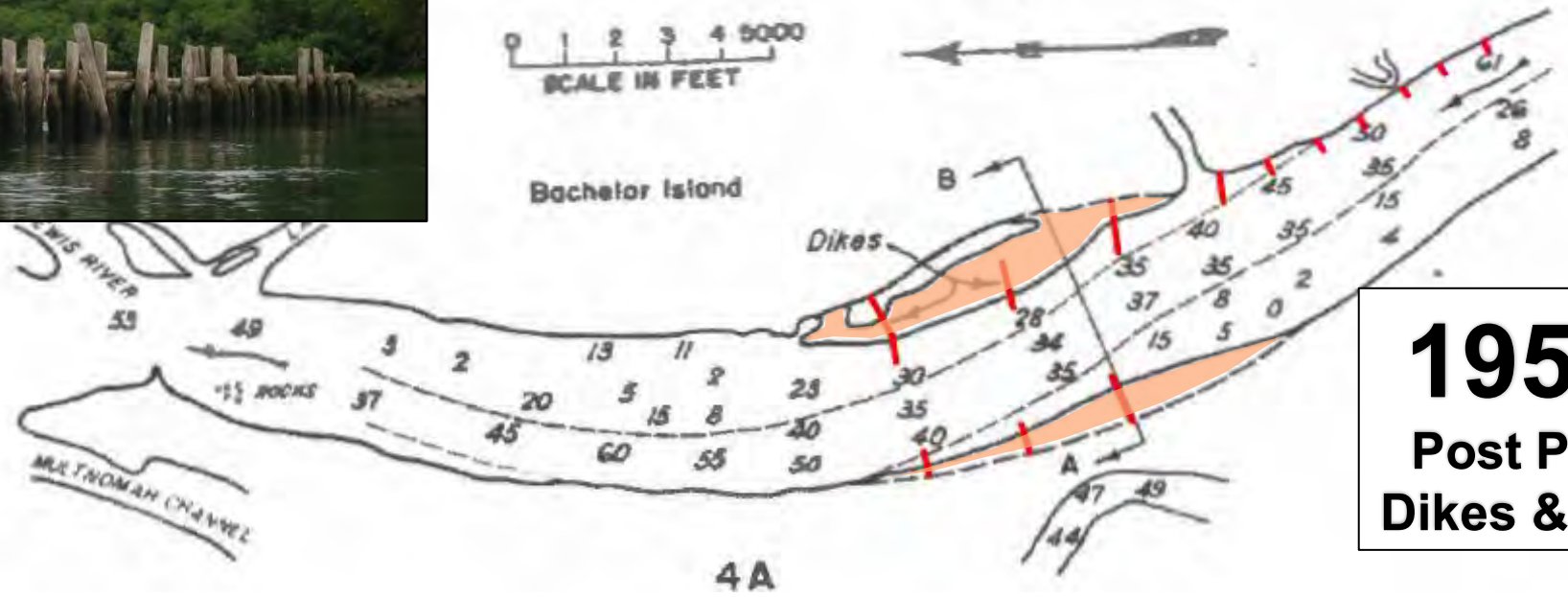
- In-water temporary material storage
- Why? Needed where distance from dredge site to placement site exceeds pipeline length.
- Located between the Federal Navigation Channel and placement site that connects two related operations
- Material placed by hopper or pipeline
- Pipeline dredge pumps it onto the final placement site
- After material is removed from transfer site, site capacity is restored and ready for reuse.
- This type of disposal allows for cost-effective use of dredged equipment.



CHANNEL TRAINING STRUCTURES – HOW DO THEY WORK?



