

# Klamath Basin Secretarial Determination on Dam Removal

Public Meeting  
Klamath Falls, OR  
March 16, 2011

JC Boyle penstocks and turbines



## Panel:

Dennis Lynch, USGS  
Matt Baun, US FWS  
Curt Babcock, CDFG  
Ted Wise, ODFW

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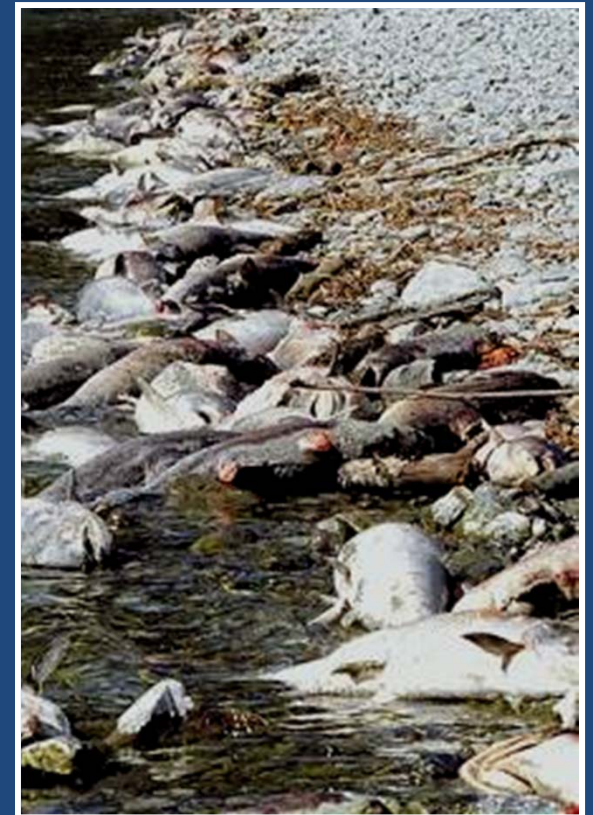
# Why a Secretarial Determination?

- Last Decade of Natural Resource Problems:
  - 2 years of reduced farm water deliveries
  - 3 years of limited or closed ocean salmon fishing
  - 2002 major salmon die off
  - Ongoing water shortages for refuges
  - Ongoing juvenile salmon disease
  - Sucker fishery closed for 25 years

Lost River Sucker



Lower Klamath  
River, 2002



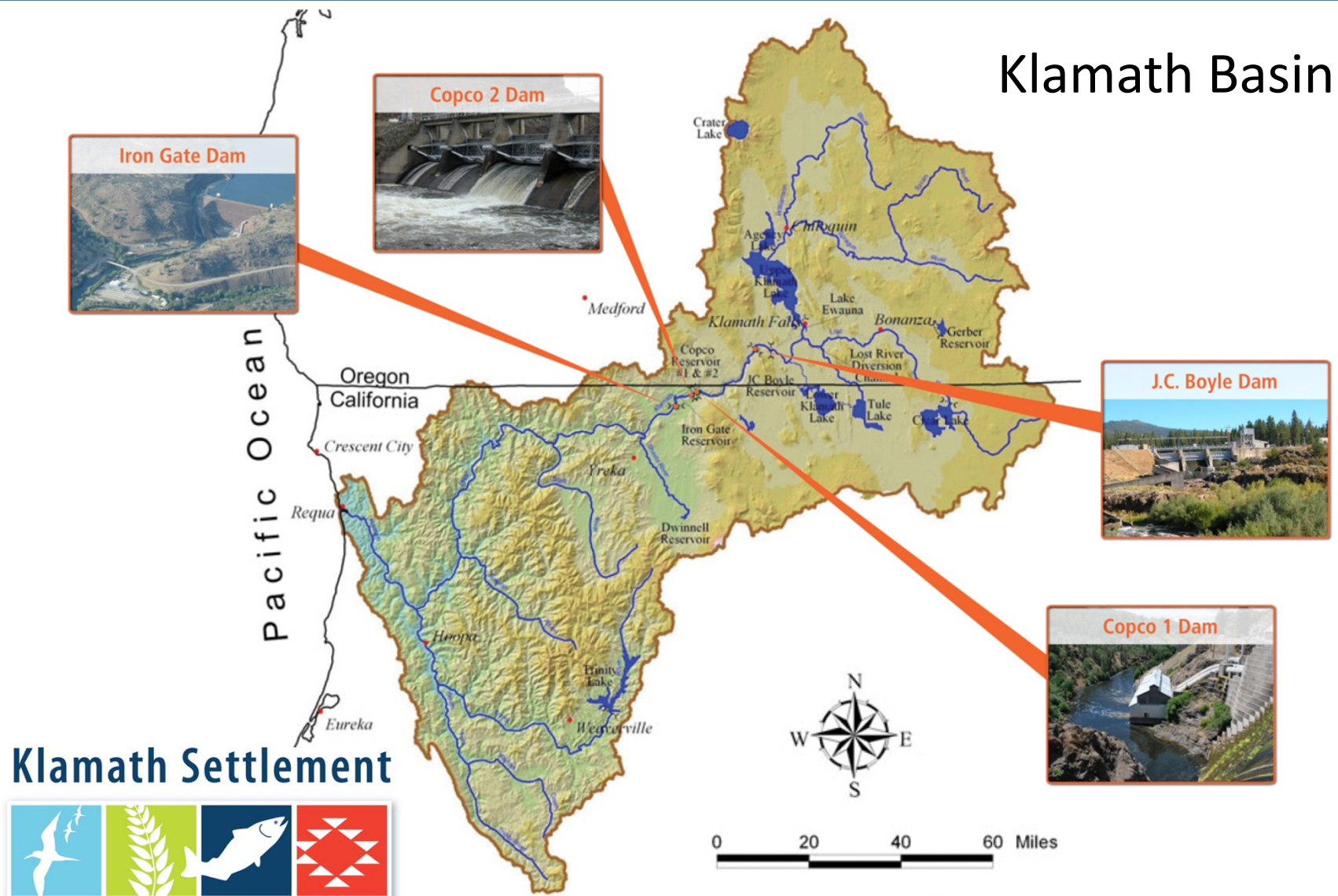
# Klamath Hydroelectric Settlement Agreement (KHSA)

