



US Army Corps of Engineers

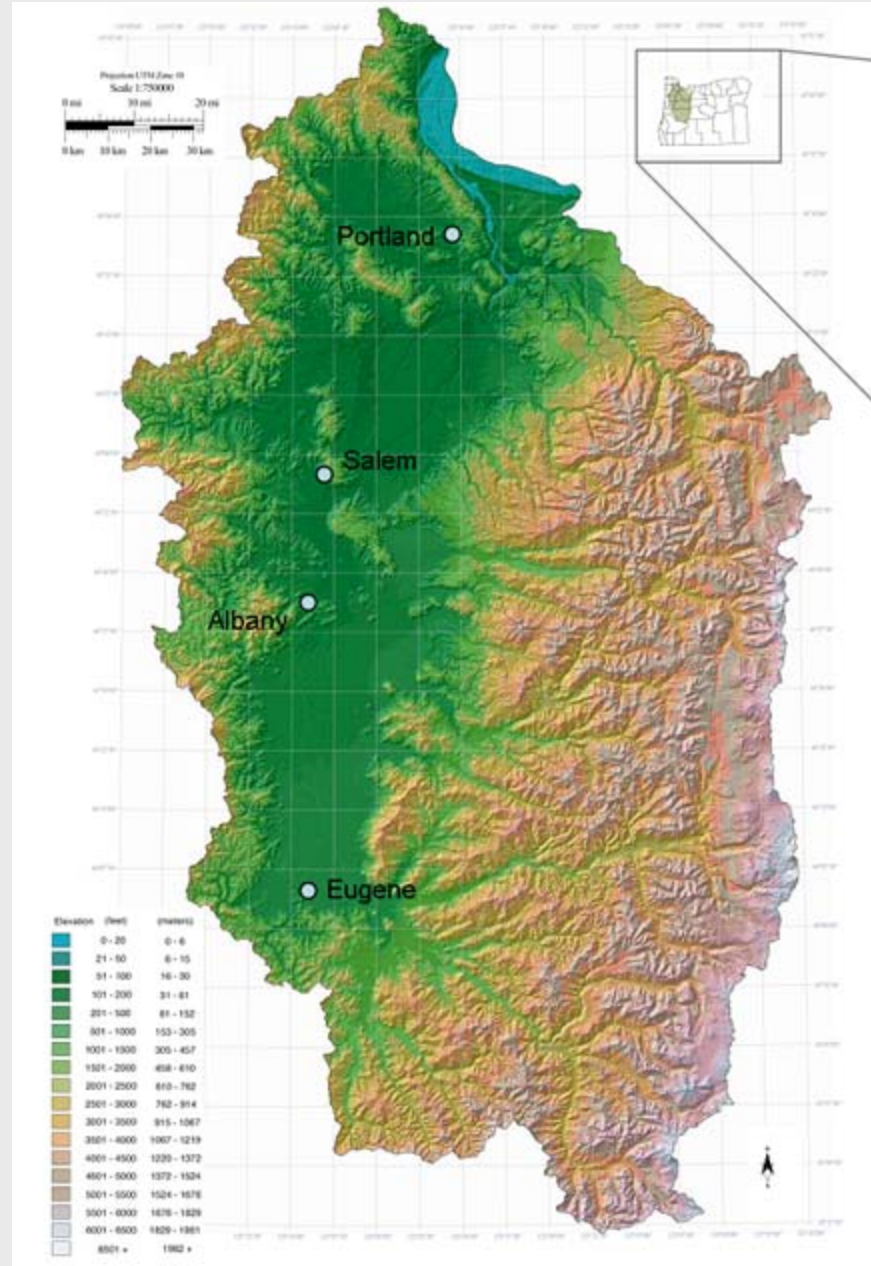


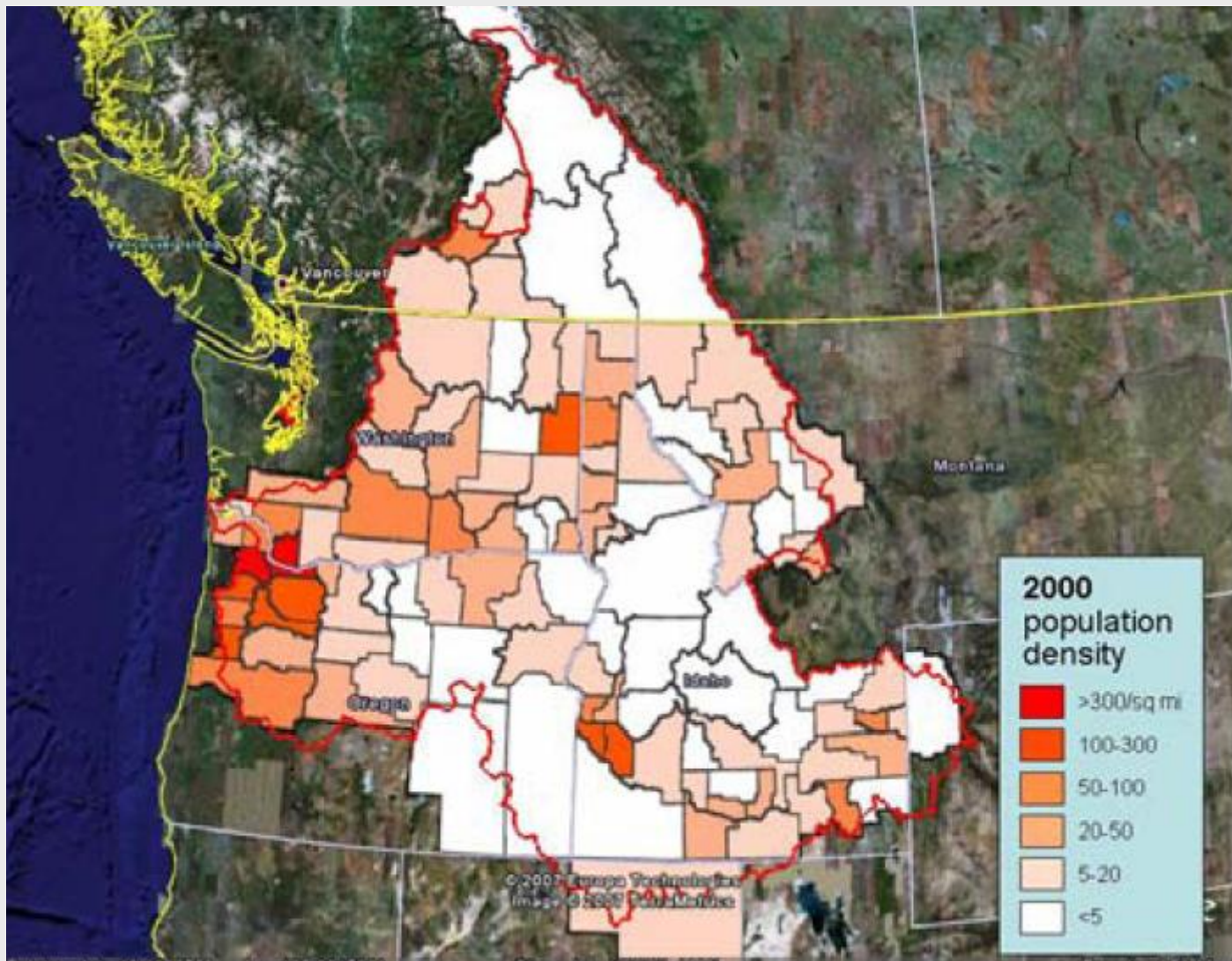
Willamette Valley Project BiOp Program Overview

David W. Griffith
USACE Portland District

Background

- Willamette Valley
 - 11,476 mi²
 - Population ~2.5M
