

Klamath Basin Secretarial Determination on Dam Removal

Public Meeting
Orleans, CA
June 15, 2011

JC Boyle penstocks and turbines



Panel:

Dennis Lynch, USGS
Matt Baun, US FWS
Renee Snyder, BLM
Gordon Leppig, CDFG
Ted Wise, ODFW

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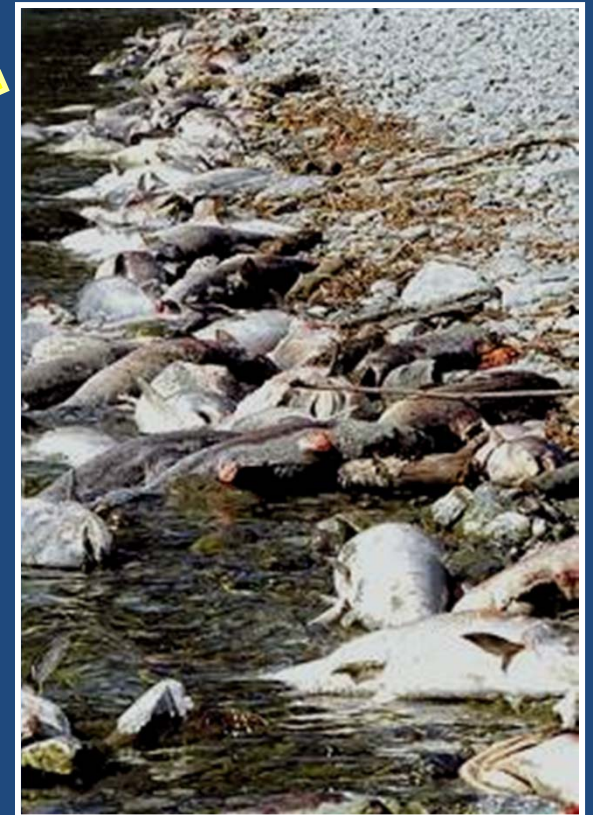
Why a Secretarial Determination?

- Last Decade of Natural Resource Problems:
 - 2 years of major reductions in farm water deliveries
 - Closed ocean salmon fishing 2006
 - 2002 major adult salmon die off
 - Ongoing juvenile salmon disease
 - Sucker fishery closed for 25 years
 - Ongoing water shortages for refuges