1909
Pre Pile Dikes & Fill

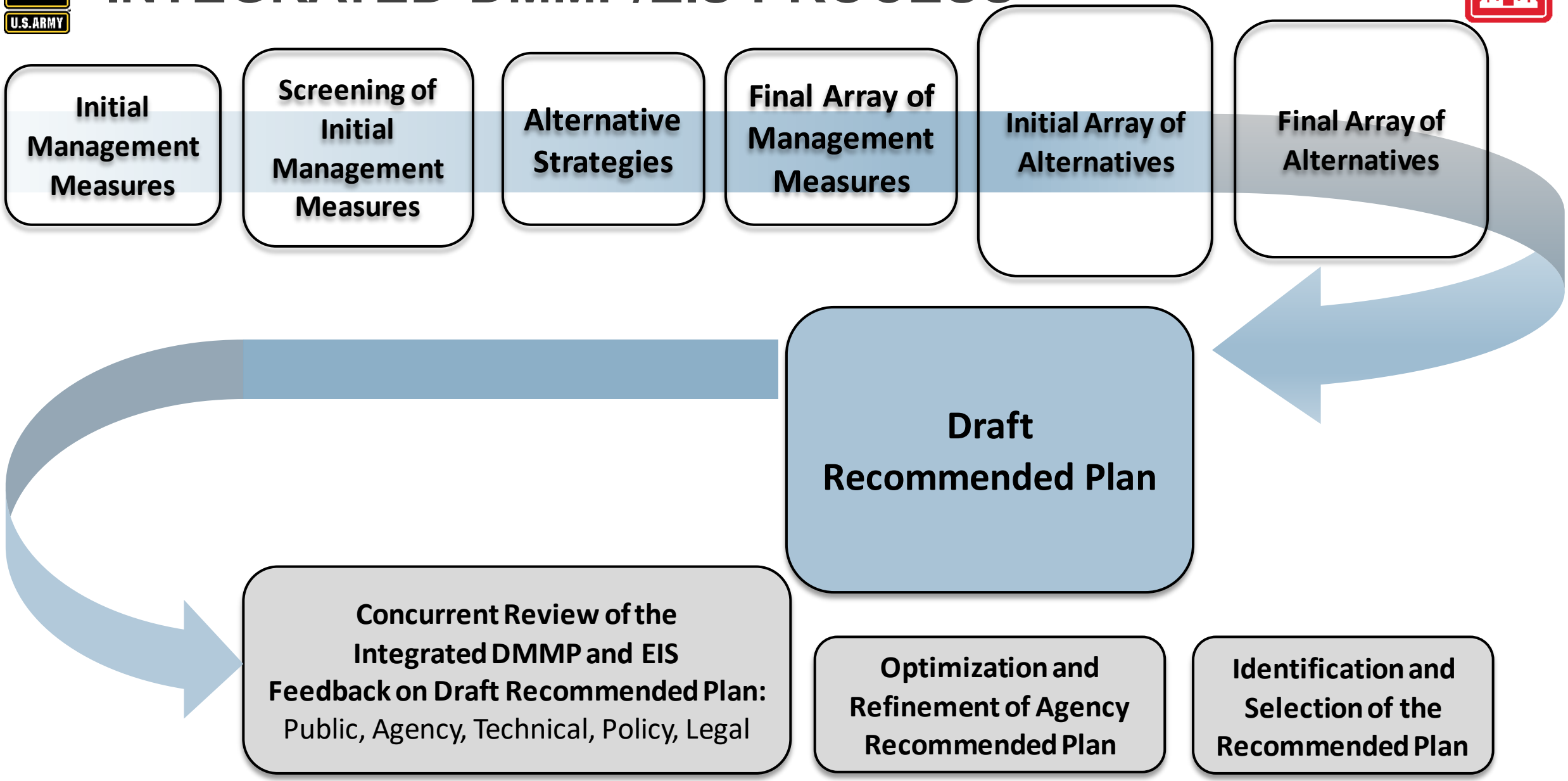


1959
Post Pile Dikes & Fill

Lower Columbia River Integrated Dredge Material Management Plan and Environmental Impact Statement