 - Most populated sub-basin in Columbia River





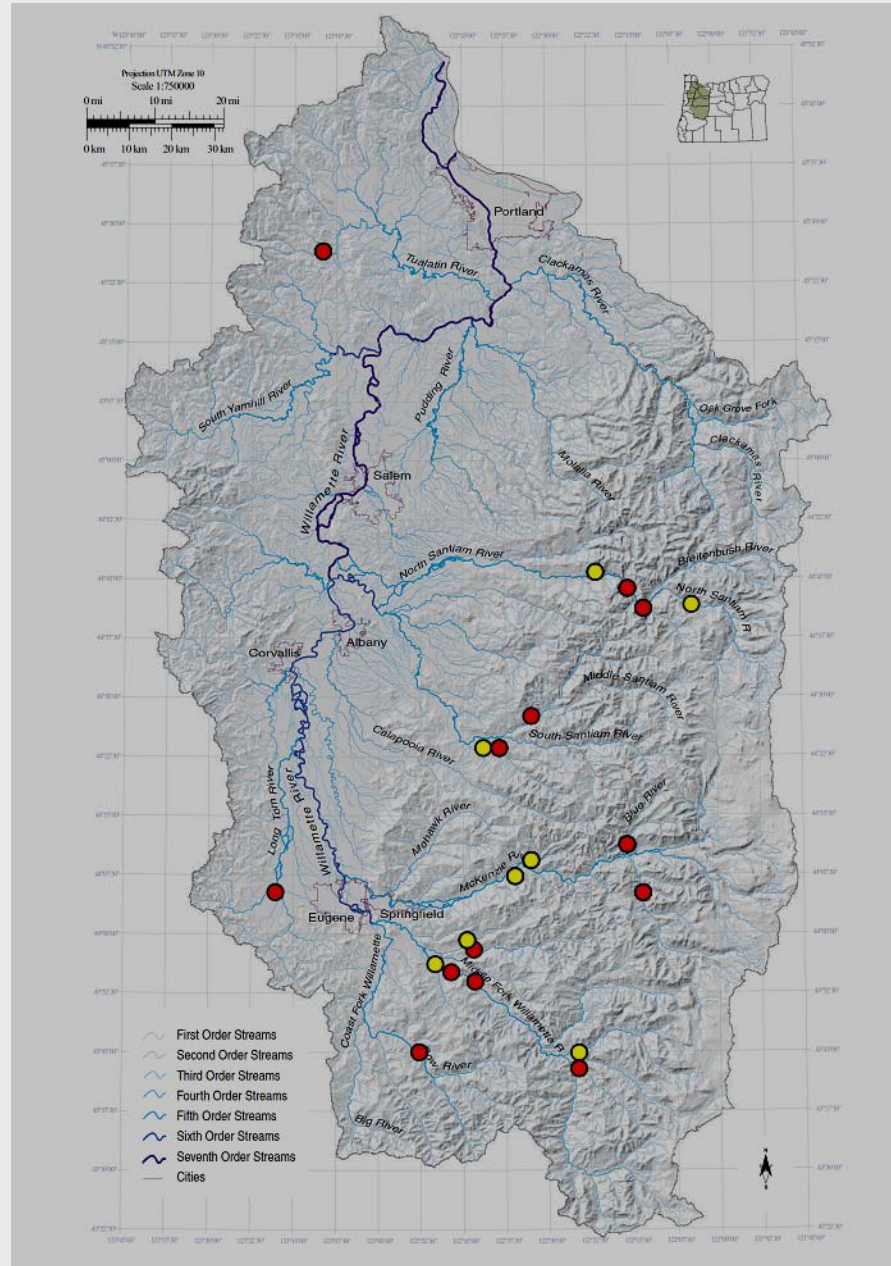
	Willamette	Snake
Area (mi ²)	11,748	92,960
% of Columbia Basin	4.5%	36%
Annual Discharge (MAF)	23.9	27.5
% of Columbia Basin	12%	14%
Population	~2,500,000	NA
% of Columbia Basin	23%	NA