Lost River Sucker



Lower Klamath
River, 2002

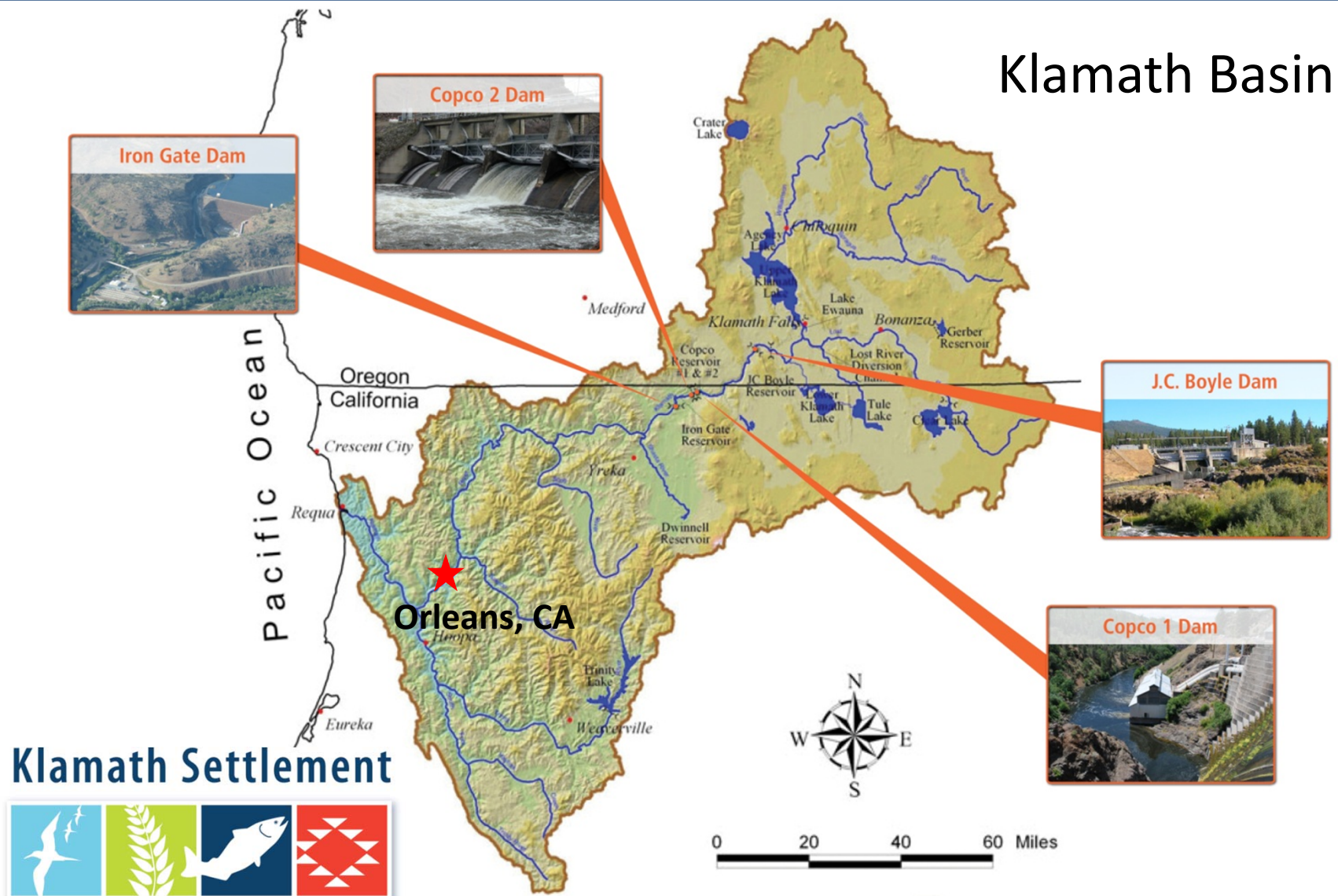


Klamath Hydroelectric Settlement Agreement (KHSA)

- Proposal to remove 4 PacifiCorp dams in 2020
- Secretarial Determination Analysis:
 - New federal technical studies
 - Environmental review (NEPA and CEQA)
 - Complete by March 2012
- Determination focus:
 - Dam removal plan, mitigations, and costs
 - Advance restoration of salmonid fisheries?
 - In the public interest?

