

Klamath Basin Secretarial Determination on Dam Removal

JC Boyle surge tanks,
penstocks and turbines



Public Meetings:

Copco Lake, CA

Yreka, CA

December 9, 2010

Klamath Settlement



Meeting Agenda

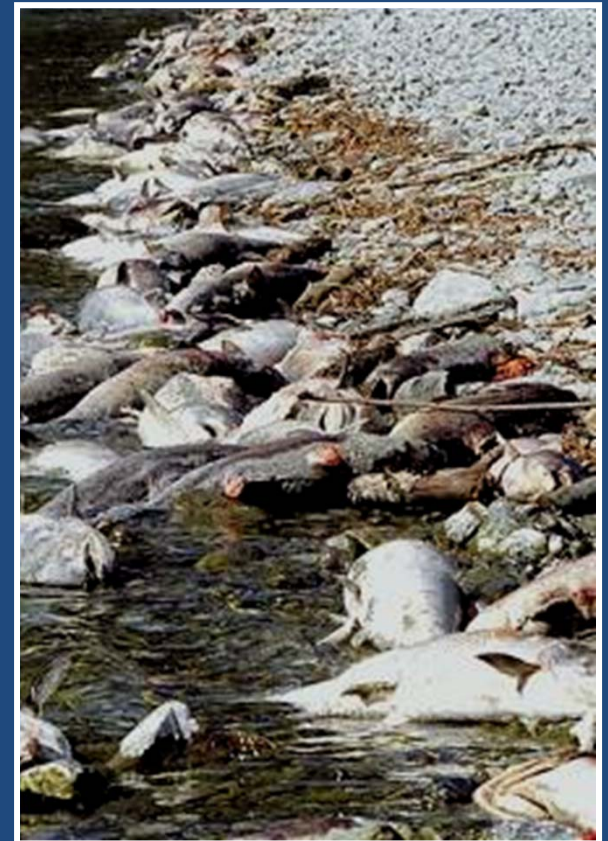
- Introductions, meeting purpose, logistics -- Jones
- Opening comments – Lynch and Stopher
- Why a Secretarial Determination? – Lynch
- Technical studies underway – Lynch and Snyder
- Environmental Compliance process – Sommer
- Communications and public input – Baun
- Questions and discussion – Jones



Why a Secretarial Determination?

- Recent Major Natural Resource Issues:
 - Reduced farm water deliveries (2001)
 - Salmon die off (2002)
 - Limited salmon fishing (2005 – 07)
 - Water shortages for refuges (dry years)
 - Reduced farm water deliveries (2010)
 - Juvenile salmon disease (ongoing)
 - C'waam fishery closed (24 years)

Lower Klamath
River, 2002



C'waam, Upper Klamath Lake



Klamath Hydroelectric Settlement Agreement (KHSA)

- Proposal to remove 4 PacifiCorp dams in 2020
- Secretarial Determination Analysis:
 - New federal technical studies
 - Environmental review
 - Complete by March 2012
- Determination questions:
 - In public interest?
 - Within state cost cap?
 - Advance salmonid restoration?



Were Salmon in the Upper Basin?

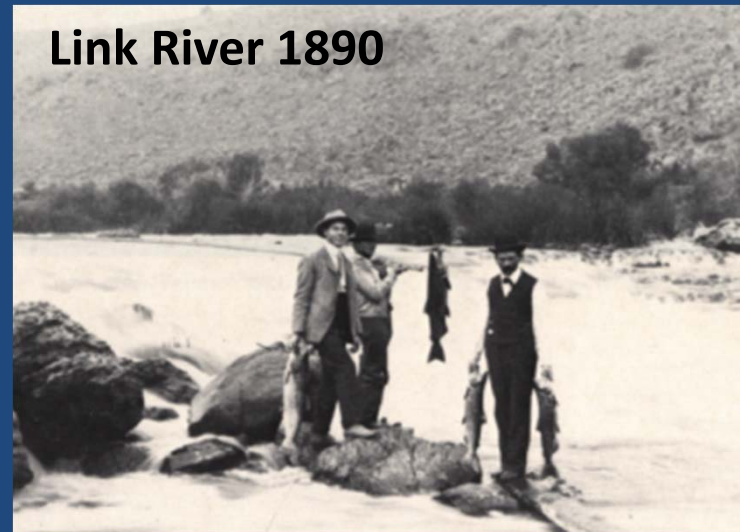
Klamath Falls Evening Herald, September 24, 1908

“There are millions of the fish below the falls near Keno, and it is said that a man with a gaff could easily land a hundred of the salmon in an hour.”