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



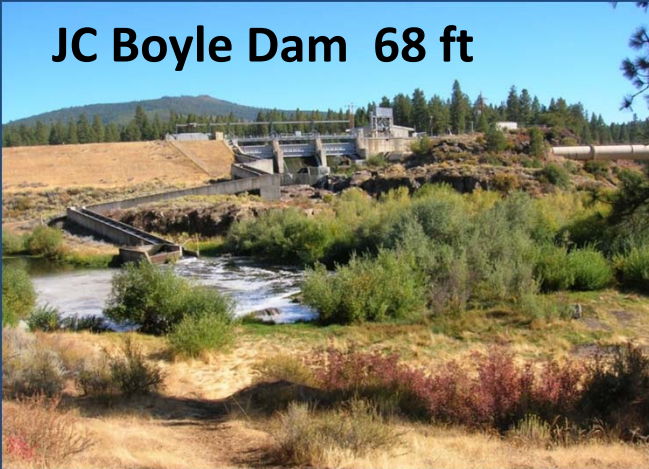


# Location of Four PacifiCorp Dams



# PacifiCorp Hydroelectric Dams

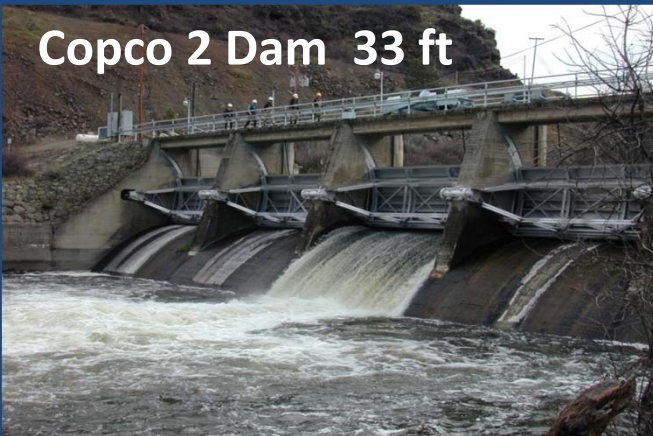
JC Boyle Dam 68 ft



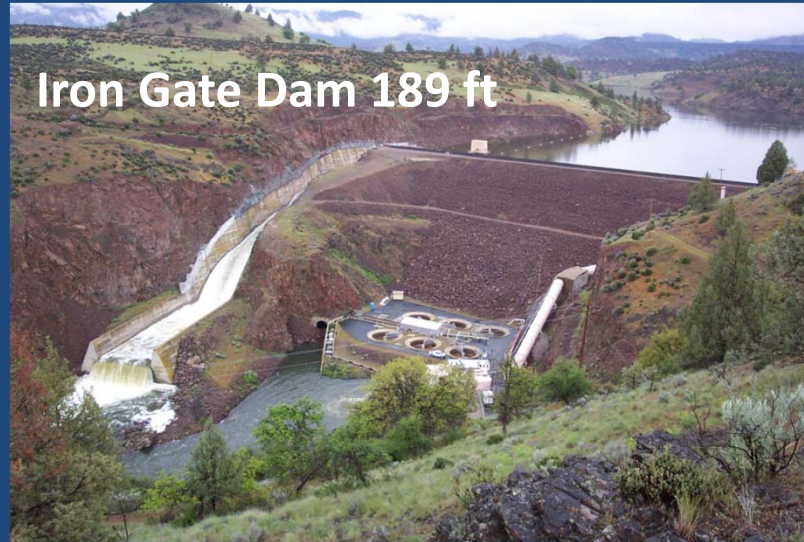
Copco 1 Dam 115 ft



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
- No drought relief
- Minimal flood benefit



# Potential Effect of Dam Removal on Droughts and Floods

- PacifiCorp dams provide no drought benefit
  - Narrow “full-pool” operating range
  - No seasonal drawdown or supplementing flow
- Four PacifiCorp dams slightly dampen flood peaks:
