Stanislaus - Lower San Joaquin River Water Temperature Modeling and Analysis

Agenda

- Background
- Objective - CALFED
- Project Tasks
- Model Description
- Calibration Results
- Demonstration of Model Run
- Temperature Criteria Peer Review
- Operational Studies
- Future Work

Demonstration of Model Run

- **Simulation Engine**
  - **Reservoir/River Operation**
  - **Temperature Response**
- **Graphical User Interface (GUI)**
  - **Results Viewer**
- **Utility Programs**
  - **Post Processors**

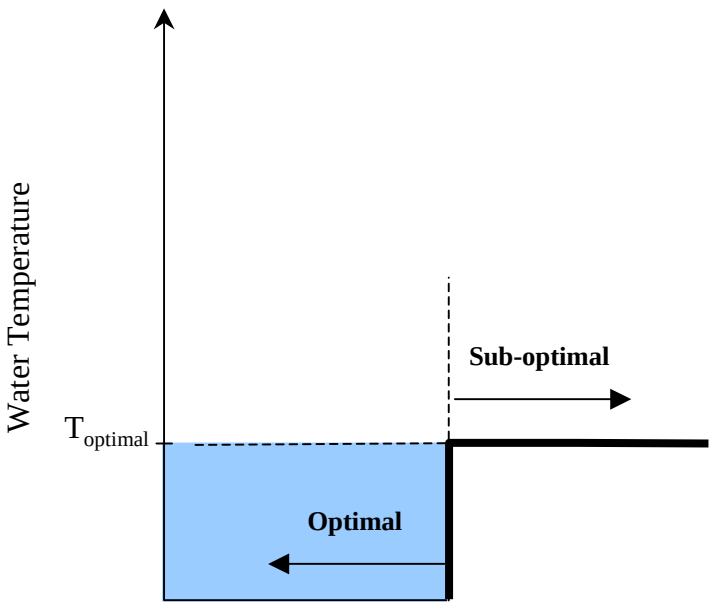
Temperature Criteria Peer Review

- **Panel Members**
  - **John Bartholow, USGS**
  - **Chuck Hanson, Hanson Environmental, Inc.**
  - **Chris Myrick, Colorado State**
- **Panel Chair**
  - **Mike Deas, Watercourse Engineering, Inc.**

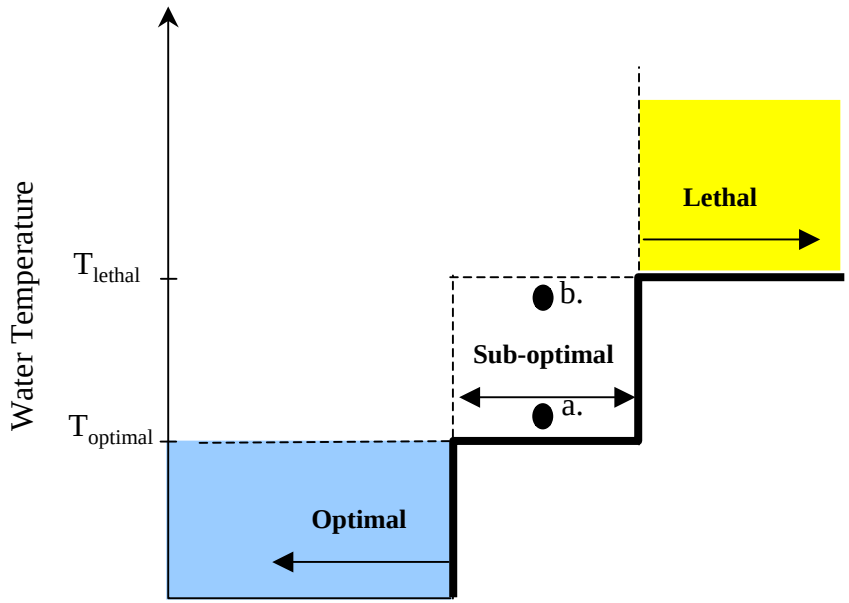
Panel Charge

- Identify the current state of the science
- Describe the approach that is under consideration on the Stanislaus River system: emphasis on using numerical criteria within the framework of a temperature simulation model.
- Assessment of existing Stanislaus River system criteria: adopt, modified, or propose new set of criteria.
- Recommend performance measures that may assist decision makers and resource managers.