Link River 1860



Link River 1890

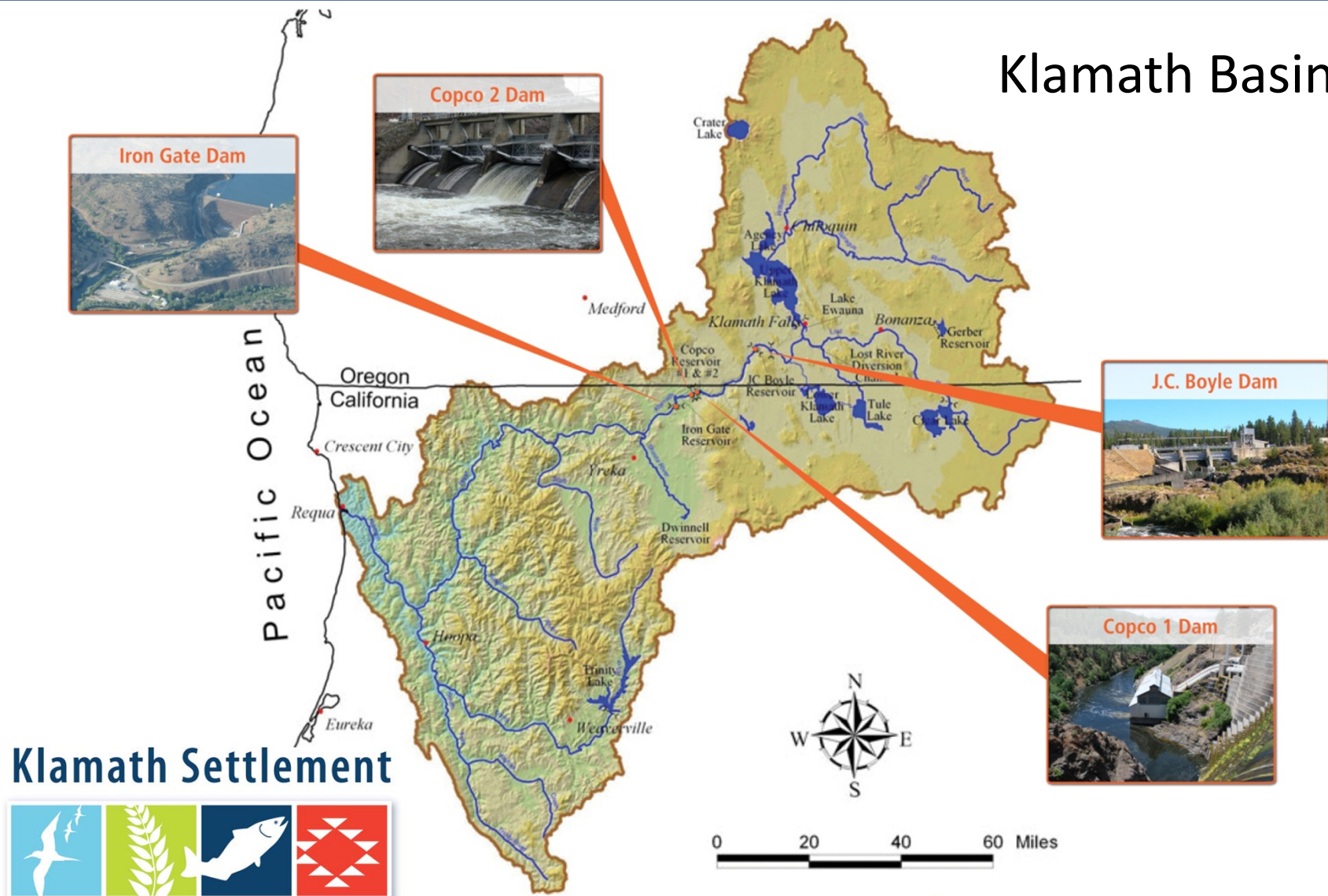


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Location of Four PacifiCorp Dams

Klamath Basin



PacifiCorp Dams

JC Boyle Dam 68 ft



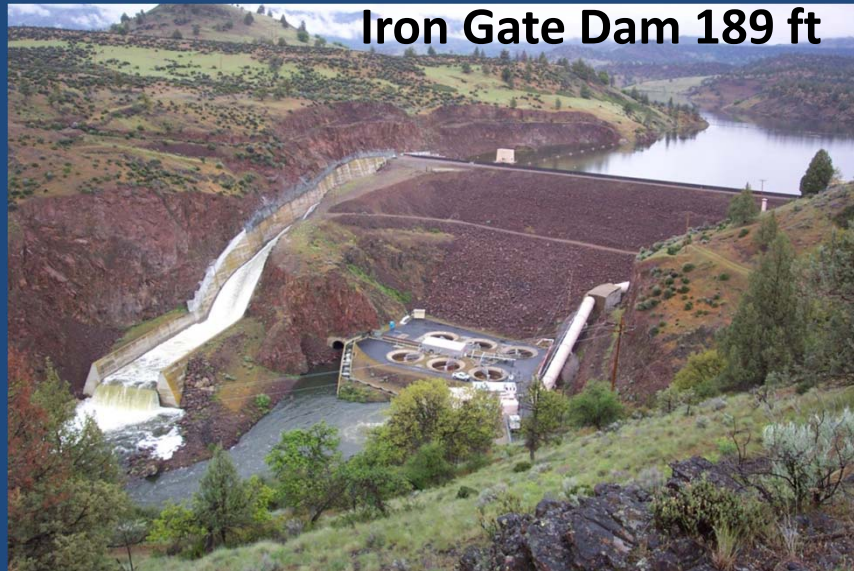
Copco 1 Dam 115 ft



Copco 2 Dam 33 ft



Iron Gate Dam 189 ft



Klamath Basin Restoration Agreement (KBRA) Part of Secretarial Determination

- Signed with the KHSA
- KBRA connected to KHSA
- KBRA complements KHSA
- KBRA programs goals:
 - Reliable water and power supplies
 - Restore fisheries for all uses
 - Durable solution for communities



Some KBRA Programs, Plans, and Actions

Fisheries:

- Habitat restoration
- Monitoring
- Reintroduction

Water Quality:

- Nutrient controls, upper basin

Water:

- Water rights settlement
- Klamath Project diversion and pumping limitation
- Upper basin voluntary water rights purchase
- Drought plan (in development)
- Environmental water plan
- Water conservation and storage
- Refuge water allocation