  - Upper basin contributes 5% to flood peaks
  - Link River Dam provides flood control
  - PacifiCorp dams decrease flood peaks by:
    - 10 -15% at Iron Gate Dam
    - 2 - 3% at Seiad Valley
    - < 1% at mouth
- 100-yr flood plain update, as needed



# 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



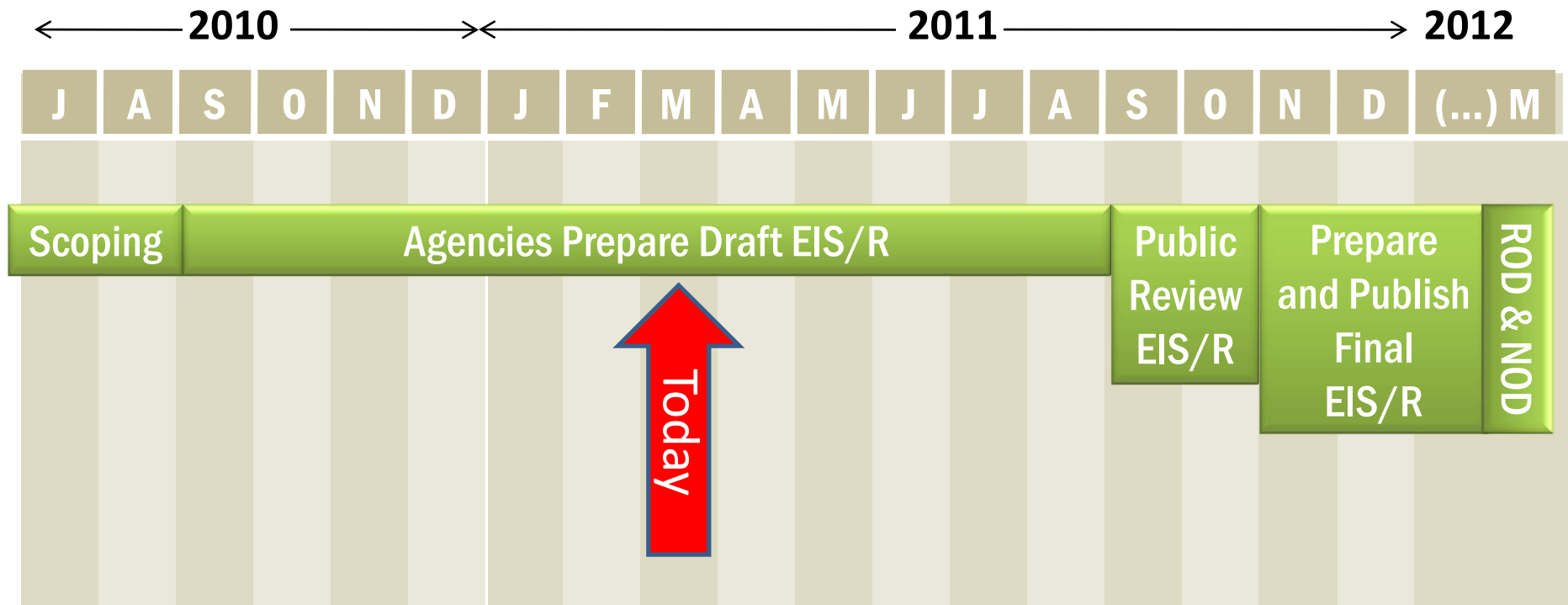
# Secretarial Determination – Two Track Process

- 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 final Determination:
  - Record of Decision (DOI Secretary)
  - Notice of Determination (CA Governor)
  - OR Governor Concurrence