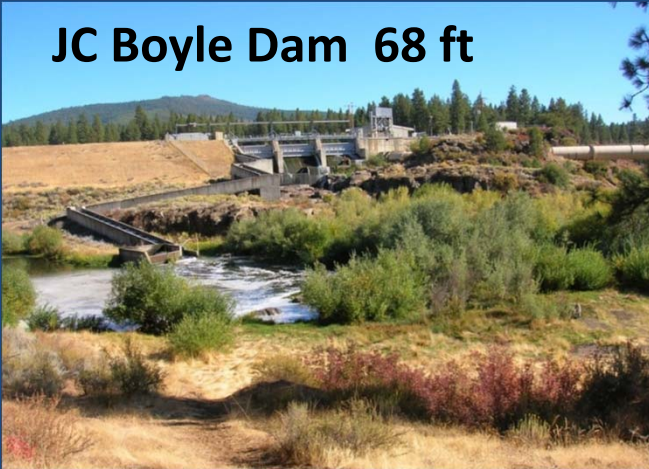


Location of Four PacifiCorp Dams



PacifiCorp Hydroelectric Dams

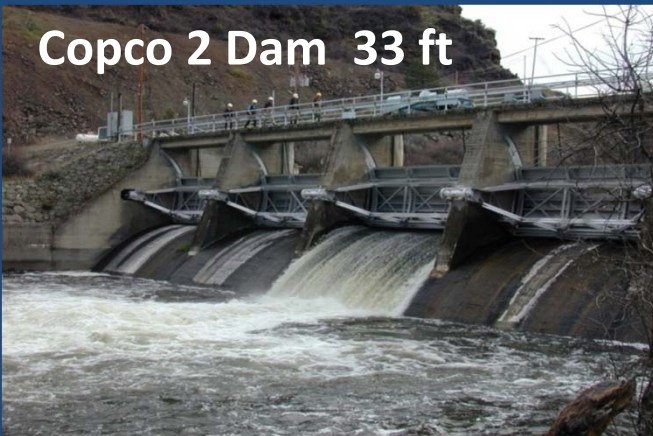
JC Boyle Dam 68 ft



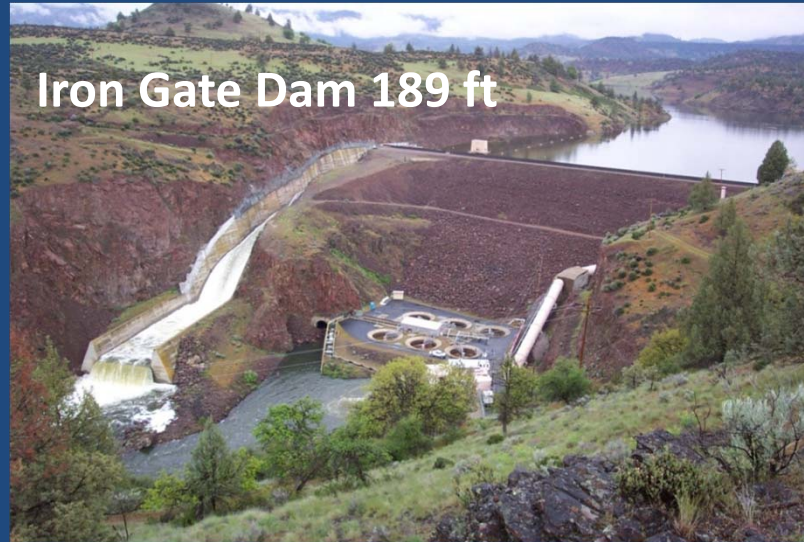
Copco 1 Dam 115 ft



Copco 2 Dam 33 ft



Iron Gate Dam 189 ft



- 82 megawatts (70,000 homes)
- Inadequate fish passage
- Downstream water quality
- Ratepayer savings with dam removal

Klamath Basin Restoration Agreement (KBRA)

- KBRA programs designed to complement dam removal agreement
- Proposed actions “connected” to KHSA
- KBRA goals:
 - Reliable water supplies for all uses
 - Reliable power supplies
 - Restore salmonid fisheries for all uses
 - Durable solution for communities