Groundwater pumping



Habitat Restoration Themes



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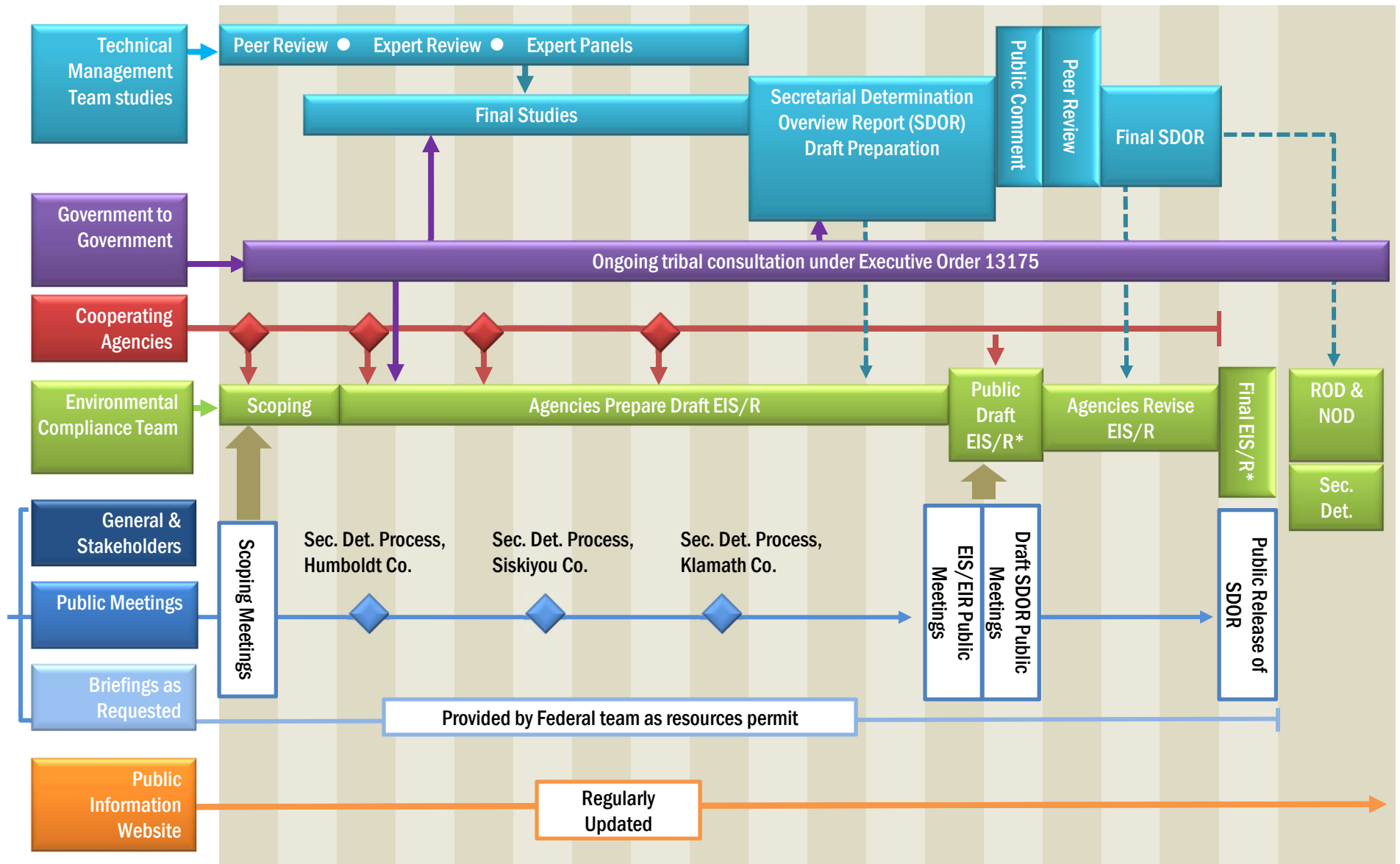


Science Guidelines for the Secretarial Determination

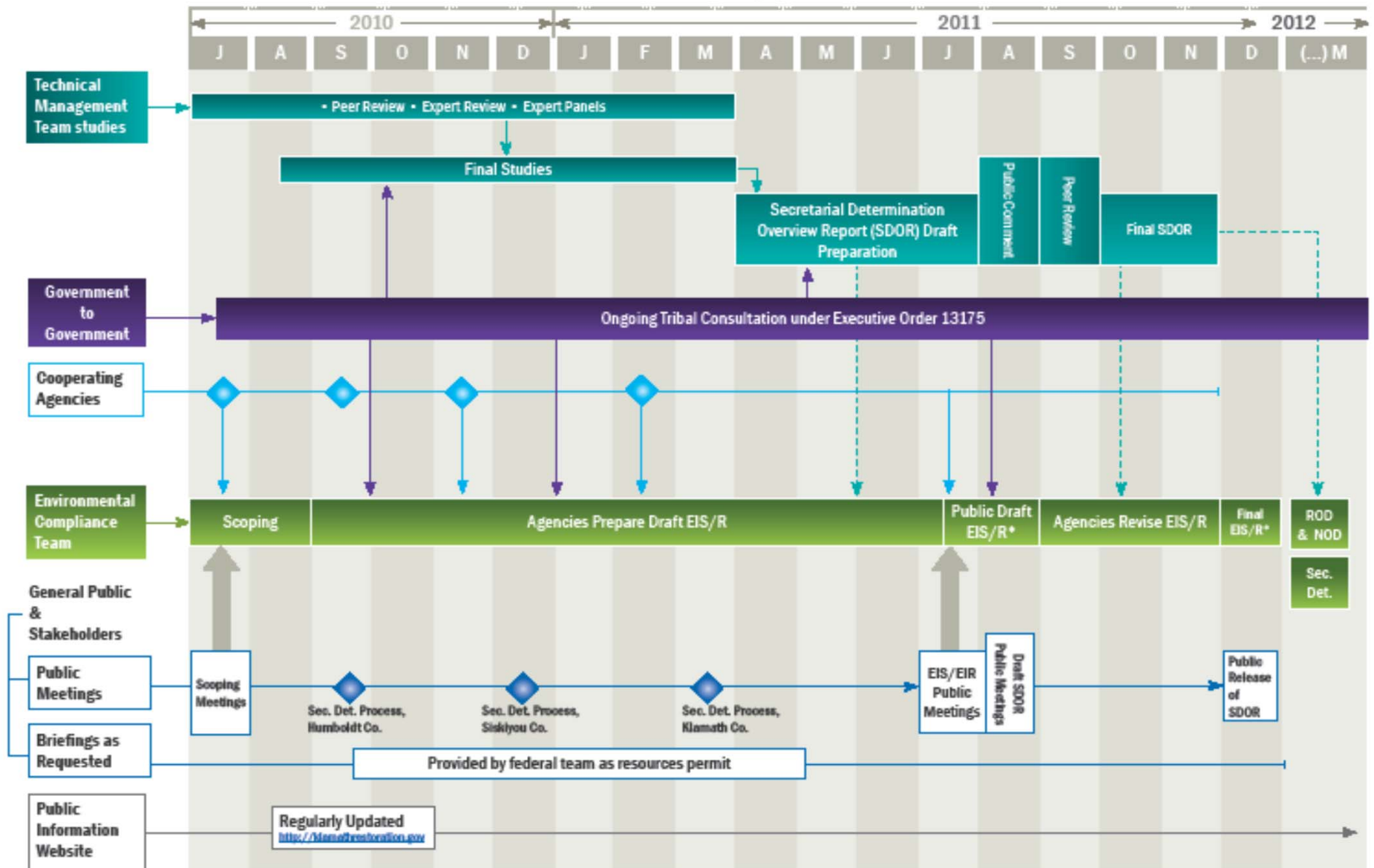
- Fill information gaps
- Open and objective process
- High quality science and data
- Peer review new reports
- Critique several existing reports