Background

- Construction of Willamette Valley Project authorized by U.S. Congress, 1938
- 1941-1969 Corps constructs 13 dams & 92 mi of revetments

Currently WVP

- 13 Dams
- 9 Fish Facilities
 - 5 Hatcheries
 - 4 Traps/accl. ponds
- 42 Miles of Revetments



	DET	JDA
Length (ft)	1,580	7,365
Height (ft)	463	183
Max pool – Min pool	144 ft	11 ft
Spill bays	6	20
Cap(cfs)	24,290	50,000*
Total Capacity (cfs)	145,740	2,250,000*
RO's	4	0
Total Capacity (cfs)	28,010	-
Turbines	2	16
Capacity (MW)	12.5	155
Capacity (cfs)	910	20,000

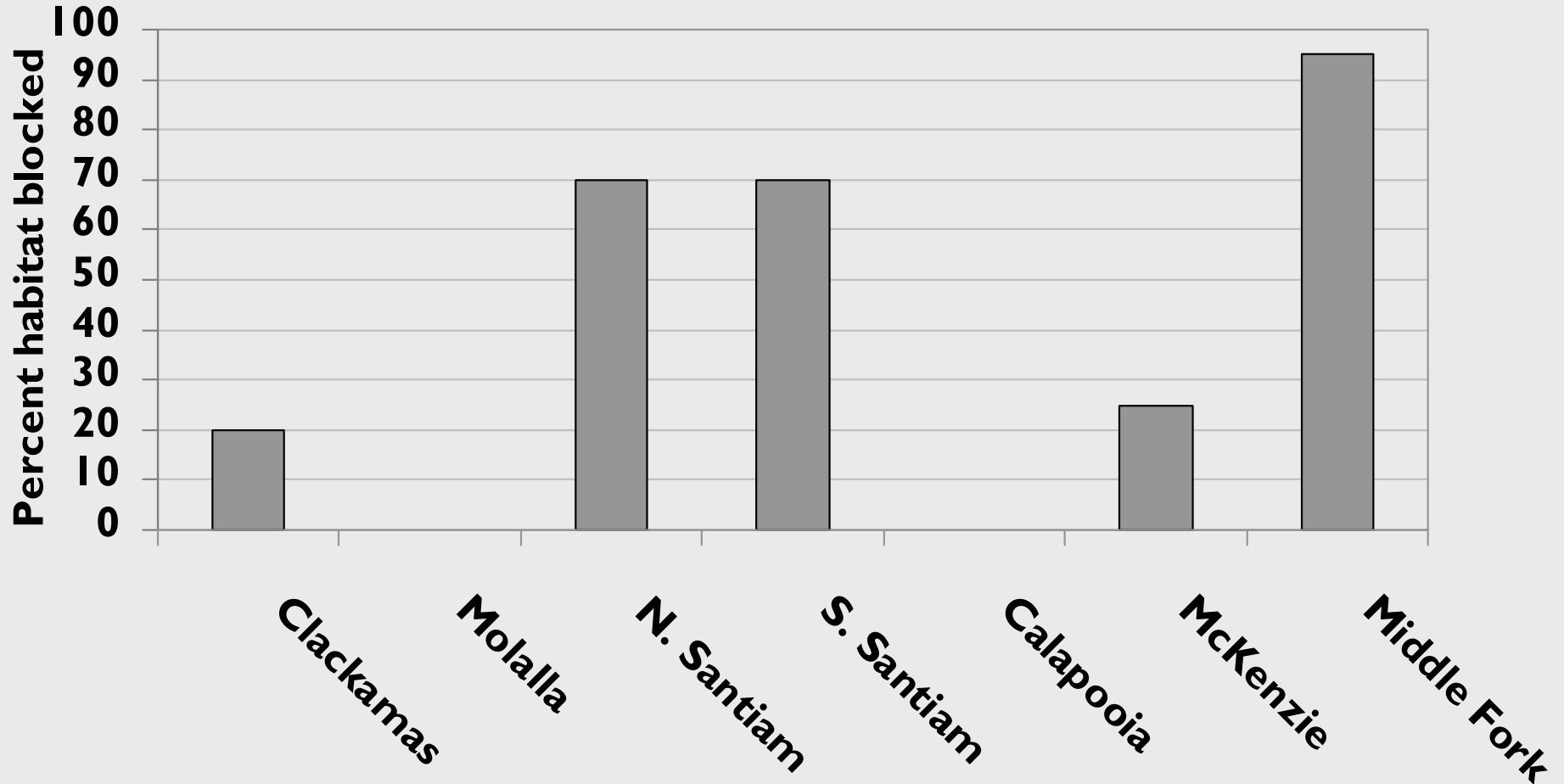


[Empty light blue rectangular box]



[Empty light blue rectangular box]

