

# Overview of next steps



presented to Pend Oreille  
Watershed Advisory Group  
January 25, 2007

Robert Steed

# Discussion Items

- Modeling Scenarios
- Compliance Points
- TMDL document development
- Timelines

# Modeling Scenarios

- 8 proposed
- Evaluated by Modeling Group
  - EPA, DEQ, Ecology, Kalispell Tribe
- DEQ/Portland State University Contract
- Outputs
  - Handed off to downstream model

# What we are looking at

- Establishment of Existing Conditions
- Evaluation of point source contributions to temperature
- Evaluation of tributary contributions to temperature
- Evaluation of Albeni Falls Dam's effects on temperature
- Evaluation of bank shading along river effects on temperature
- Establishment of baseline for natural conditions criteria

# Modeling Scenario No. 1

## Current Simulation

- Current Conditions with Albeni Falls Dam in place, current point source discharges, tributaries at current temperature and current vegetation along river corridor.

- Establishment of Existing Conditions

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



Current condition = on

# Modeling Scenario No. 2

## Impounded no NPDES

- Current Conditions with Albeni Falls Dam in place, without current point source discharges, tributaries at current temperature and current vegetation along river corridor.
- Evaluation of point source contributions to temperature

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



Current condition = on

# Modeling Scenario No. 3

## Impounded no NPDES/NPS

- Current Conditions with Albeni Falls Dam in place, without current point source discharges, tributaries at natural temperature and current vegetation along river corridor.

- Evaluation of point source and tributary contributions to temperature

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



Current condition = on

# Modeling Scenario No. 4

## Un-impounded

- Current Conditions without Albeni Falls Dam in place, current point source discharges, tributaries at current temperature and current vegetation along river corridor.

- Evaluation of Albeni Falls Dam's effects on temperature

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



# Modeling Scenario No. 5

## Un-impounded no NPDES

- Current Conditions without Albeni Falls Dam in place, without current point source discharges, tributaries at current temperature and current vegetation along river corridor.

- Evaluation of Albeni Falls Dam's effects on temperature without point source discharges

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



Current condition = on

# Modeling Scenario No. 6

## Un-impounded no NPDES/NPS

• Current Conditions without Albeni Falls Dam in place, without current point source discharges, tributaries at natural temperature and current vegetation along river corridor.