Alternatives and Plan Formulation

INTEGRATED DMMP/EIS PROCESS



INITIAL MEASURES

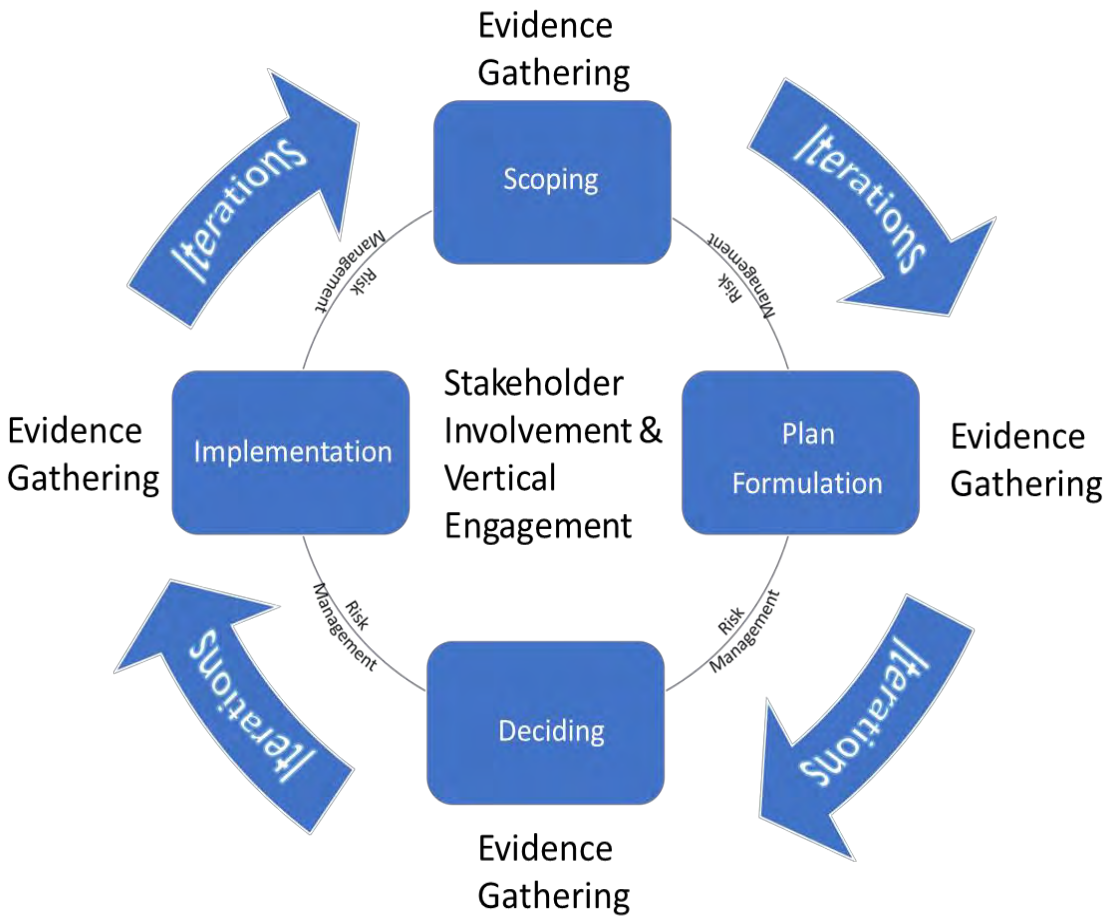
Initial Management Measures: Included structural and nonstructural measures developed during the scoping process, charrettes, workshops, and Value Engineering study

Screening of Initial Management Measures: Screening of measures was based on planning objectives and constraints, technical feasibility, and whether the measure has been carried out already.

Measures Screening Criteria

- Meet 1 or more objective?
- Violate constraints?
- Too costly by order of magnitude?
- Technically feasible?
- Environmentally responsible?

SCREENING OF INITIAL MANAGEMENT MEASURES



Measure Number	Measure Name
NS*-1	LOADMAX
NS-2	Increase survey frequency/monitoring of shoals and bathymetry
S*-3	In-water placement for island creation purposes
S-4	In-water placement without structure for stabilization
S-5	In-water placement with structure for stabilization
S-6	Upland placement
S-7	Transfer placement
S-8	Clamshell dredge with barge
S-9	Shoreline placement without structure for stabilization
S-10	Shoreline placement with structure for stabilization
S-11	Additional hopper dredge
S-12	Additional pipeline dredge
S-13	Increase reach of Dredge Oregon
S-14	Spider barge
S-15	Rainbow spray
S-16	Knock down sand waves (drag beams)
S-17	Depth: advanced maintenance dredging
S-18	Width: advanced maintenance dredging
S-19	Thin layer placement
S-20	Realign channel to natural thalweg
S-21	Repair existing channel training features
S-22	Disposal with purpose of channel training
S-23	Sediment retention structure
S-24	Beneficial use, habitat
S-25	Beneficial use, economic
S-26	New ocean placement
S-27	Move anchorage buoys
S-28	Modify releases from upstream dams
S-29	Change channel dimensions
S-30	Contingent upland placement