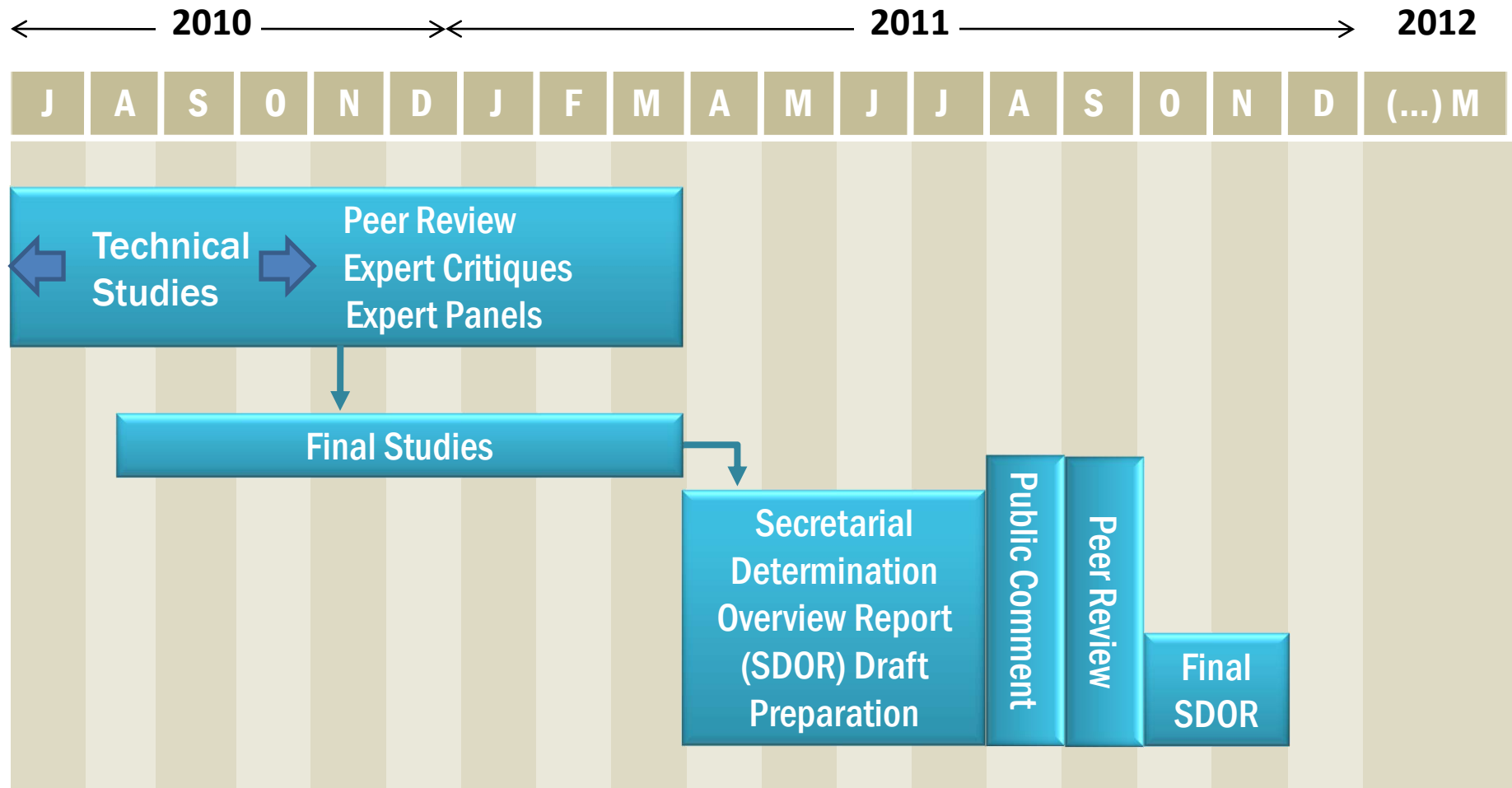
← 2011 → 2012 →



Klamath Secretarial Determination Process



Technical Management Team Studies Process



Secretarial Determination Overview Report Plans

- Compilation of new and existing information
- Organized by three Determination questions
- Public comment August 2011
- Peer review September 2011
- Finalize November 2011
- Foundational for March 2012 Determination



Technical Studies Underway: KHSA and KBRA versus no change

- Major technical information needs
 - Detailed plan for dam removal and costs
 - Advance fisheries restoration
 - Public interest determination



Dam Removal Detailed Plan

- Full Dam Removal:
 - Draft complete
 - Independent peer review completed
 - Response/revision to peer review -- ongoing
- Partial Dam Removal:
 - Structures that could possibly remain
 - Free flowing river at all four dam sites
 - Unassisted fish passage
 - Analysis ongoing



Dam Removal Detailed Plan

- Reservoir draw-down scenarios
- Deconstruction methods
- Reservoir bottom habitat restoration
- Yreka water supply
- Details of costs:
 - Low, high, and most probable



Basis for Hydrologic Modeling

- Hydrology is input for other analyses
 - Biology, economics, recreation, water quality, dam removal timing
- Dams in:
 - Most recent biological opinions
 - Use 1961-2009 as basis for hydrology
- Dams out and KBRA:
 - Free-flowing river and use 1961-2009 as basis for hydrology
 - Assumes programs/plans of KBRA
 - Upper basin irrigation limitations and voluntary purchase of water rights, drought plan, water to refuges, environmental flows, real-time flow management, etc

Hydrology – Droughts and Floods

- PacifiCorp dams provide no drought relief
- Upper Klamath Lake – upper basin flood control
- PacifiCorp dams slightly dampen flood peaks
- Upper Basin contributes 5% to flood peaks at mouth
- Calculate new 100-year flood plain IGD to Happy Camp (if needed)