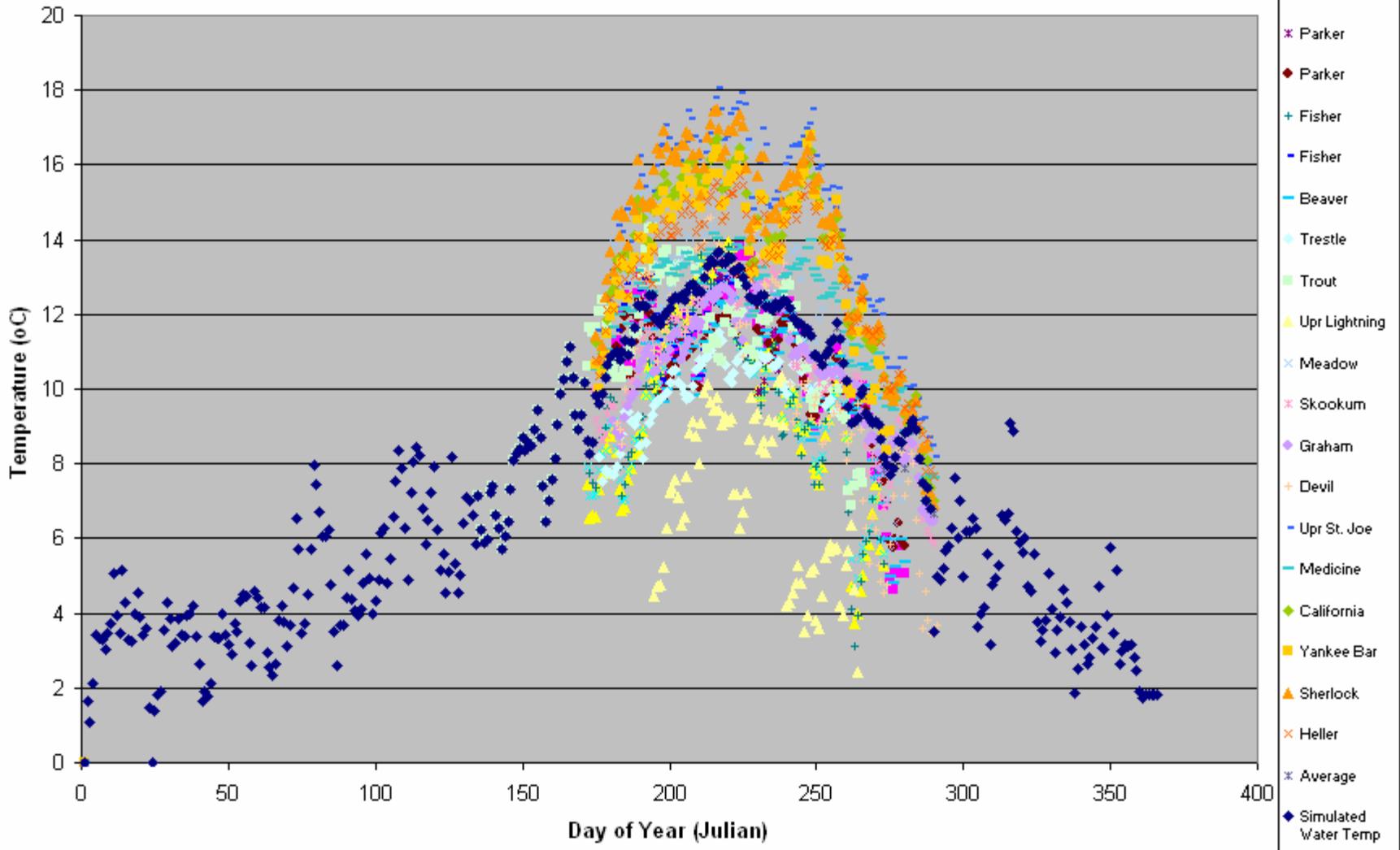
• Evaluation of Albeni Falls Dam's effects on temperature without point source discharges and tributaries at PNV

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



Current condition = on

### Range of Natural Temperatures Pend Oreille River Tributaries



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# Modeling Scenario No. 7

## PNV Current Condition

- Current Conditions with Albeni Falls Dam in place, with current point source discharges, tributaries at current temperature and potential natural vegetation along river corridor.