One- and Two-Threshold Criteria (life stage dependent)

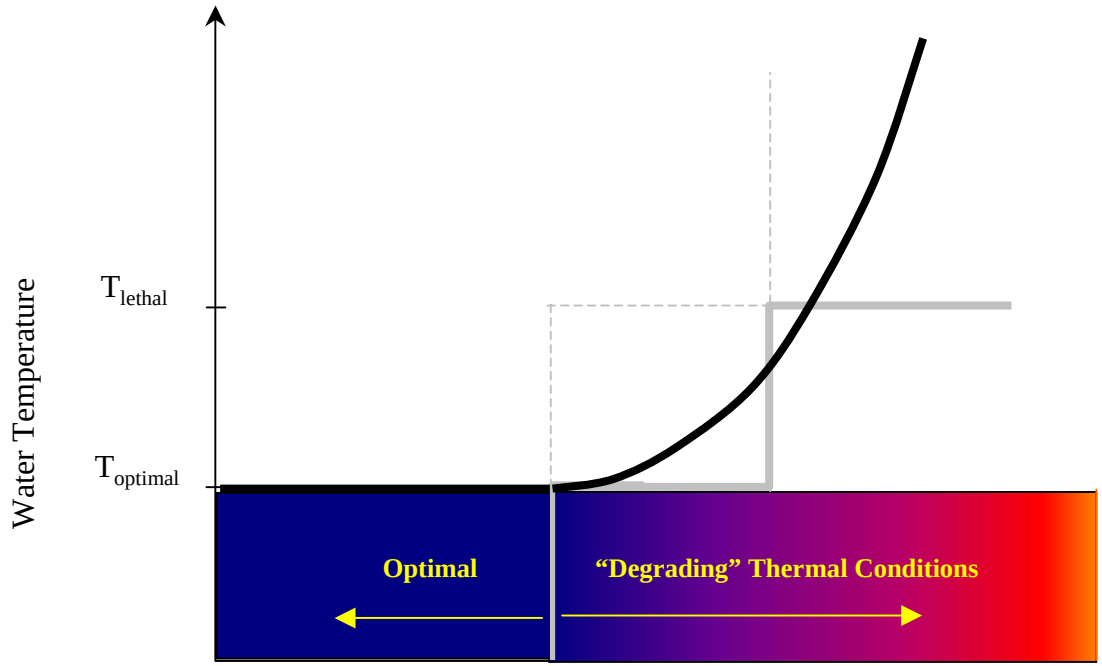


One-Threshold Criteria



Two-Threshold Criteria

Continuous Criteria (life stage dependent)



Concluding Note

- **The Panel expects resource managers to extend recommendations to assist in alternative assessment, including**
  - **Modification of criteria to represent local conditions (e.g., incorporation of field studies)**
  - **Sensitivity analysis and model testing**
  - **Widespread application of the model to improve understanding of system response to identified restoration activities**
  - **Criteria are guidelines**

Operational Studies - Alternatives

#	Run	Description	Hydrology	Temperature Objective	Mechanism
1	Run 1	Reference case	Historical Conditions	NA	NA
2	Run 2	Base Run	Simulated Conditions	NA	NA
3	Run 3a	Allocating 50 TAF to meet Steelhead Objectives	Simulated Conditions	Steelhead	Storage Allocation
4	Run 3b	Allocating 50 TAF to meet Steelhead Objectives and low-level release in 1992	Simulated Conditions	Steelhead	Storage Allocation and Operations Changes
5	Run 4	Re-operating New Melones with minimum pool of 350 TAF	Simulated Conditions	NA	Minimum Pool
6	Run 5	Re-operating New Melones using existing outlet works	Simulated Conditions	Steelhead	Operations Changes
7	Run 6	Re-operating New Melones using existing outlet works	Simulated Conditions	Chinook	Operations Changes
8	Run 7	Constructing Temperature Control Device	Simulated Conditions	Steelhead	Physical Improvements
9	Run 8	Constructing Temperature Control Device	Simulated Conditions	Chinook	Physical Improvements
10	Run 9	Operating Goodwin Pool using low-level outlet	Simulated Conditions	NA	Physical Improvements
11	Run 10	Re-operating New Melones using existing outlet works and operating Goodwin Pool using low-level outlet	Simulated Conditions	NA	Operations Changes and Physical Improvements

Future Work

- Perform Pre-feasibility Study of Alternatives
- Develop Implementation Plan
- Implement the Plan Through:
  - Detailed feasibility study
  - Design
  - Construction (if applicable)
- Extend the Model Upstream to Incorporate the San Joaquin and Major Tributaries, Including the Tuolumne and Merced River