FINAL ARRAY OF ALTERNATIVES

Measure Number	Measure	**Base Condition**	**Alternative 1 Maximize Placement Includes Base Condition**	**Alternative 2 Minimize Dredging Includes Base Condition**
S-4a	Shallow Water Placement (depth less than 20 ft)		X	X
S-4b	Deep In-water Placement (depth greater than 20 ft)	X	X	X
S-5	Aquatic confined placement with structure		X	X
S-6	Upland placement	X	X	X
S-7	Transfer Placement	X	X	X
S-9	Shoreline Placement	X	X	X
S-10	Shoreline placement with structure for stabilization		X	X
S-21	Repair existing channel training features; *to reduce shoreline erosion/dredging*	X	X	X
S-24	Beneficial use: habitat	X	X	X
S-25	Beneficial use: economic	X	X	X
S-30	Contingent upland placement		X	
S-31	Construct new channel training structures			X

HOW WILL ALTERNATIVES BE DEVELOPED / EVALUATED

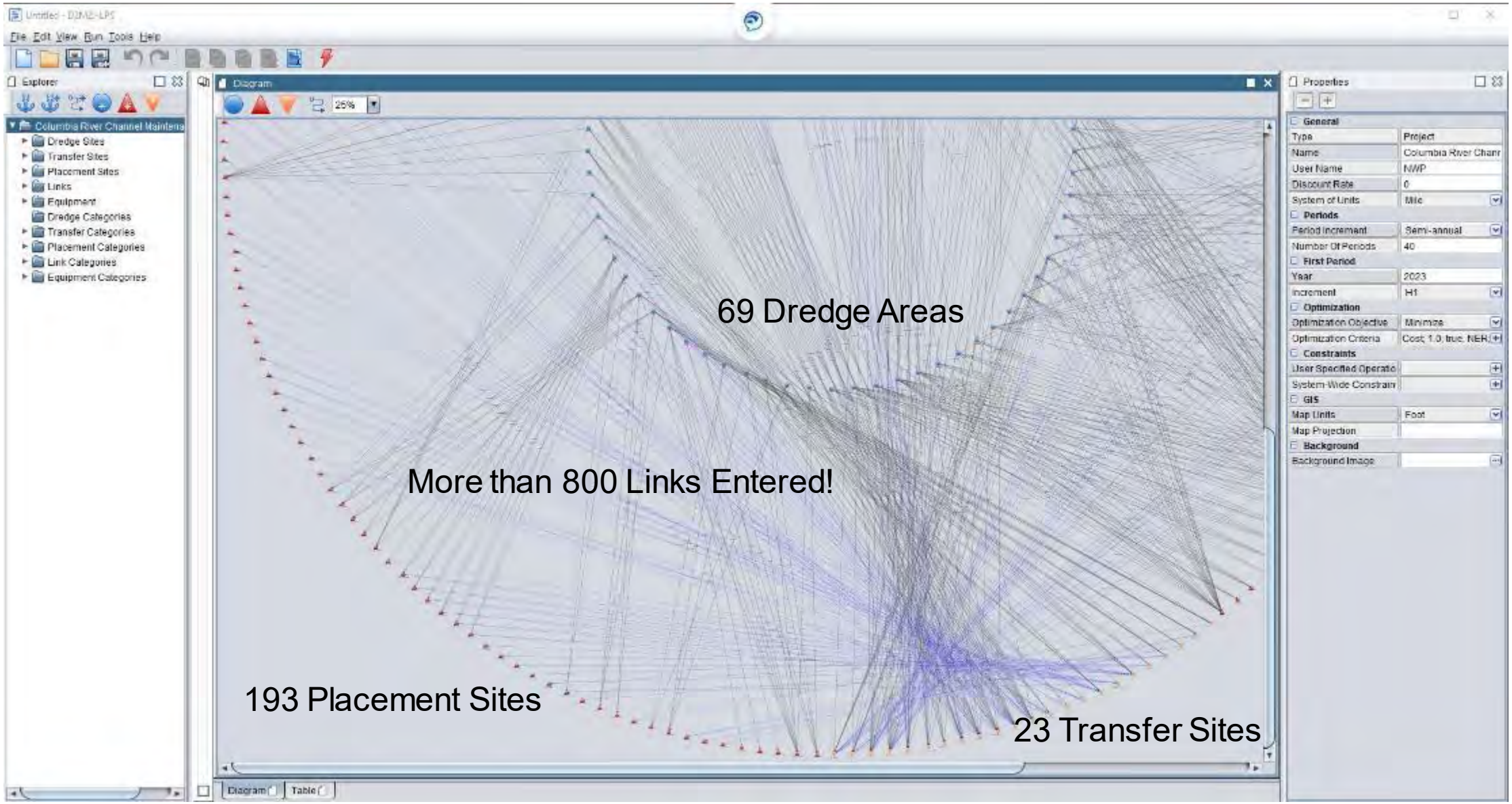
Dredged Material Management Decisions (D2M2) Corps Model