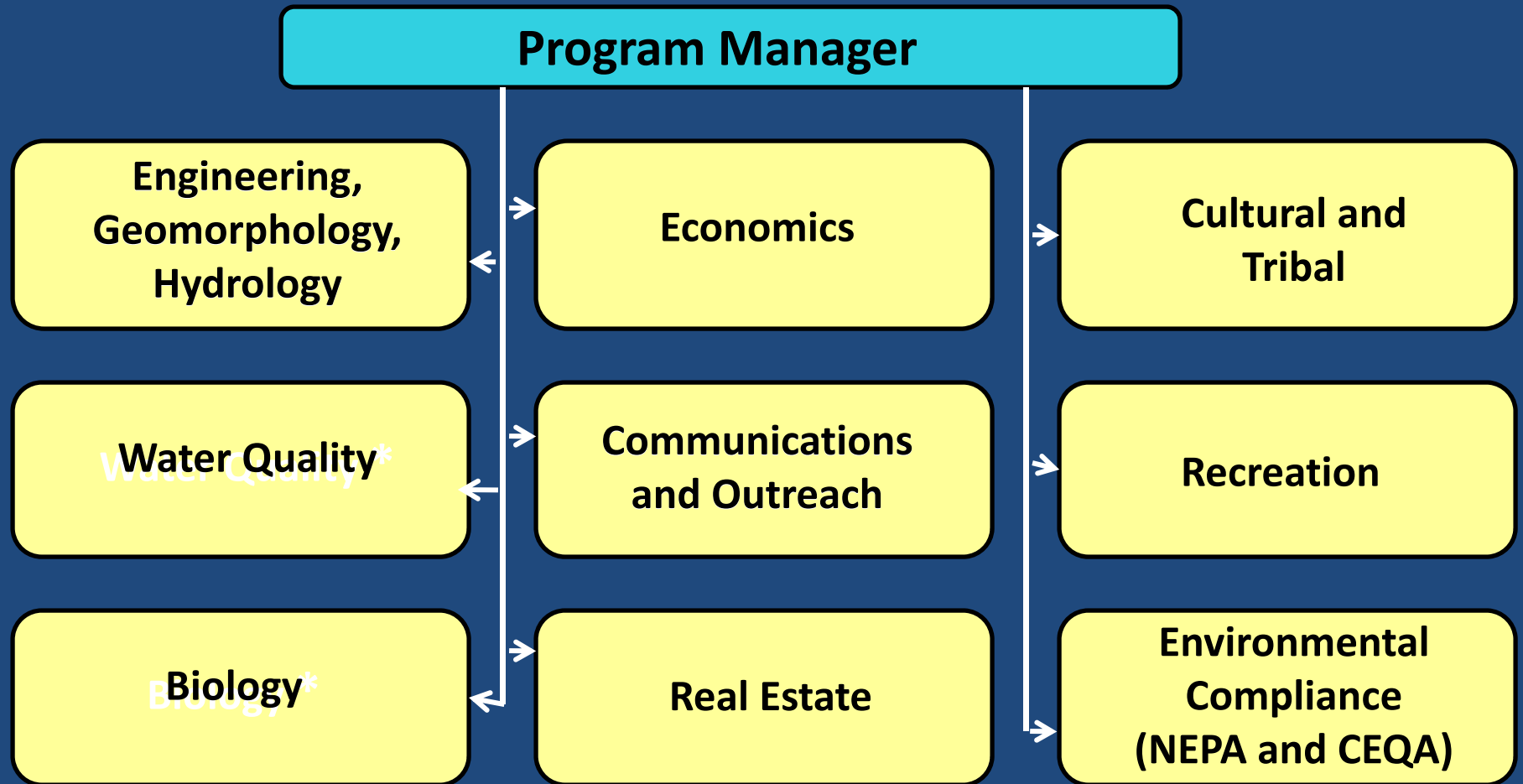


Secretarial Determination – Two Track Process

- New technical studies “track”
- Environmental Compliance “track” (NEPA/CEQA)
 - Environmental Impact Statement (EIS)
 - California Environmental Impact Report (EIR)
 - No Action, Proposed Action, Other Alternatives
- Both tracks will inform the Determination:
 - Record of Decision (DOI Secretary)
 - Notice of Determination (CA Governor)
 - OR Governor Concurrence