## Schedule for Environmental Compliance Track \*

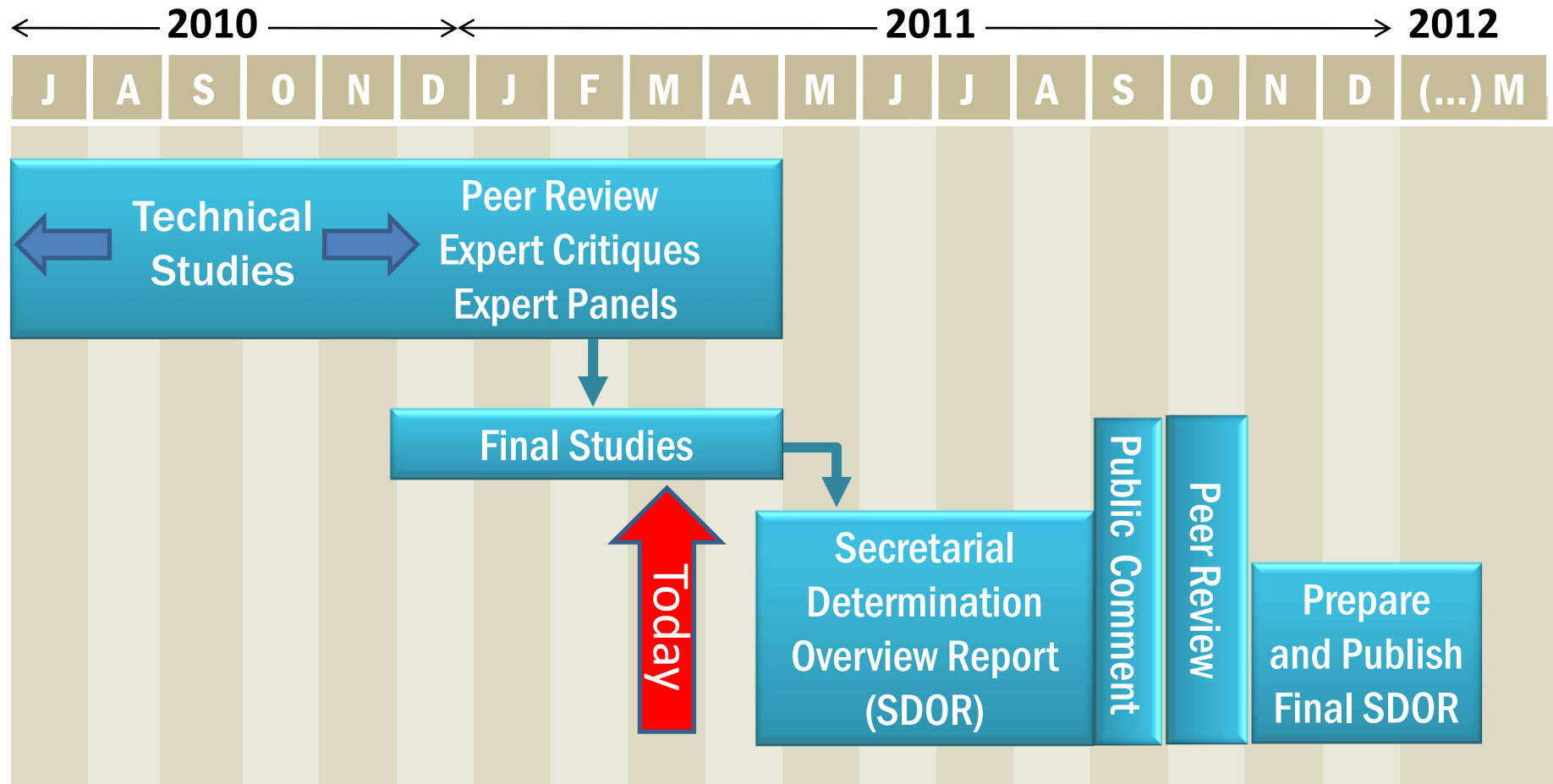


\* Some milestones reflect target dates. Graphic will be updated accordingly.