Five Largest Flood Peaks Since 1960

[cubic feet/sec at USGS gages]

Keno, OR	Iron Gate Dam	Seiad Valley, CA	Orleans, CA	Klamath, Ca (mouth)
10,300	29,400	165,000	307,000	557,000
10,200	20,500	126,000	279,000	529,000
10,100	18,700	117,000	278,000	459,000
9,520	18,700	74,000	258,000	384,000
9,870	17,000	71,500	213,000	360,000
		Averages		
10,000	21, 900	111,000	267,000	458,000

Studies of Reservoir Sediments

- Amount of sediment in each reservoir
- Sediment transport, if eroded naturally
 - Downstream concentrations
 - Effects of reservoir drawdown strategies
 - Effects of low, average, and high flow years
 - Short and long-term effects on biology
- Sediment chemistry



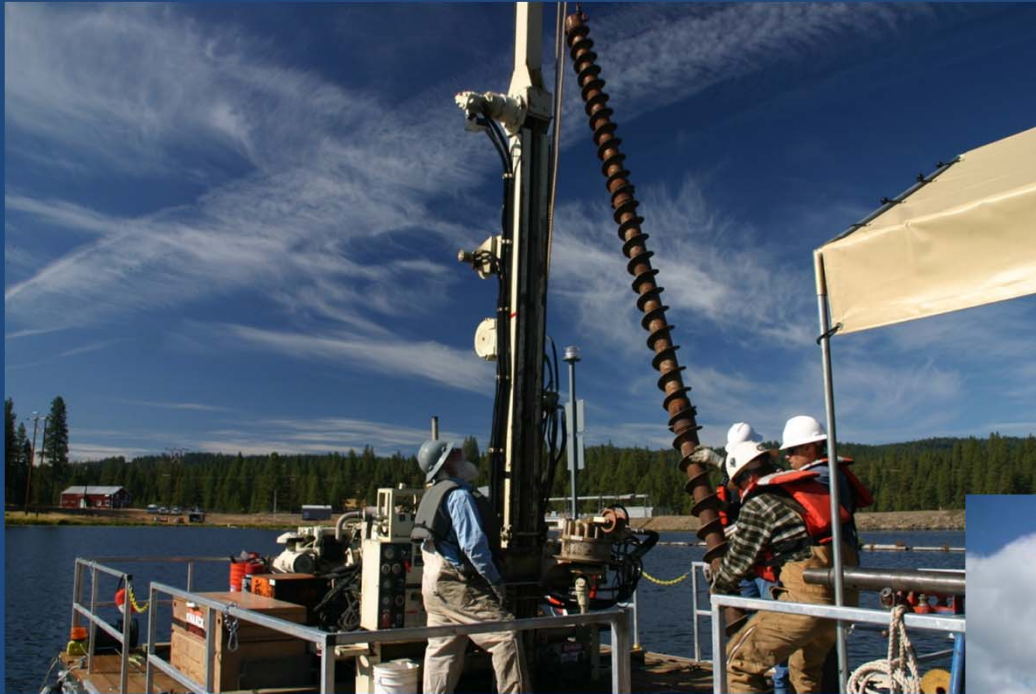
Sediment Coring with Divers for Chemical Analysis



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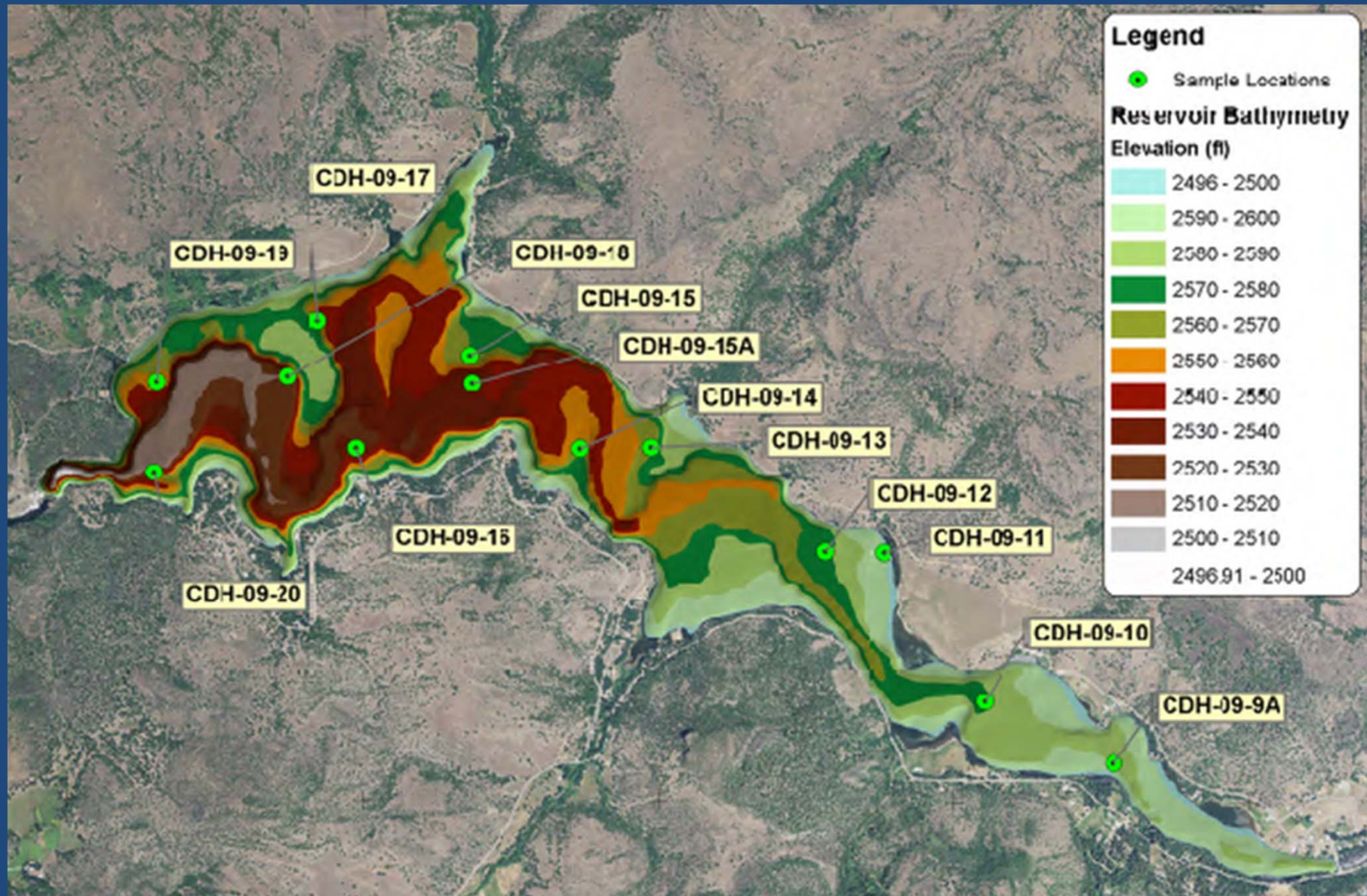
Sediment Coring with a Drill Rig