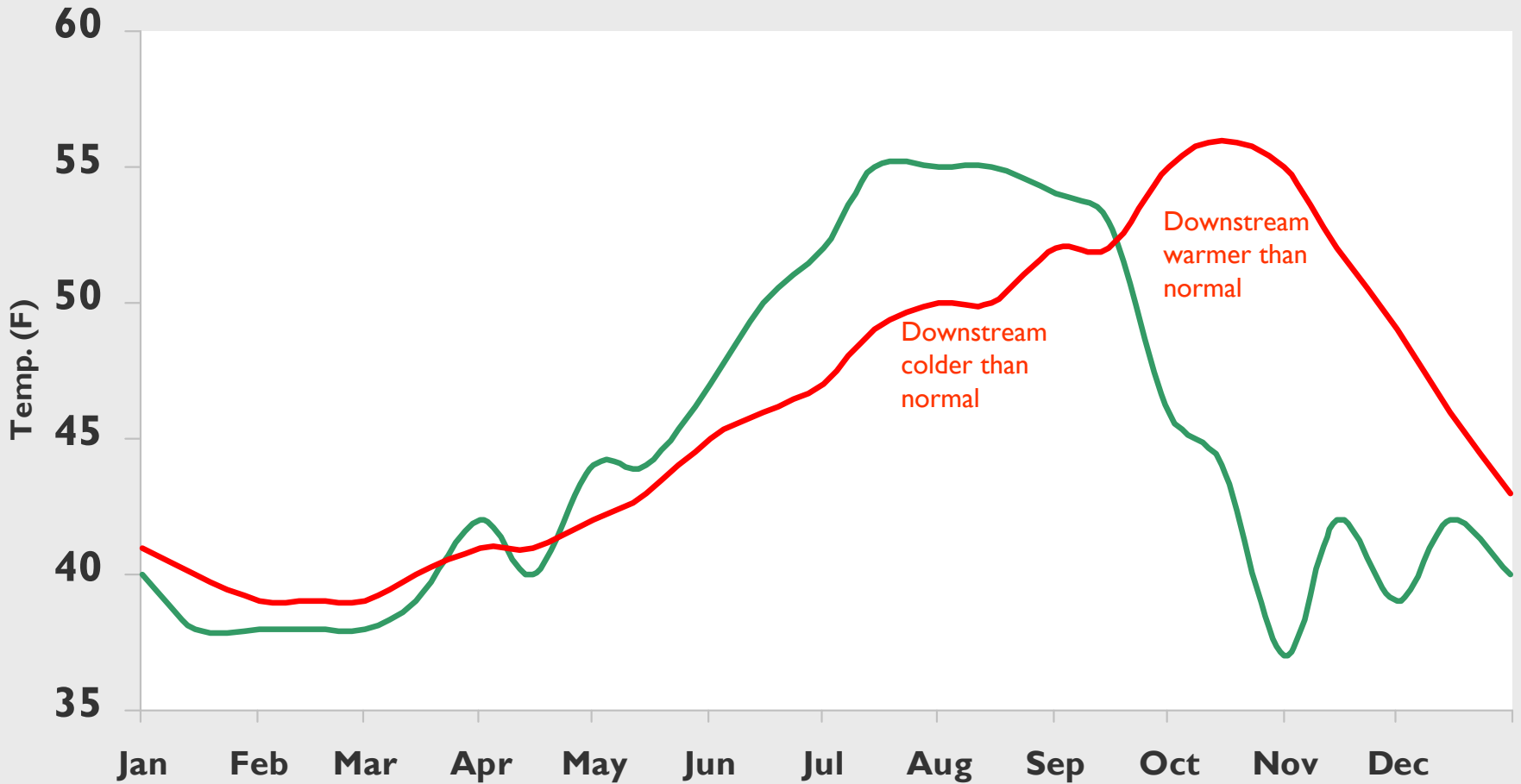
Historic UWR Chinook Habitat Blocked by Dams