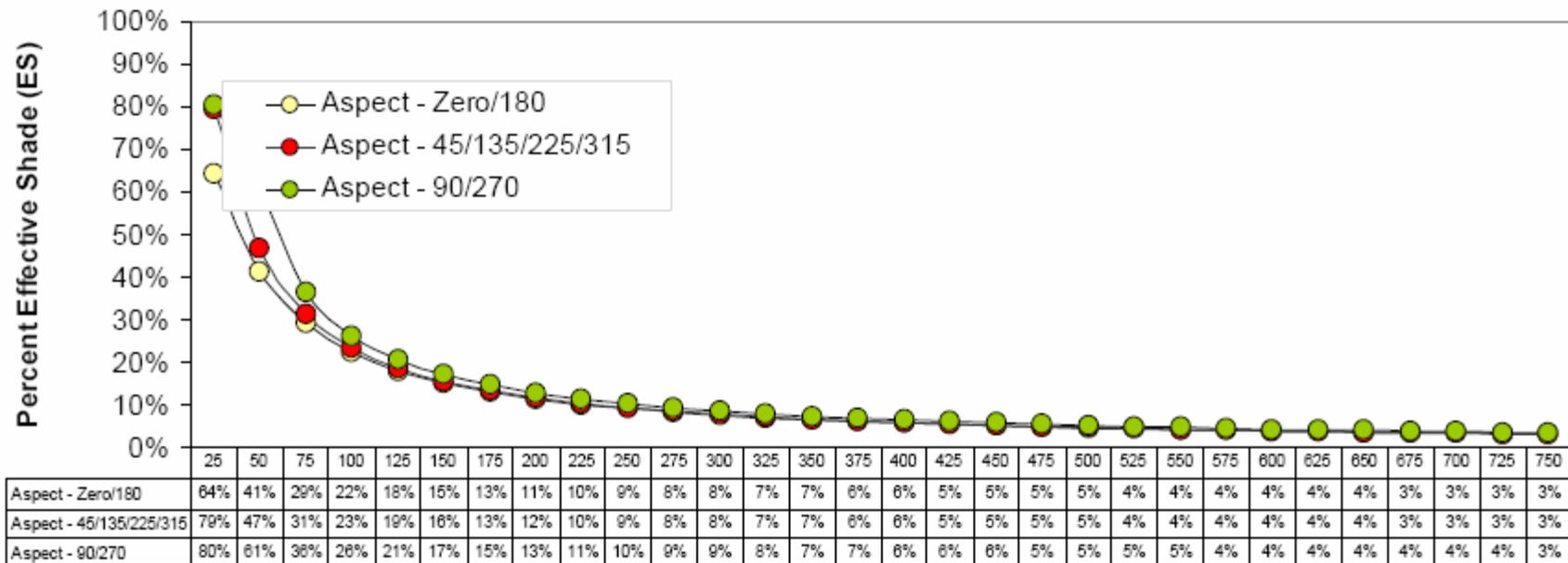
- Evaluation of bank shading along river effects on temperature

- Albeni Falls 
- NPDES 
- Tributaries 
- Bank Shade 

Current condition = on

# Bank Shading Example

January



Channel Width (meters)

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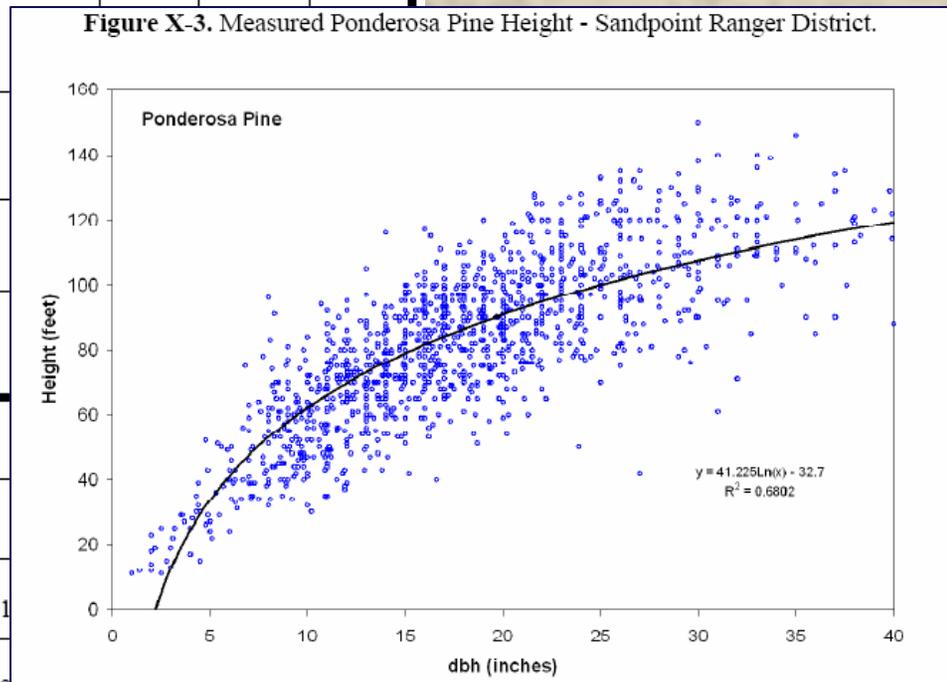
Prepared by Peter Leinenbach  
 Aquatic and Landscape Ecologist  
 U.S. Environmental Protection Agency