D2M2 compares countless potential solutions, evaluating which versions even slightly outperform others, to output the least cost combination of placement sites.

Basic steps to run D2M2:

- Enter each dredge site (shoal) and volume per period.
- Enter each placement site option and capacity.
- Enter each transfer site option and capacity.
- Enter site details related to placement & transfer site costs, timelines for availability, constraints, etc.
- Enter links/routes between possible dredging and placement site pairs (and transfer sites between dredging and placement sites).
- Enter costs specific to dredge equipment moving sediment from site A to site B.
- Run D2M2 with those scenarios & receive output results.

COLUMBIA RIVER DMMP



ENVIRONMENTAL & CULTURAL RESOURCES REVIEW PROCESS AND COORDINATION

NEPA & SEPA - THE ENVIRONMENTAL POLICY ACT PROCESS

The National Environmental Policy Act

- Programmatic Environmental Impact Statement

Examples of areas for evaluation in the Programmatic EIS include:

- Air Quality
- Water Quality
- Biological Environment
- Socioeconomics
- Land Use
- Recreation
- Aesthetics
- Historic and Cultural Resources
- Transportation

Washington State Environmental Policy Act, known as SEPA

ENVIRONMENTAL & CULTURAL RESOURCES COMPLIANCE STATUS

Fish and Wildlife Coordination Act (FWCA)	Coordination with the U.S. Fish and Wildlife Service (FWS) & National Marine Fisheries (NMFS) is ongoing for FWCA
Endangered Species Act (ESA)	Corps is preparing the Biological Assessment (BA) for ESA consultation with NMFS and FWS
Marine Mammal Protection Act (MMPA)	Corps is coordinating with NMFS for MMPA compliance Letter of Authorization

ENVIRONMENTAL & CULTURAL RESOURCES COMPLIANCE STATUS

National Historic Preservation Act (NHPA)	Corps is in consultation with OR & WA SHPOs, Tribes, and/or other interested parties under Section 106 of the NHPA
Clean Water Act (CWA)	Corps is meeting the compliance requirements of Section 404 of the CWA through preparation of a 404(b)(1) evaluation
	Corps is working with OR Department of Environmental Quality (DEQ) & Washington Department of Ecology (DoE) to comply with Section 401 of the CWA
Coastal Zone Management Act (CZMA)	Corps is coordinating with DLCD and DoE to work towards concurrence on a Federal Consistency Determination under the CZMA

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THANK YOU FOR TIME AND INTEREST

Please visit the website

http://www.nwp.usace.army.mil/lcrchannelmaintenance/

or contact the Corps at the project mailbox:

LCR-CMP-DMMP@usace.army.mil

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