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## Schedule for Secretarial Determination Technical Studies Track \*

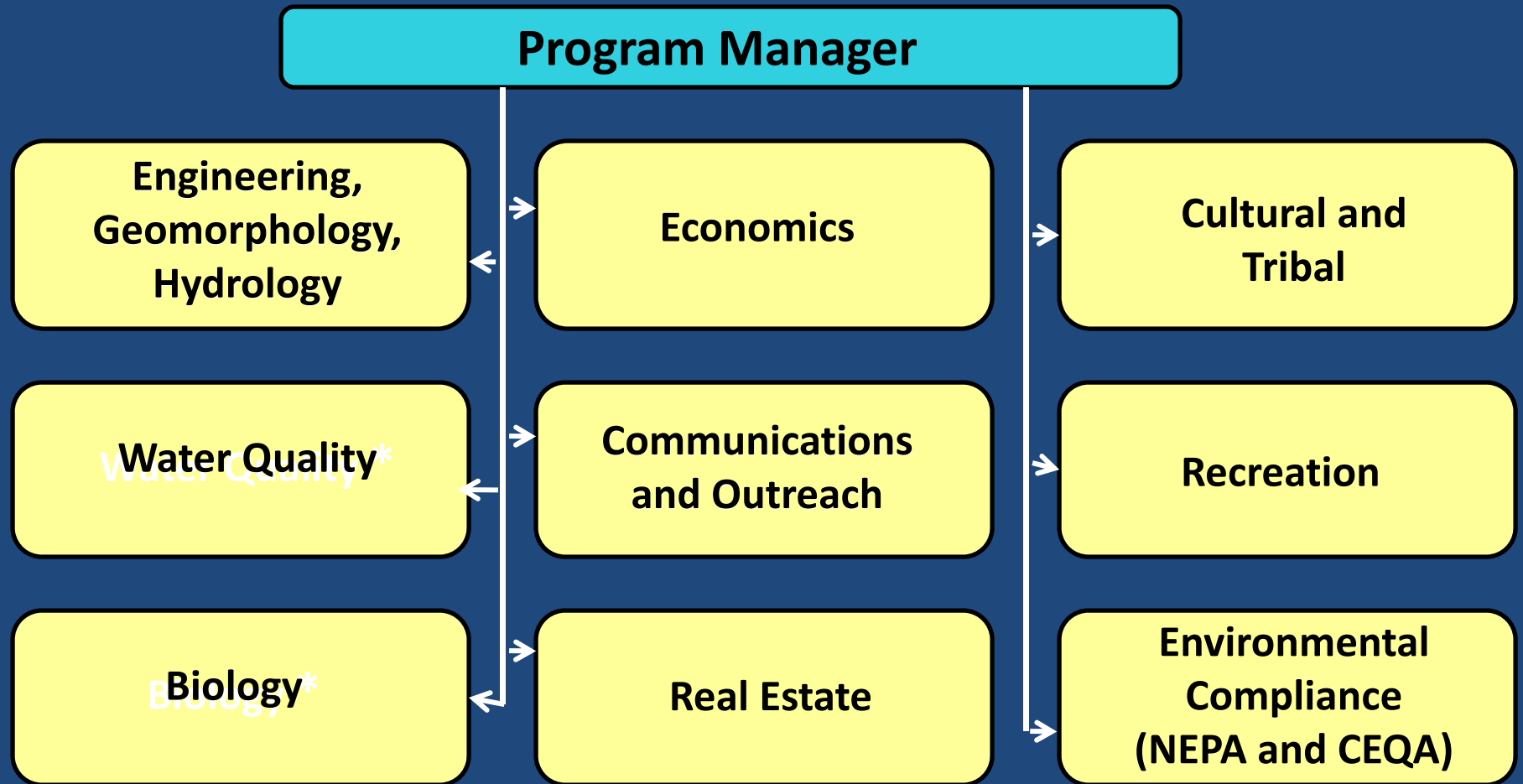


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# Secretarial Determination Team



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

# Guidelines for Technical Studies to Inform the Determination

- Open and objective process
- High quality science and data
- Peer review of new reports
- Public updates and comments
- Focused on information gaps:
  - Detailed plan of dam removal/mitigations/costs
  - Effect on salmonid fisheries
  - Public Interest information