# Tree Height Example

**Table X-3. Pend Oreille Basin Historical Forest Vegetation Composition Estimates**

Assessment Group	PP	WP	WL	DF	GF/WH	WRC	LP	SAF	WBP
<b>Warm/Dry (Group A)</b>	60%	--	10%	20%	--				
<b>Moist (Group B)</b>	1%	40%	25%	20%	5%				
<b>Cool/Moist (Group C)</b>	--	12%	15%	1%	--				
<b>Cool/Dry (Group D)</b>	--	--	--	--	--				
Historical Weighted Avg	10.8%	24.3%	18.1%	14.8%	2.8%				
National Forest Current	2.2%	2.0%	3.8%	36.5%	16.9%				
% Change from Historic	-80%	-91.8%	-79%	147.3%	503.6%				
Current as % of Historic	20.4%	8.2%	21.0%	247.3%	603.6%	282.1%	00.0%	147.9%	12.1%

**Figure X-3. Measured Ponderosa Pine Height - Sandpoint Ranger District.**



# Modeling Scenario No. 8

## Pristine Simulation

- Current Conditions without Albeni Falls Dam in place, without current point source discharges, tributaries at natural temperature and potential natural vegetation along river corridor.

- Establishment of baseline for natural conditions criteria

- Albeni Falls
- NPDES
- Tributaries
- Bank Shade



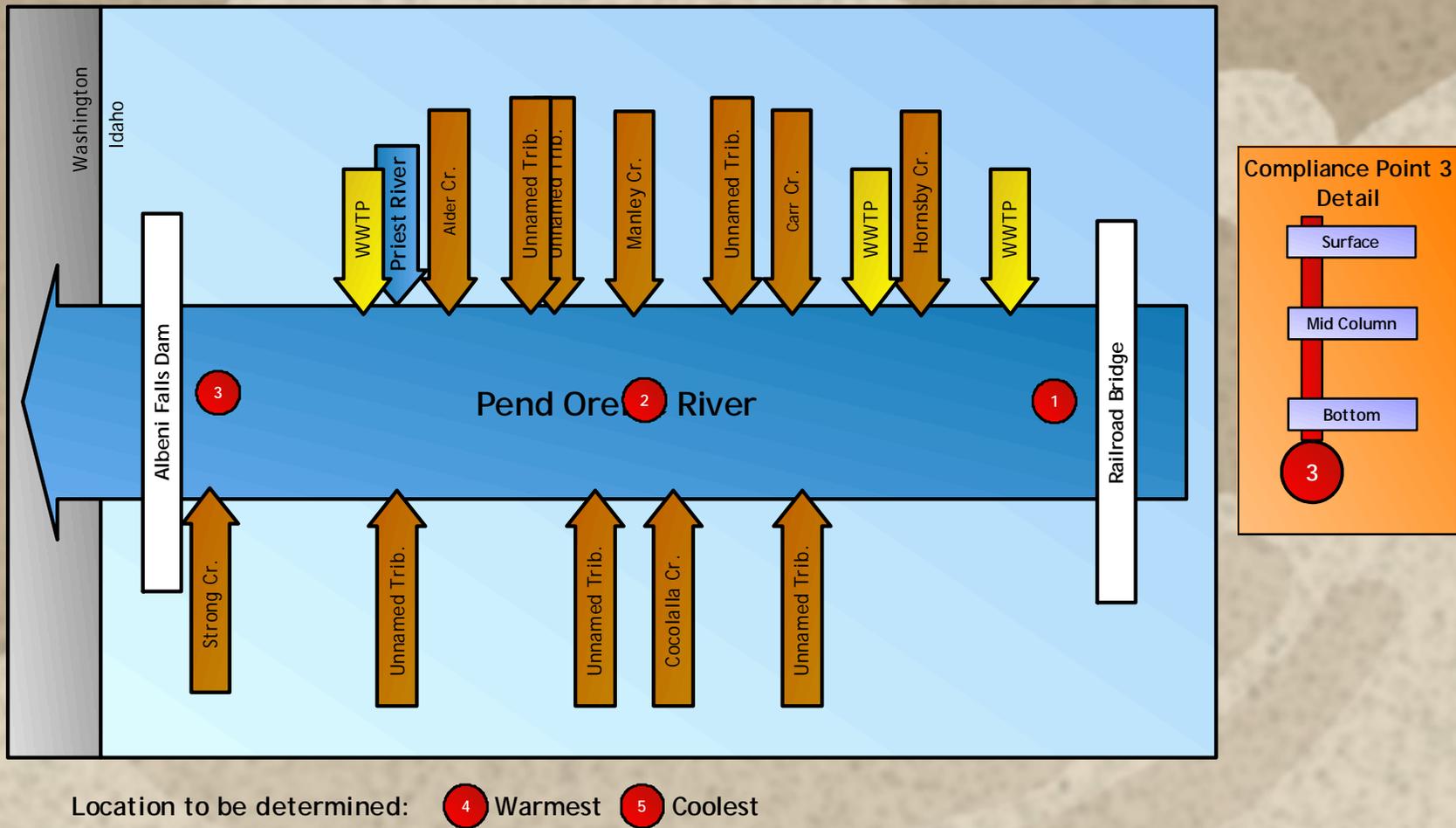
Current condition = on



20-8-19

Found by Paul Pickett

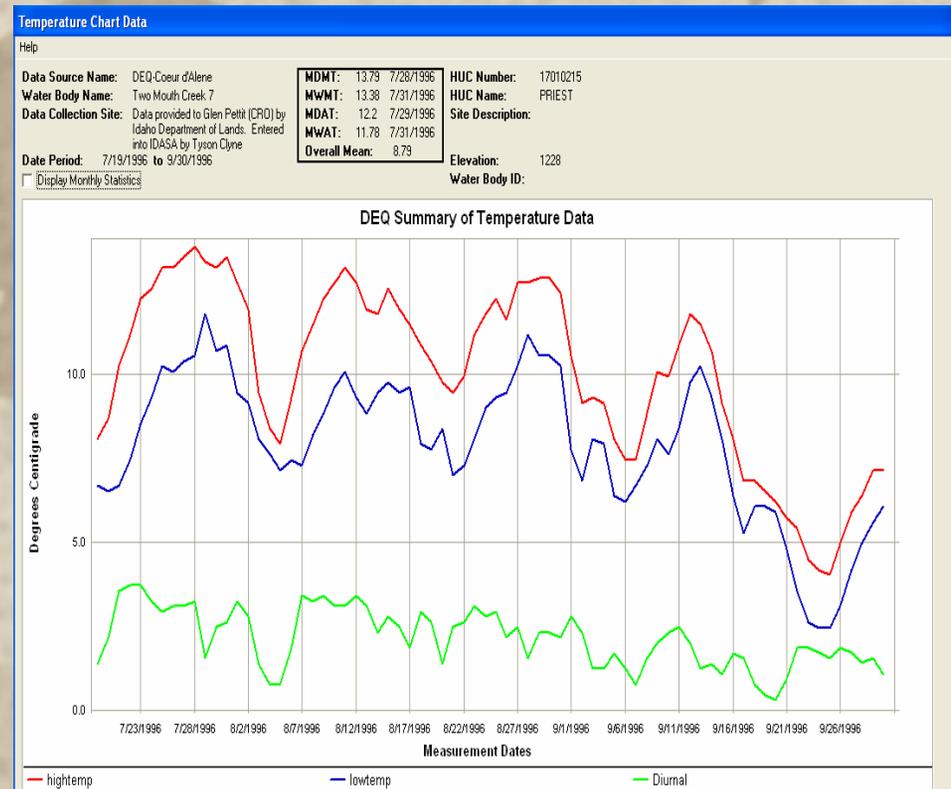
# Preliminary Model Output Compliance Points