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Copco 1 Sediment Sampling Locations



Preliminary Sediment Chemistry Results

- Sampled JC Boyle, Copco 1 and Iron Gate reservoirs
- Potential oxygen demand (ongoing)
- Broad range of chemicals analyzed
- Chemical data available at KlamathRestoration.gov
- Confirms findings of previous studies
- Generally low-levels of chemicals, PCBs, and dioxins
- No risk to humans from direct sediment contact
- Dioxin twice “background levels” in Copco 1 and JC Boyle
- Led to risk analysis and reservoir fish-tissue analysis

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Collecting and Processing Reservoir Fish for Tissue Chemical Analysis



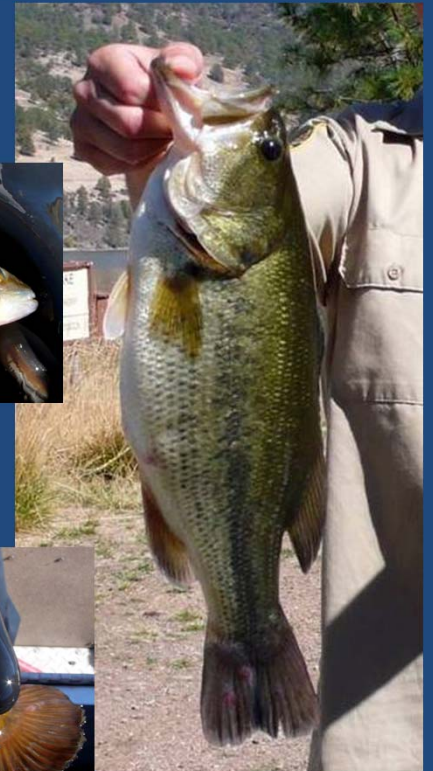
September 2010

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Fish Sampling and Tissue Analysis Plan

- From JC Boyle, Copco 1, and Iron Gate Reservoirs
 - Largemouth bass
 - Perch
 - Bullhead
- Analyzing for chemicals that bioaccumulate
 - Dioxins
 - PCBs
 - Pesticides
- Results around March 2011



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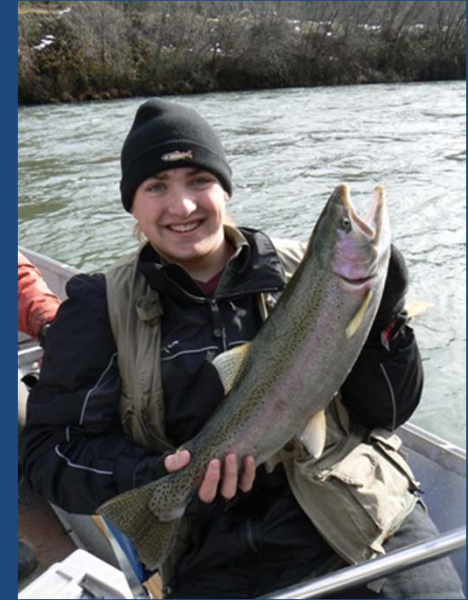
Would KHSA and KBRA Advance Salmonids and Other Fish Species?

- Reports on hydrology, water quality, sediment transport, and water temperatures
- Chinook fish-production modeling
- Synthesis report on effects of KHSA and KBRA on multiple fish species
- Green sturgeon technical workshop
- Four independent fish expert panels



Fish Expert Panels

- Independent expert panels
 - Lamprey
 - Resident fish (C'waam, trout)
 - Coho and steelhead
 - Chinook
- Would fish populations change with and without KHSA and KBRA?
- Technical reports and expert oral presentations
- Panel findings peer reviewed
- Findings published/posted by contractor
- Completed by February 2011



Are KHSA and KBRA in the Public Interest?

- Federal team gathering information
- Determination to be made by Secretary
- Identify potential risks and hazards, e.g.
 - Sediment chemistry
 - Potential for flooding
- Documenting non-monetary and monetary changes in the communities



Non-Monetary Effects on Tribes

- Cultural values
- Subsistence fishing
- Ceremonial values
- Tribal member health



Monetary Effects

- Effects on communities at county level (or regional):
 - Commercial fishing
 - Recreational fishing
 - Other recreational activities
 - Hydropower
 - Agricultural
 - Employment
 - Real estate
 - County tax bases
- Non-use valuation survey
 - measures national interest