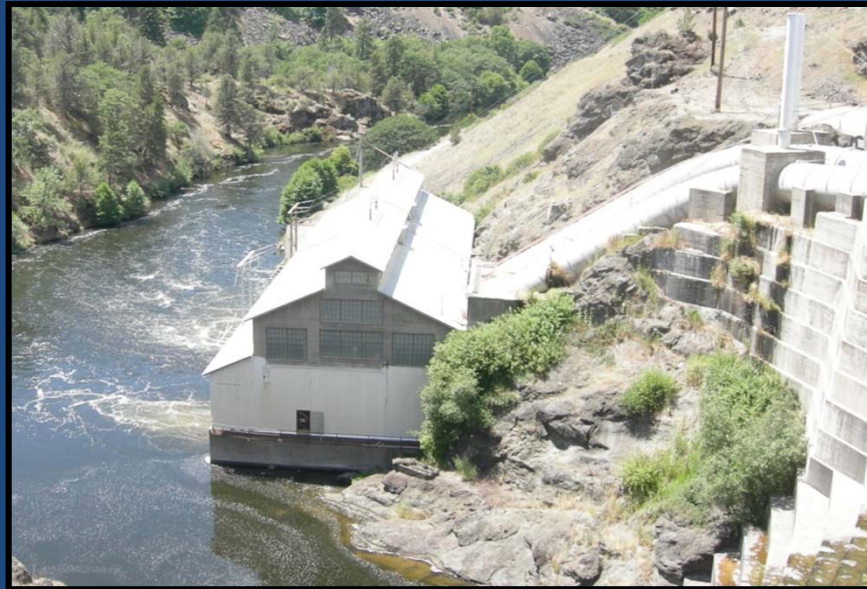


# Dam Removal Detailed Plan

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



# Other Structures: Removed or Left Behind?





# Dam Removal Detailed Plan -- continued

- Reservoir draw-down plans/timing
- Deconstruction methods and timing
- Material disposal sites
- Details of costs:
  - Low
  - High
  - Most probable



# Dam Removal Mitigation Measures and Costs

- Mechanical sediment removal?
- Bottom sediment re-vegetation plan
- Culturally important sites
- Infrastructure:
  - Roads, bridges, and culverts near reservoirs
  - Yreka Water Supply
  - Ground water wells





# Flows and Lake Levels

- Hydrology is foundational for other analyses
  - Dam removal, sediment transport, biology, etc.
- Hydrology assumptions with dams:
  - Current biological opinions
  - 1961-2009 climate repeats
- Hydrology assumptions with agreements:
  - Free-flowing river at 4 dam sites
  - Programs in KBRA:
    - Irrigation limitations and voluntary purchase of water in upper basin, water to refuges, environmental flow, etc.
  - 1961-2009 climate repeats

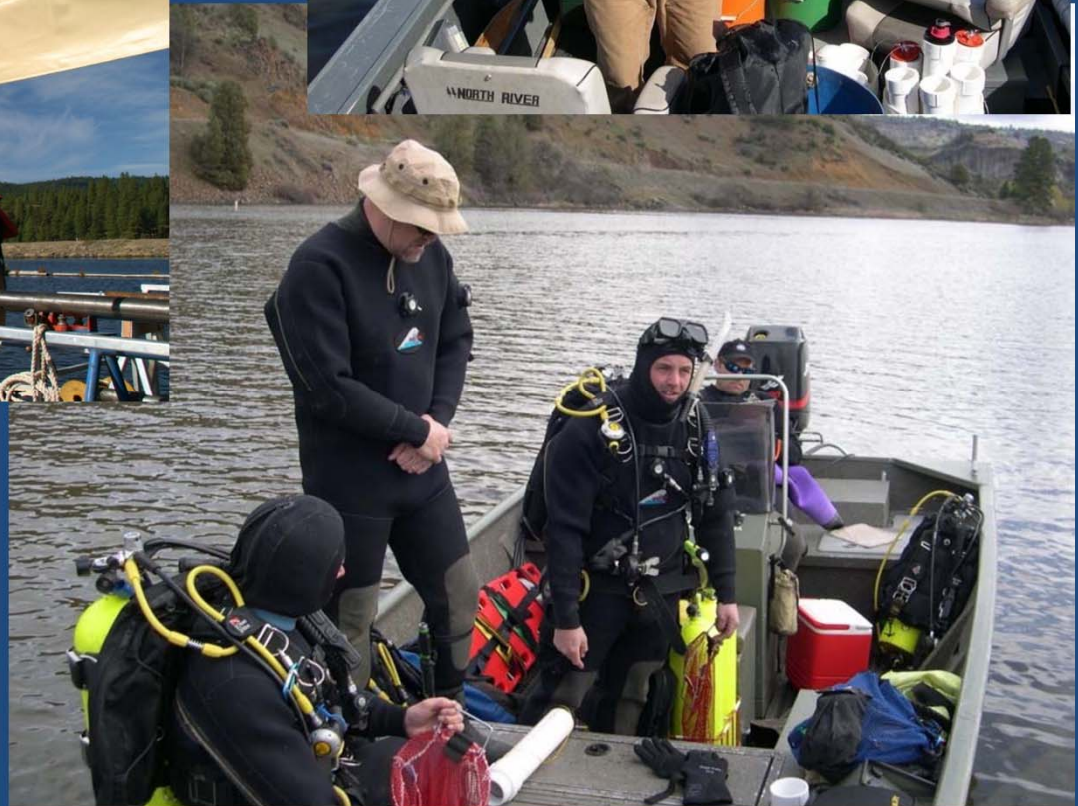
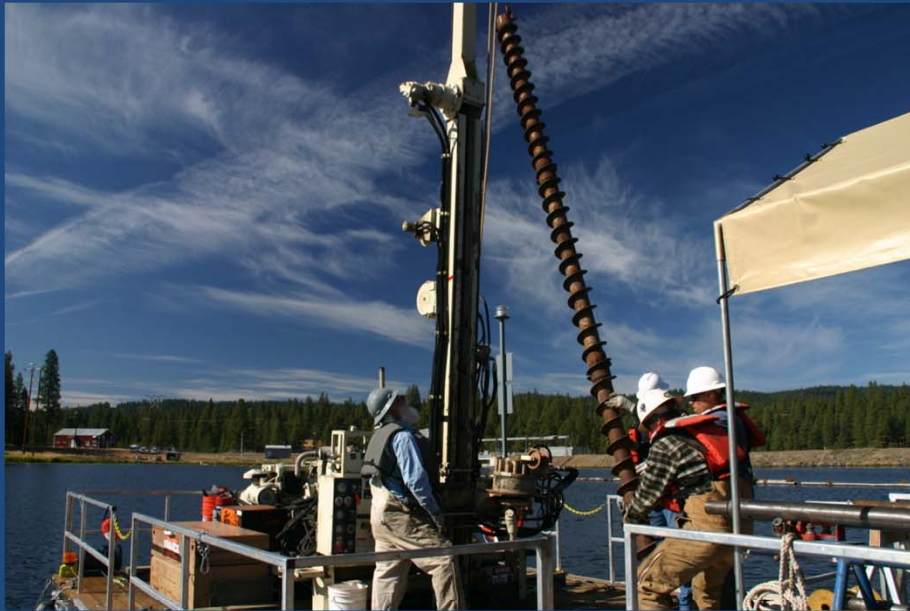