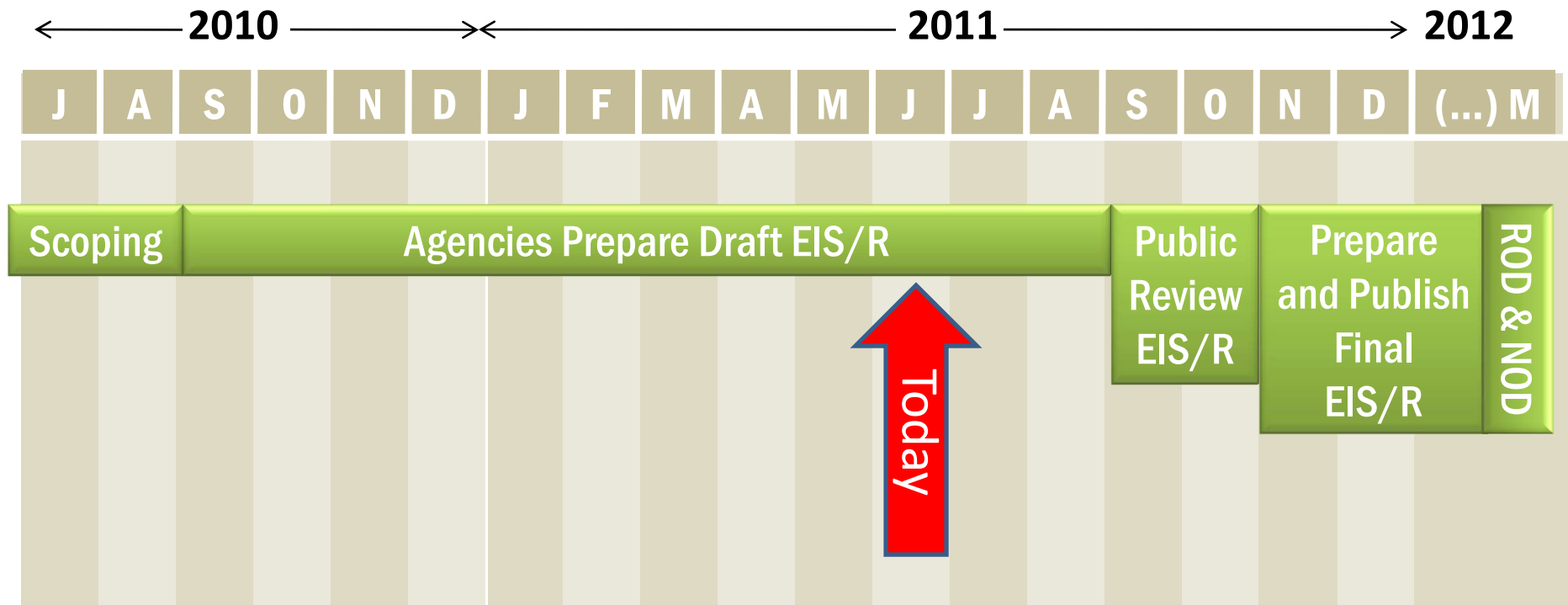


Secretarial Determination Team



Agencies: BOR, FWS, NMFS, BLM, BIA, EPA, DOI, USGS, and USFS

Schedule for Environmental Compliance Track *

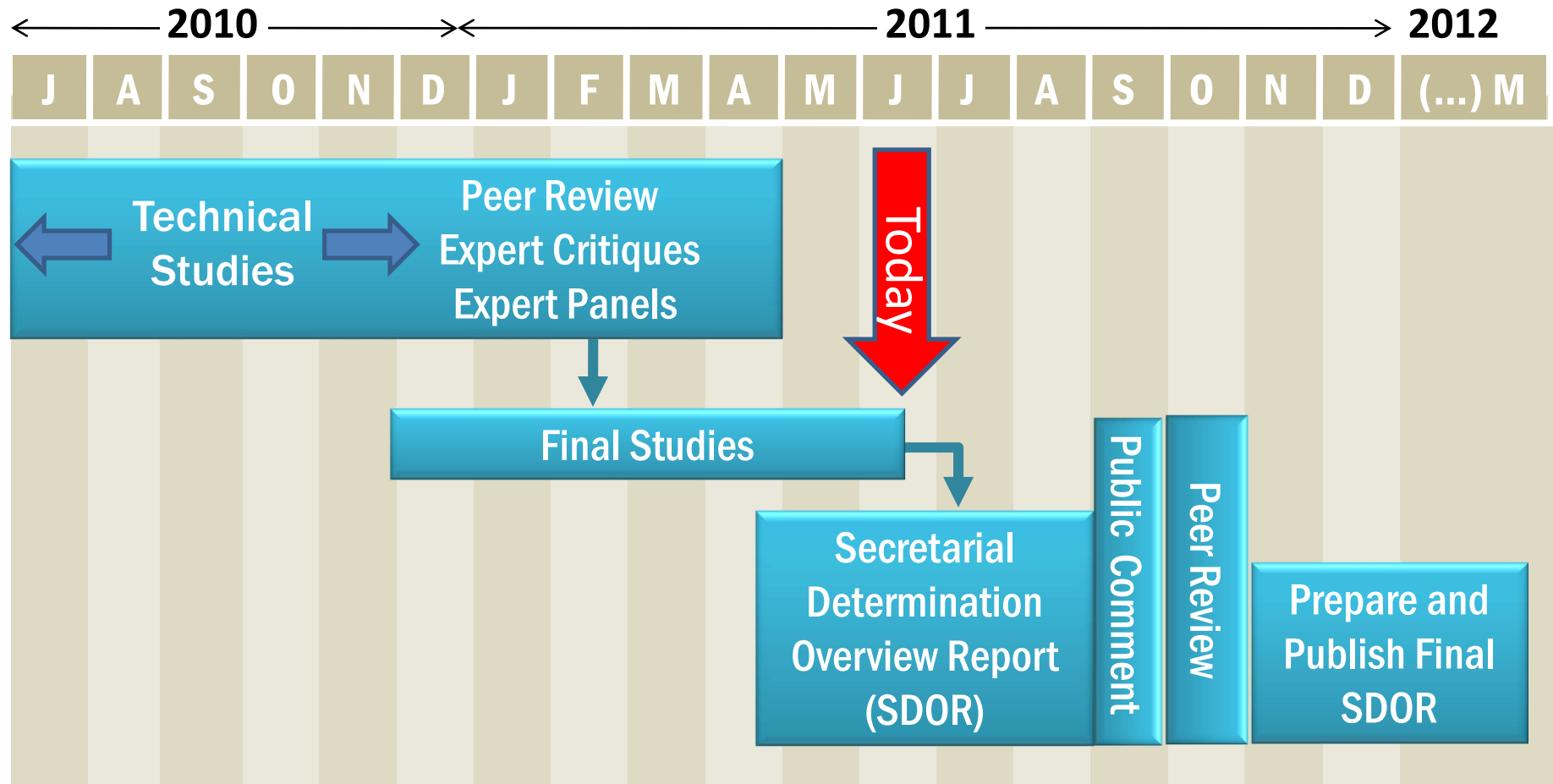


* Some milestones reflect target dates. Graphic will be updated accordingly.