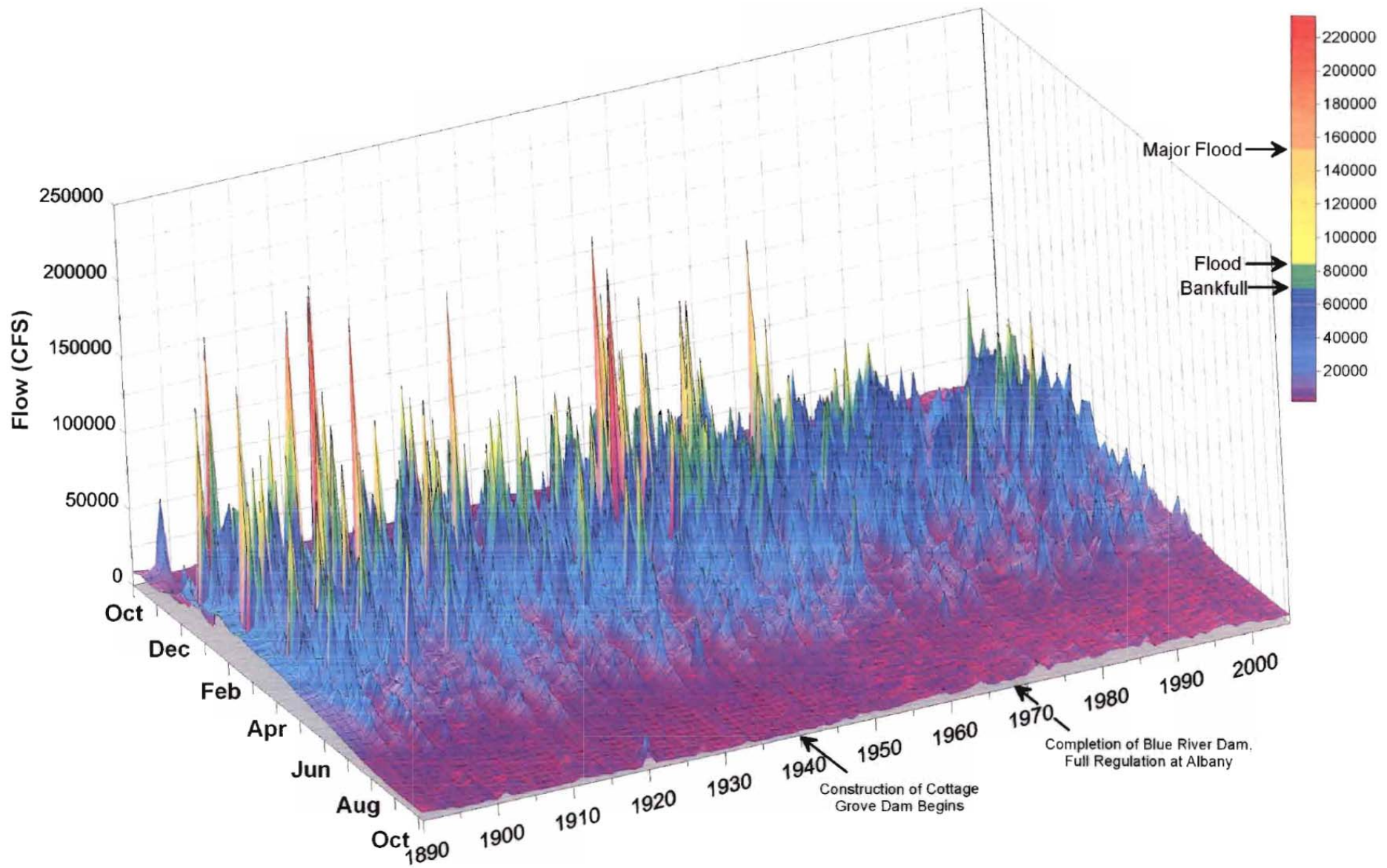


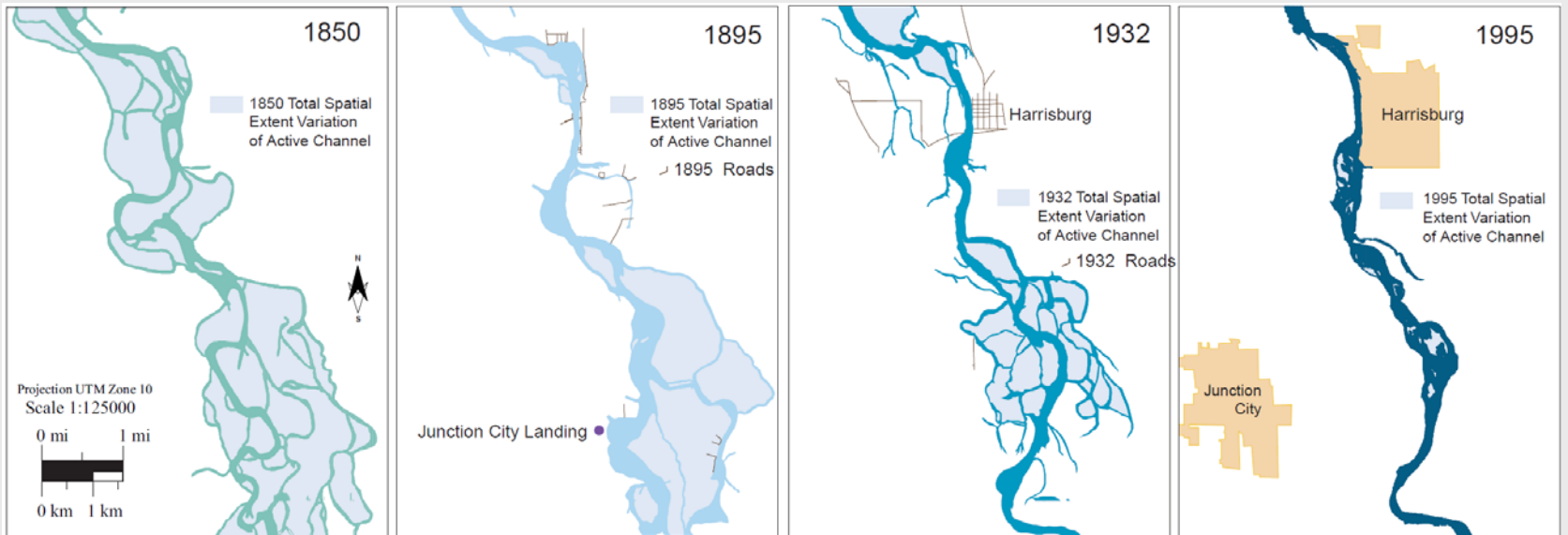


— N Santiam above dam — N Santiam below dam



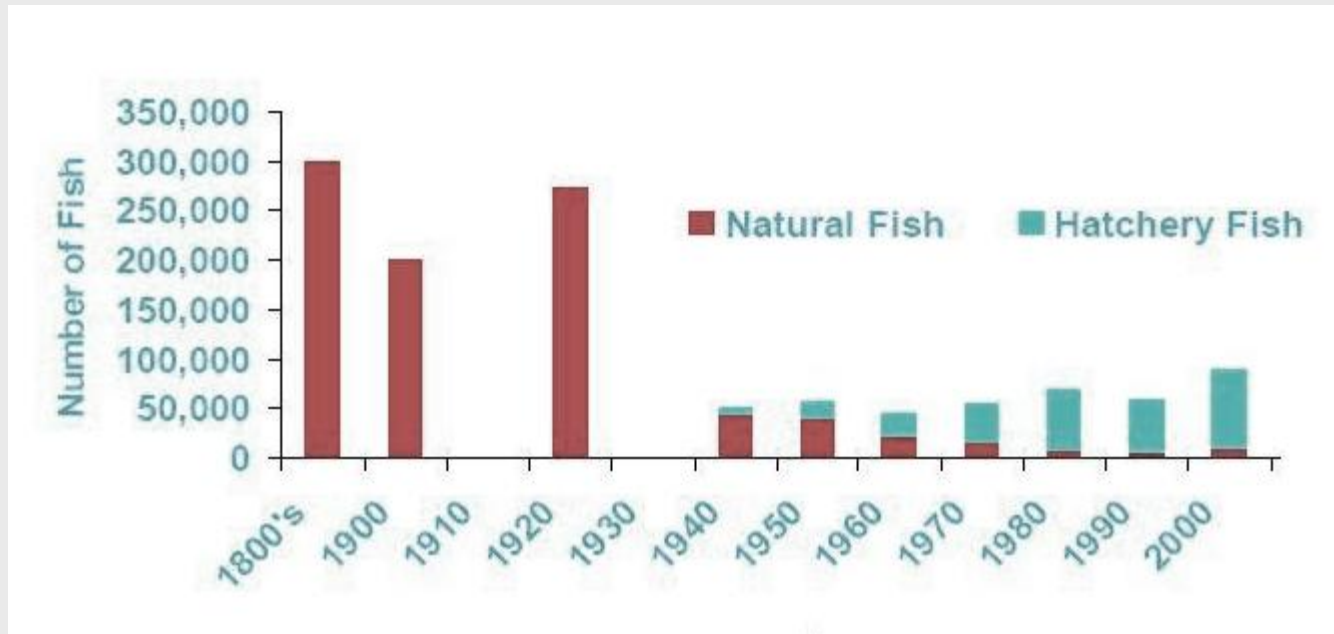
Observed Flow at USGS 14174000, Willamette River at Albany, OR







UWR Spring Chinook



ESA Listed Fish

- NMFS
 - Upper Willamette River Spring Chinook
 - Upper Willamette River Winter Steelhead
- USFWS
 - Bull Trout
 - Oregon Chub

Consultation History

- 1999 USACE requested consult from both USFWS and NMFS