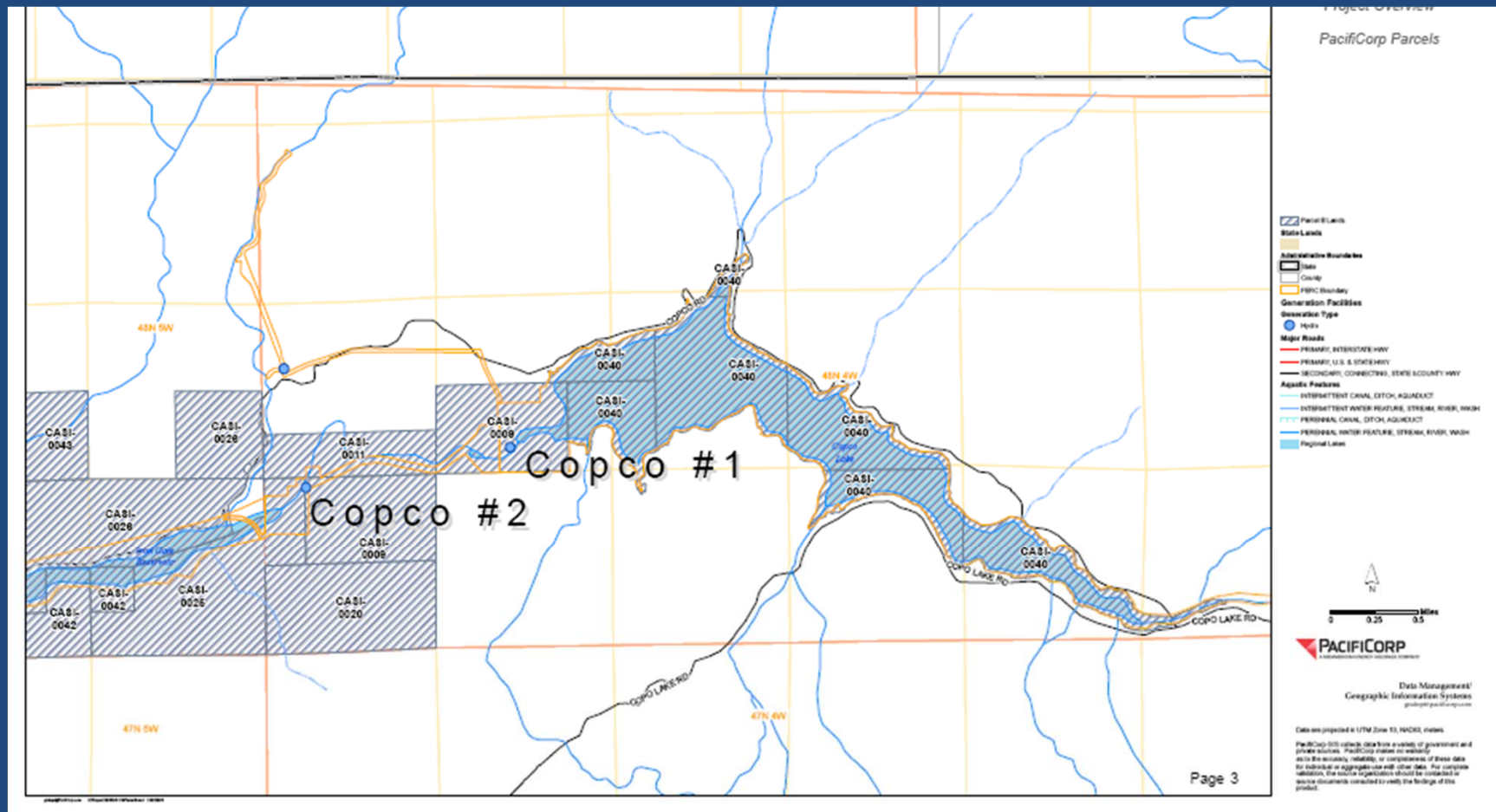
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Update on Real Estate Report

- Private lands adjacent to the reservoirs
 - Priority for restoration work
 - Real Estate Evaluation Report
- Permissions to be acquired in support of any construction and operation
 - Borrow and spoil sites, easements for access, temporary construction easements, etc.

Copco Parcel B Lands



Parcel B Lands

- Parcel B lands
 - PacifiCorp is presently fee owner
 - Agreement intends Parcel B lands to be transferred to the States for public interest purposes such as fish and wildlife habitat restoration and enhancement, public education and public recreational access
 - Evaluating what kinds of activity could occur in the future
 - Developing a restoration plan for any former reservoir areas

Update on Recreation Report

- Collected data from:
 - BLM & Forest Service outfitter actual use
 - California DFG creel surveys
 - Steelhead Report Card
- Used much of the FERC EIS information including controlled flow studies and reservoir recreation
- Evaluating flow studies with hydro modeling
- Evaluating whether PacifiCorp recreation facilities can be used for other purposes

Wild and Scenic Rivers

- Oregon - J.C. Boyle Powerhouse to the Oregon-California border
- California – from below Iron Gate dam to the Pacific Ocean
- No additional eligibility or suitability studies will be done for the reaches in between