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Schedule for Secretarial Determination Technical Studies Track *



* Some milestones reflect target dates. Graphic will be updated accordingly.

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Progress and Plans Toward Filling Critical Information Gaps

- Detailed plan of dam removal, mitigations, and costs
- Would agreements advance salmonid fisheries?
- Is it in the public interest?



“Detailed Plan” of Dam Removal, Mitigations, and Costs

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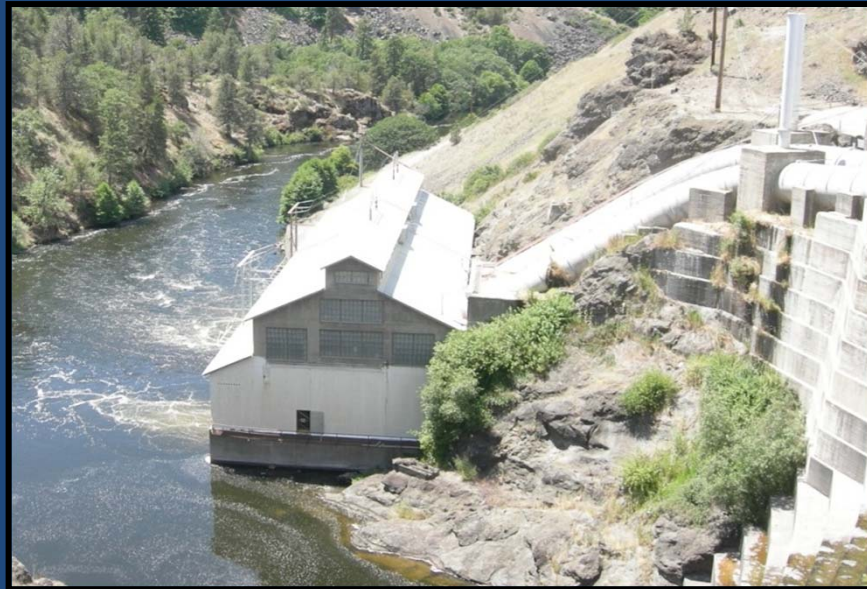


Dam Removal Detailed Plan

- Full Dam Removal:
 - Draft plan complete
 - Independent peer review complete
 - Response/revision to peer review – nearly complete
 - Listing of mitigations and costs – nearly complete
- Partial Dam Removal:
 - Identify structures that could safely remain
 - Free flowing river at all four dam sites
 - Unassisted fish passage



Other Structures: Removed or Left Behind?



Dam Removal Plan -- Preliminary Findings

- Removal designed to minimize impacts on coho
 - Coho in tributaries in early winter
 - Limit impact to a single-year
- Dams could be removed in a single year
 - Drawdown rates of 1 to 3 feet per day
 - Copco 1, 11/2019 – 3/2020
 - JC Boyle and IGD, 1/2020 – 3/2020
 - Copco 2, 5/2020
 - Bulk of dam removal 11/2019 – 9/2020

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Dam Removal Plan -- Preliminary Findings (continued)

- Mechanical removal of erodible reservoir sediment infeasible
 - Detailed set of studies
 - Disturbance of hundreds of acres for settling ponds
 - Increases possible disturbance of cultural sites
 - Removes < 45% erodible sediment (still significant to fish)
 - Technically difficult (weather, 2-month window, never done)
 - Adds to air quality issues
 - Very costly
- Natural erosion of sediments most feasible

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Dam Removal Plan -- Preliminary Findings (continued)

Peak suspended-sediment concentrations with natural erosion of reservoir sediments, in mg/L

	Iron Gate	Seiad Valley	Orleans	Klamath (mouth)
Dry year	13,600	9,000	5,000	1,800
Median year	9,900	6,000	2,500	1,300
Wet year	7,100	4,000	2,000	800