- 2000 USACE releases BA
- 2003 NMFS and USFWS split BiOps
- 2007 Supplemental BA released by USACE
- 2008 Both NMFS and USFWS BiOps released

USFWS BiOp

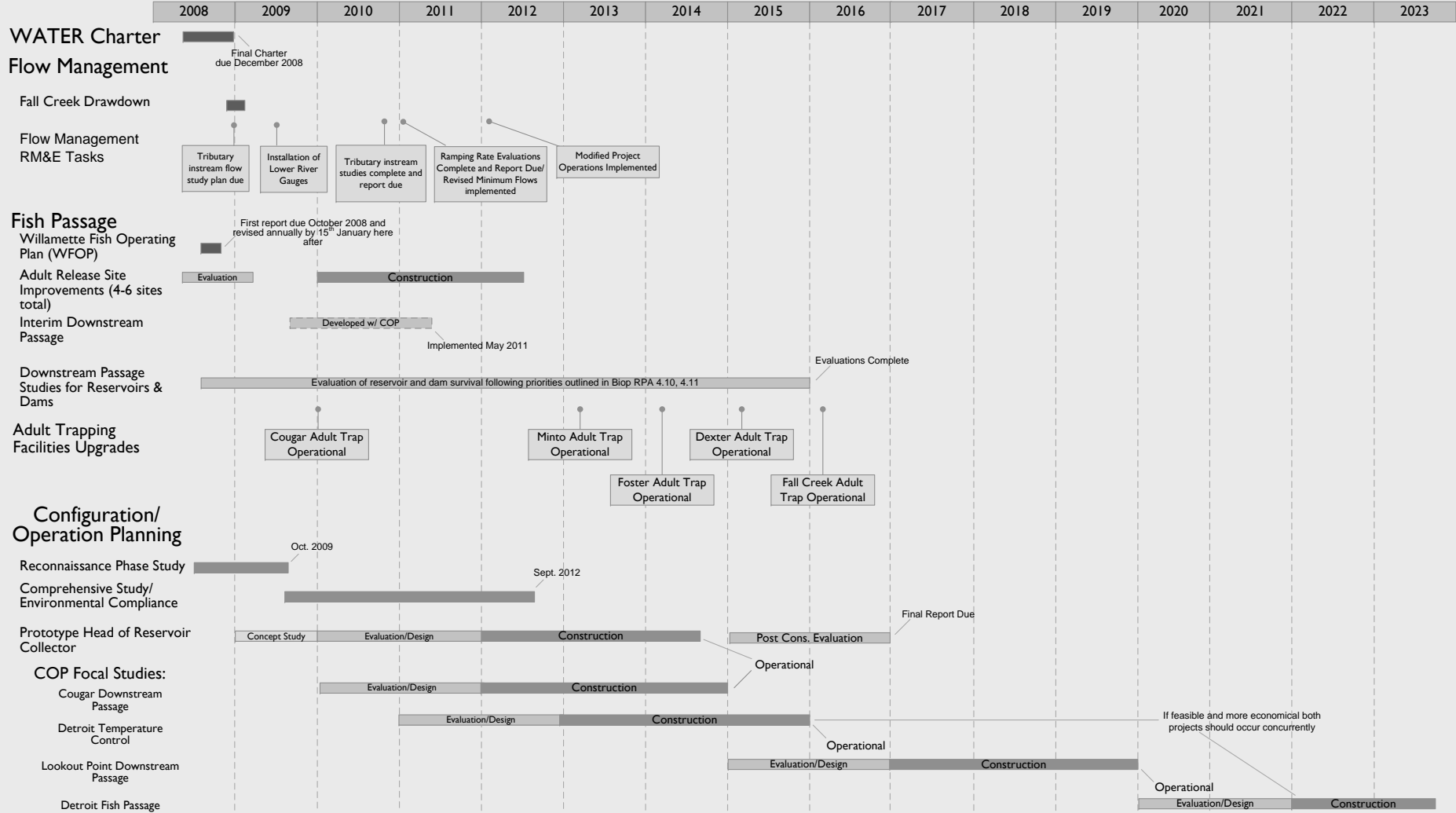
- No jeopardy for proposed action (as modified by NMFS RPAs) for Bull Trout and Oregon Chub
- Must follow through with conservation actions:
 - Implement NMFS RPAs
 - Consider effects of NMFS RPAs on BT & OC
 - Create and implement BT Genetic Management Plan