# Studies of Reservoir Sediments

- Volume of sediment in each reservoir
  - Location of sediments
  - Physical characteristics
- Sediment transport, if eroded naturally
  - Effects of reservoir drawdown strategies
  - Effects of low, average, or high flow years
  - Downstream concentrations
  - Short and long-term effects on fisheries

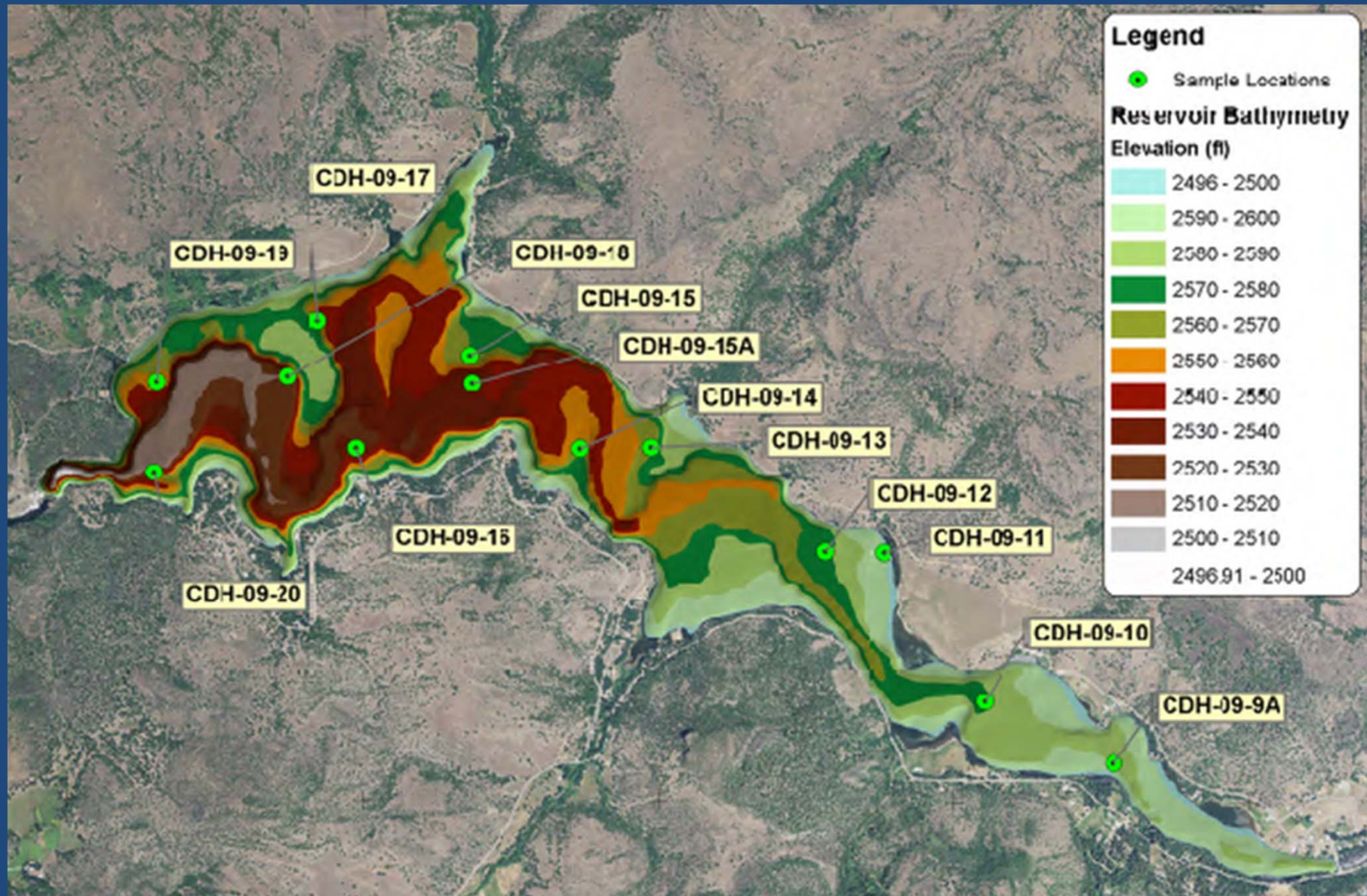


# Studies of Reservoir Sediment Chemistry





# Copco 1 Sediment Sampling Sites





# Preliminary Sediment Chemistry Results

- Sampled JC Boyle, Copco 1 and Iron Gate reservoirs
- Broad range of chemicals analyzed
- Data available at: [KlamathRestoration.gov](http://KlamathRestoration.gov)
- Confirmed previous study
- Generally low-levels of chemicals in sediments
- Dioxin twice “background” in Copco 1 and JC Boyle
- No risk to humans from direct sediment contact

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# Fish Tissue Chemical Analysis – Human Consumption Evaluation

- From three reservoirs
- Analyzing for chemicals that bioaccumulate
  - Dioxins
  - PCBs
  - Pesticides
- Results around April 2011



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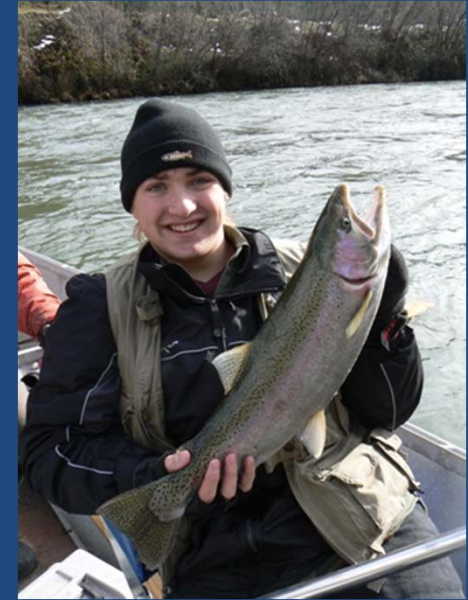
# Would Agreements Advance Salmonids and Other Fish Species?

- Relies on hydrology, water quality, sediment transport, and water temperature analyses
- Chinook fish-production modeling
- Synthesis report on effects of KHSA and KBRA on multiple fish species
- 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?
- Technical reports/oral presentations -- done
- Findings published/posted by contractor at:  
<http://www.pbsj.com/KLAMATHRIVER>





# Are These Agreements in the Public Interest?

- Federal team gathering information
- Public Interest determined by Secretary
- Identify potential risks and hazards, e.g.
  - Sediment chemistry
  - Potential for flooding
- Documenting non-monetary and monetary community effects



# Non-Monetary Effects on Tribes

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



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# Monetary Effects

- Local effects on communities
  - Commercial fishing
  - Recreational fishing
  - Other recreational activities
  - Hydropower
  - Agricultural output/stability
  - Real estate
  - County tax bases
- Non-use valuation survey
  - measures national interest



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# Effects on Jobs and Employment Stability

- Commercial fishing jobs
- Recreational jobs +/-
  - Fishing (reservoir, river, and ocean)
  - Rafting industry
  - Flat-water boating
- Lost hydropower jobs
- Agriculture job stability
- Jobs associated with
  - Dam removal (shorter term)
  - KBRA (longer term)



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# Public Outreach on Secretarial Determination Issues

- Regular updates on [KlamathRestoration.gov](http://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





# Questions and Comments

**KlamathRestoration.gov**

Next Public Meeting: Orleans, CA, June 15, 2011

Formal Planned Public Comment Periods:

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

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