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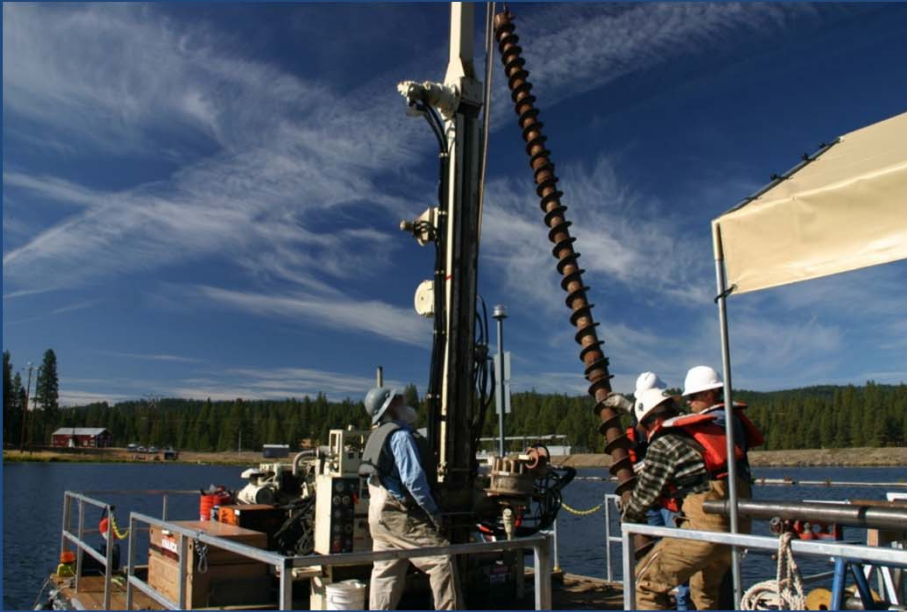
Dam Removal Plan -- Preliminary Findings (continued)

- Effects of Dam Removal Suspended-Sediment Concentrations on of Salmonids (median year)
 - Mortality of less than 1% of out-migrating juvenile Chinook
 - Mortality of about 10% of out-migrating juvenile Coho
 - Mortality of 30% of steelhead juveniles



Dam Removal Plan -- Preliminary Findings (continued)

Low level of contaminants in reservoir sediments do not preclude natural erosion



Sediment Chemistry Results

- Generally low-levels of chemicals in sediments
- Confirmed previous study
- Broad range of chemicals analyzed
- Dioxin twice “background” in Copco 1 and JC Boyle
- No risk to humans from direct sediment contact
- Data available at: KlamathRestoration.gov



Dam Removal Mitigation Measures Being Evaluated – not exhaustive

- Reservoir bottom sediment re-vegetation plan
- Protection of culturally important sites (as per NHPA)
- Culverts and a bridge near reservoirs
- Yreka water supply pipeline
- Groundwater wells near reservoirs, as needed
- Short-term relocation program for affected fish
 - Coho juveniles
 - Lamprey
 - Mussels
- Flood prone structures below IGD (working with FEMA)



Dam Removal Mitigation Measures Being Evaluated – droughts/floods

- Dam removal would have no effect on droughts:
 - Narrow “full-pool” operating range
 - No seasonal drawdown or supplementing flow
- Four PacifiCorp dams slightly dampen flood peaks:
 - Upper basin contributes 5% to flood flows
 - Link River Dam provides flood control
 - PacifiCorp dams decrease major flood peaks:
 - 10 -15% at Iron Gate Dam (about 2 feet)
 - 2 - 3% at Seiad Valley (< 6 inches)
 - < 1% at mouth (< 6 inches)
- Some mitigation for structures below Iron Gate is possible



Dam Removal Cost Estimates

- Costs estimates will not be ready for release until around September 2011
- Will include a listing of costs for dam removal and possible mitigations
 - Low
 - High
 - Most probable



Would agreements advance salmonid fisheries (and other fish species)?

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Would Agreements Advance Salmonid Fisheries and Other Fish Species?