NMFS RPA: Major Elements

- Flow Management
- Fish Passage
- Water Quality
- Hatcheries
- Water Contract Program
- Habitat Restoration
- Coordination
- Construction Project Management
- Research, Monitoring, and Evaluation

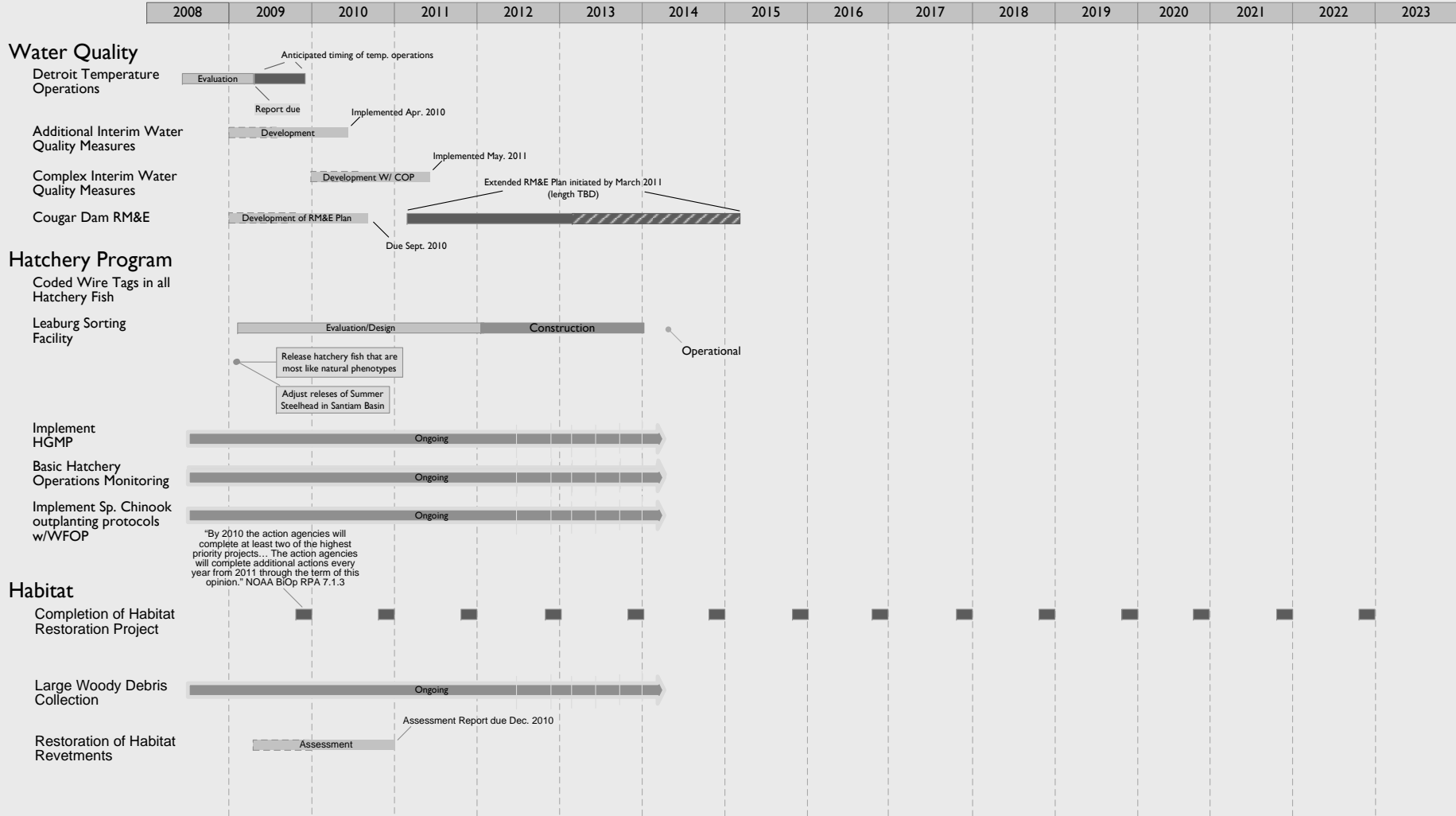
Willamette Valley Project

Bi-Op Implementation Strategy



Willamette Valley Project (cont.)