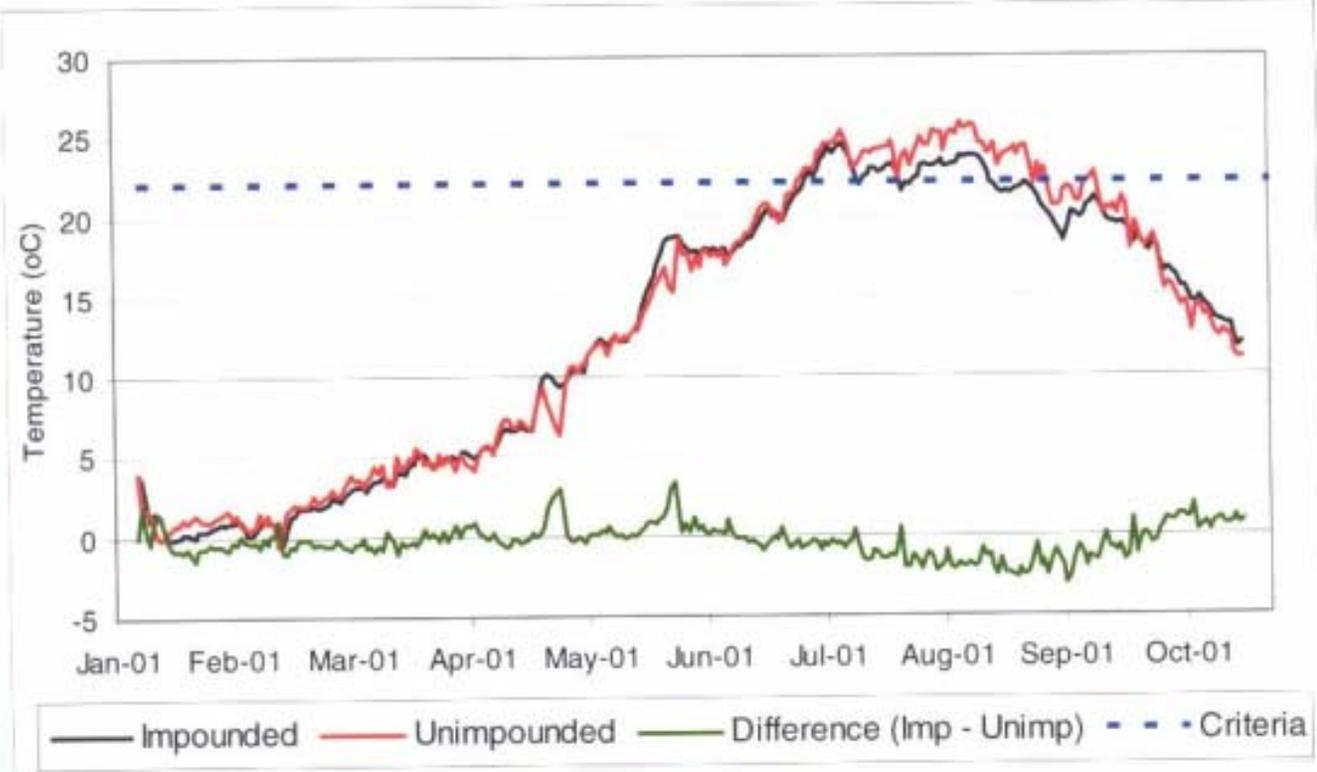
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# Preliminary Outputs

- Daily Average
- Daily Maximum



# Example Output



**Figure 6-12 Modeled daily maximum temperatures at Post Falls HED tailrace (January -October, 2001)**

# Temperature TMDL Timeline

- January WAG meeting - present model calibrations
- February - draft scenarios run
- March WAG meeting - presentation of draft scenario runs and strategy for TMDL development
- April - Tetra Tech begins work on TMDL
- May - WAG meeting review status/early drafts of TMDL
- July -Draft TMDL presented to WAG
- September - Final draft/public comment version TMDL