- Relies on new hydrology, water quality, sediment transport, and water temperature analyses
- Previously published literature
- Federal synthesis report on effects of KHSA and KBRA on multiple fish species (completed)
- Chinook fish-production model (in peer review)
- Four independent fish expert panels



Fish Expert Panels

- Independent expert panels:
 - Lamprey
 - Resident fish (suckers and trout)
 - Coho and steelhead
 - Chinook
- Would fish populations change with agreements?
- Final findings published/posted by contractor at:
<http://northamerica.atkinsglobal.com/KlamathRiver/>
- Expert panels are only one of many sources of information that are being used



Expert Panels on Implementation of KHSA and KBRA

- Lamprey – recolonize newly opened habitat, but small increases, taking decades
- Bull trout – provides promise for preventing extinction and expanding their abundance and distribution
- Suckers – provides promise for preventing extinction and increasing production in Upper Klamath Lake



Expert Panels on Implementation of KHSA and KBRA (continued)

- Redband trout – would increase their range, productivity, and recreational opportunities
- Coho – likely small increases in abundance, small increases in spatial distribution, contributing to improved population viability
- Steelhead – optimistic they would lead to increases in spatial distribution and abundance



Expert Panels on Implementation of KHSA and KBRA (continued)

- Chinook:
 - “Appears to be a major step forward in conserving Chinook compared with decades of vigorous disagreements, obvious fish passage barriers, and continued ecological degradation”
 - Substantial increases between Iron Gate Dam and Keno Dam are possible
 - Increases upstream of Keno Dam are less certain, but it is possible increases could be large
 - Maximizing success depends on KBRA improving issues of water quality, disease, etc.



Comparison of Federal Team Reports with Expert Panel Findings

- Effective implementation of agreements (and TMDLs) is important for maximizing advancement of fisheries
- Agreements provide promise for preventing extinction of several federally-listed fish
- Agreements would likely increase spatial distribution and abundance (and viability) of most fish species



Comparison of Federal Team Reports with Expert Panel Findings (continued)

- Agreement on likely trends in fish populations, but not always on magnitude/timing of trends
- Federal Team Synthesis:
 - KBRA restoration actions could be made effective with adaptive management
 - Water-quality improvements are likely thru research and implementation of solutions over 50 years
 - Juvenile salmon disease mortality would likely improve significantly with dam removal and KBRA flows
 - Upper basin could become important restored and accessible historical habitat for many fish species

Federal Synthesis Report on Fish for KHSA and KBRA

Synthesis of the Effects to Fish Species of Two
Management Scenarios for the Secretarial
Determination on Removal of the Lower Four Dams
on the Klamath River

June 13, 2011

John Hamilton, FWS
Dennis Rondorf, USGS
Mark Hampton, NMFS
Rebecca Quiñones, USFS
Jim Simondet NMFS
Terry Smith USFS

Are These Agreements in the Public Interest?

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Are These Agreements in the Public Interest?

- Federal team undertaking analyses to inform a “Public Interest” determination made by the Interior Secretary
 - Analysis of Regional Economic Development Effects
 - Includes effects on regional employment
 - Analysis of National Economic Development Effects
 - Includes a Benefit-Cost (B-C) analysis
 - B-C analysis includes a Non-Use Valuation survey
 - Non-monetary effects of agreements on tribes



Non-Monetary Effects for Tribes

- Cultural values
- Spiritual values
- Ceremonial values
- Subsistence fishing
- Other resources
- Tribal member health
- Two tribal reports:
 - Existing effects of dams
 - Potential effects of dam removal



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Regional Economic Development Impact Analysis

- Local community effects
 - Commercial fishing
 - Recreational fishing
 - Other recreational activities
 - Refuges
 - Rafting
 - Flat-water boating
 - Agricultural production
 - Hydropower
 - KBRA spending
 - Dam removal spending
 - Mitigations spending



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National Economic Development Benefit-Cost Analysis

- Benefits:

- Irrigated agriculture
- Commercial fishing
- Sport fishing, river
- Sport fishing, ocean
- Refuge recreation
- Non-use values

- Costs:

- KBRA costs (new)
- Facility removal costs
- Site mitigation costs
- Foregone hydropower
- Lost reservoir recreation
- Lost whitewater recreation



Opportunities for Obtaining Information and Public Input

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Public Outreach on Secretarial Determination Issues

- Regular updates on KlamathRestoration.gov
- Posting of SD Science Studies
- Public input on EIS/EIR (Sept 2011)
- Public input on Secretarial Determination Overview Report (Sept 2011)



Questions and Comments

KlamathRestoration.gov

Formal Planned Public Comment Periods:

- Secretarial Determination Overview Report: Sept 2011
- Draft EIS/R: Sept and Oct 2011

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