Bi-Op Implementation Strategy



The Challenge

- Not just passage rather all life stages
- Dams are too high
- Pool fluctuations
- Water is wrong temperature
- No gravel
- No LWD
- High-head dam juvenile passage yet to be solved
 - Baker, Howard Hanson, and Pelton Round Butte coming online
\$50,000,000.00 - \$130,000,000.00+

So now what?

- Major research and construction effort for next 15 years
- Success depends on close coordination between all agencies (federal, state, and others)
- Research program will be modeled/modified AFEP
- Eventually Willamette program will have separate AFEP review conference (with coffee!!)

The Following slides are Appendices

NMFS RPA: Flow Management

- Minimum mainstem flows – meet or exceed; evaluate and revise flows if indicated
- Tributary flows
 - meet or exceed minimum flow objectives
 - install and operate gages at mouths of tributaries
 - conduct instream flow studies
 - modify project operations based on studies
- Down-Ramping rates - 0.1 ft/hr night; 0.2 ft/hr day
- Flow Management Wrkgrp – in-season coordination
- Seek protection of fish flows through Oregon's water rights process

NMFS RPA: Fish Passage Upstream

- Continue adult “outplanting” program
- Improve or replace adult fish traps
 - Minto (N. Santiam) – 2012
 - Foster (S. Santiam) – 2013
 - Dexter (Middle Fk Willamette) – 2014
 - Fall Creek (Fall Creek) – 2015
- Develop 4 to 6 adult release sites above reservoirs by 2012

NMFS RPA: Fish Passage Downstream

- Measures to improve passage through reservoirs and dams until permanent facilities are built
 - Fall Creek drawdown for Chinook outmigration
 - Test other measures: reservoir drawdown, pulsing flows, spill, other outlets
 - Implement feasible alternatives (“simple” by 2009; more “complex” by 2011)
- Head-of-Reservoir juvenile collection prototype
 - Evaluate feasibility – complete by end of 2010
 - Construct prototype by 2014
 - Biological and physical evaluations 2015 & 2016
 - If effective, include in design alternatives for downstream passage at other Project dams
- Fish passage survival, injury, delay, timing and distribution studies at 8 Project dams and reservoirs, 2008 - 2015

NMFS RPA: Fish Passage Downstream

- Downstream fish passage facilities (or equally effective operational alternatives)
Construction complete by:
 - Cougar - 2014
 - Lookout Point/Dexter - 2021
 - Detroit/Big Cliff - 2023
- Analyze feasibility, alternatives, design through the COP study
- COP to look at passage at additional sites

NMFS RPA: Water Quality

- Operate Cougar Water Temp. Control
- Initial measures to improve downstream temperature and TDG (dissolved gas)
 - Modify operations at Detroit and/or Lookout Point by 2009
 - Modify operations at other dams, if possible, without structural and other major changes
 - Evaluate complex measures through COP; carry out feasible measures by 2011
- Construct Water Temp. Control (or operational alternative) at Detroit (or other location) by 2018
- Analyze feasibility, alternatives, design through the COP study

NMFS RPA: Hatcheries

- Implement HGMPs for Chinook, summer steelhead, rainbow trout hatchery programs
- Continue to operate and maintain existing hatcheries
- Improve/rebuild traps and equipment for hatchery collection and outplant program above dams
- Install sorting facilities at Leaburg Dam on McKenzie
- Mass-mark all Chinook hatchery releases
- Improve summer steelhead management

NMFS RPA: Water Contracts

- Continue existing marketing program; do not exceed 95,000 acre feet
- All contracts subject to availability of water
 - Pre-season determination from USACE; if “deficit” water year, Reclamation will notify contractees of partial or full curtailment
 - In “adequate” and better water years, USACE will release additional flow to offset contract diversions
- No increase in total volume under contract in North and South Santiam rivers
- Renewed and new contracts:
 - NMFS fish protection criteria; lockable headgates; measurement devices; availability limited under certain flow conditions
- Existing diversions
 - Bring into compliance with NMFS fish protection criteria

NMFS RPA: Habitat Restoration

- Comprehensive assessment of habitat restoration opportunities
 - Part of COP study; complete no later than 2013, implement sooner
- Establish and fund off-site habitat restoration program in Willamette basin to benefit listed fish species
 - Complete existing programs (Willamette mitigation, Col. R Estuary)
 - Complete at least 2 highest priority by 2011
 - Complete additional habitat projects each year from 2012 through end of term (2023)
- Restore habitat at USACE revetments
 - Inventory and identify sites for removal or restoration; fund through habitat restoration program

NMFS RPA: Coordination Mechanisms

- Willamette Action Team for Ecosystem Restoration (WATER)
 - Collaborative advisory body, including tribes, feds, and state
 - Charter completed by December 2008
 - Technical subcommittees
 - In-season flow management and coordination

NMFS RPA: Planning, Procedures, & Review

- Willamette Fish Operations Plan
- Employee training for fish protection
- Notification protocol for emergencies and deviations
- Implement mechanical/structural changes that would reduce adverse flows, ramping, water quality effects during emergencies
- Review procedures for construction projects – designs, O & M plans, studies
- BMPs for construction and in-water activities

NMFS RPA: Research, Monitoring & Evaluation

- Comprehensive program, feeds into COP
- Site-specific field studies
- Coordinated through WATER subcommittee (including Tribes and State)
- Flow RM&E– revise minimum flows if indicated by studies
- Post-construction monitoring – to confirm meeting expected performance