Wild and Scenic River

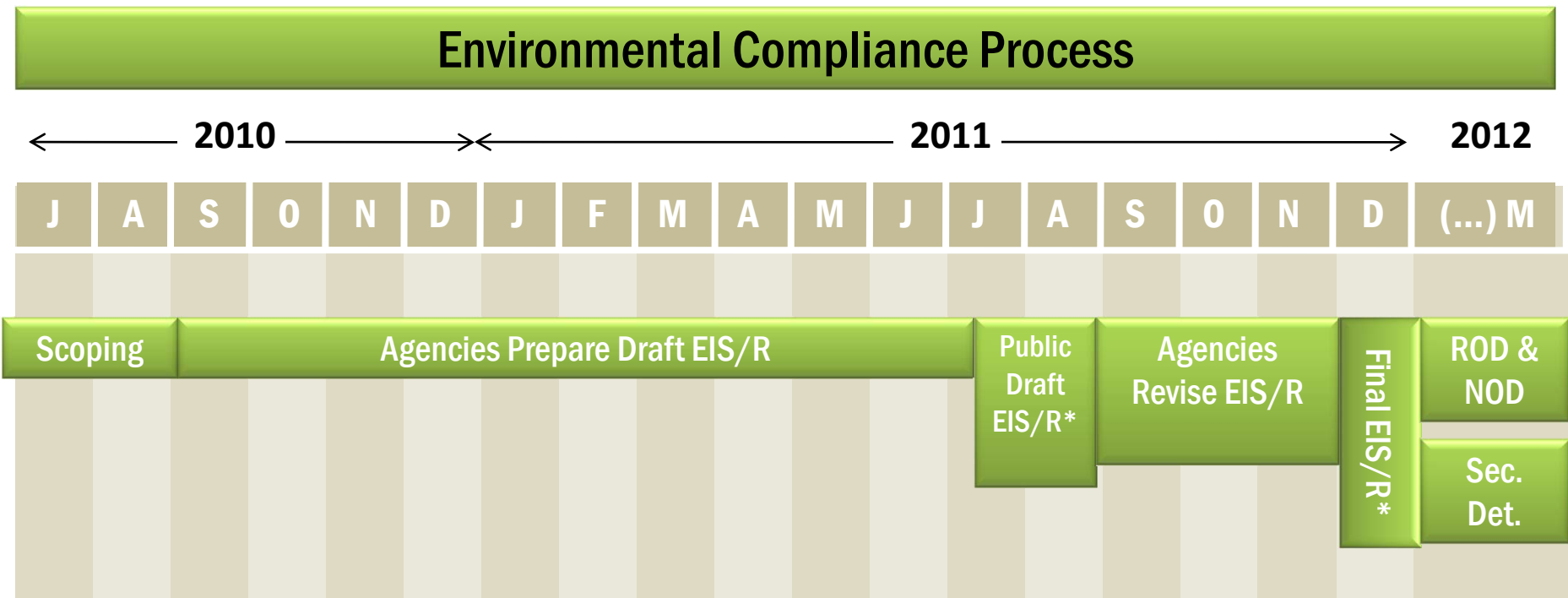
Section 7 Determination

- Required by the Wild and Scenic Rivers Act
- Must evaluate whether any “unreasonable diminution” of the following has occurred
 - Fish
 - Wildlife
 - Scenery
 - Recreation
- The baseline for change is the date of designation (1981 in California and 1994 in Oregon)
- Criteria is being developed and will be available soon
- Section 7 Determination to be signed by Regional Managers of National Park Service, US Forest Service and the BLM.

Environmental Compliance Process

- EIS/EIR will use results from SD studies
- Scoping meetings
- Scoping report
- Public Review of Draft EIS/EIR
- EIS/EIR preparation schedule





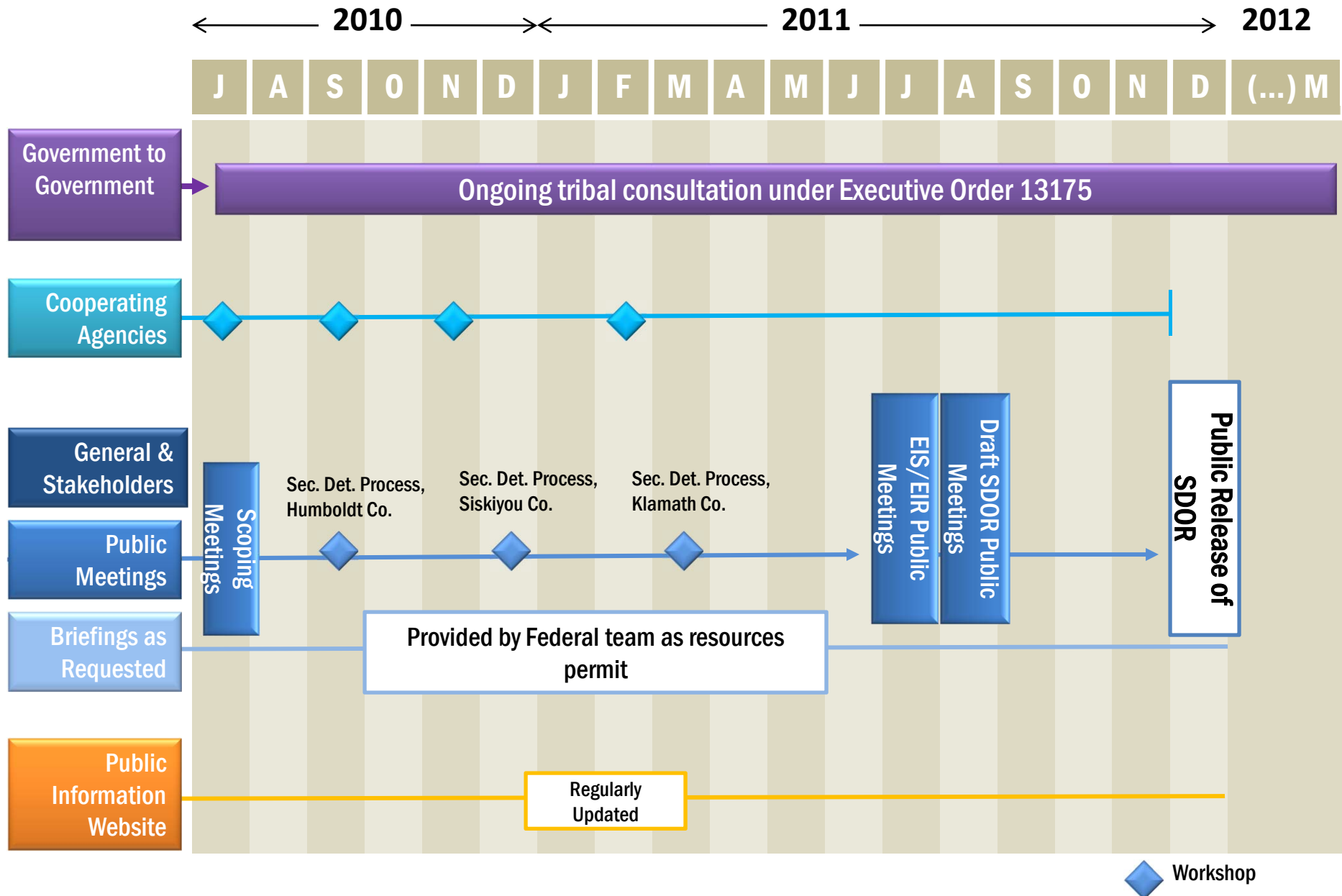
*Some milestones reflect target dates. Graphic will be updated accordingly.

Public Outreach on Secretarial Determination Issues

- Regular updates on KlamathRestoration.gov
- Posting of SD Science Studies
- Public input on EIS/EIR
- Public input on Secretarial Determination Overview Report
- Future public meetings and technical workshops
- Public Engagement Plan



Stakeholder and Public Engagement Process



Questions and Comments

KlamathRestoration.gov

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