

Initial Panel Findings/ Recommendations

LOO 2012



Hydrologic Water Year Review:

- Offers a perfect opportunity for analysis of landscape-level climate patterns that might affect management strategies.
 - An analysis of running-average curves for 10, 20, and 30 year increments can identify repeated patterns in the hydrologic cycle
 - As an alternative or addition to the current categorizations of water year
 - Improve long-term strategic planning with better technical communication



GENERAL OBSERVATION:

2011 IRP called for collection and analysis of biological response data. Both the Clear Creek Technical Group and the Delta Operations Group have responded well to that request.



Clear Creek

- **Attracting pulse flows are “at least 1200 cfs” not a minimum – test whether a larger pulse yields better results [what is the threshold?] – shape of pulse – is there a measurable biological or geomorphic response? – consult Mark Lorang - Workshop?**
- **HAVE altered gravel sizes in augmentation program. Biological responses to augmentation need to be analyzed and presented – groundwater/surface water interactions**
- **Suggest mapping some WSL and velocity cross sections to assess marginal spawning habitat**

Clear Creek

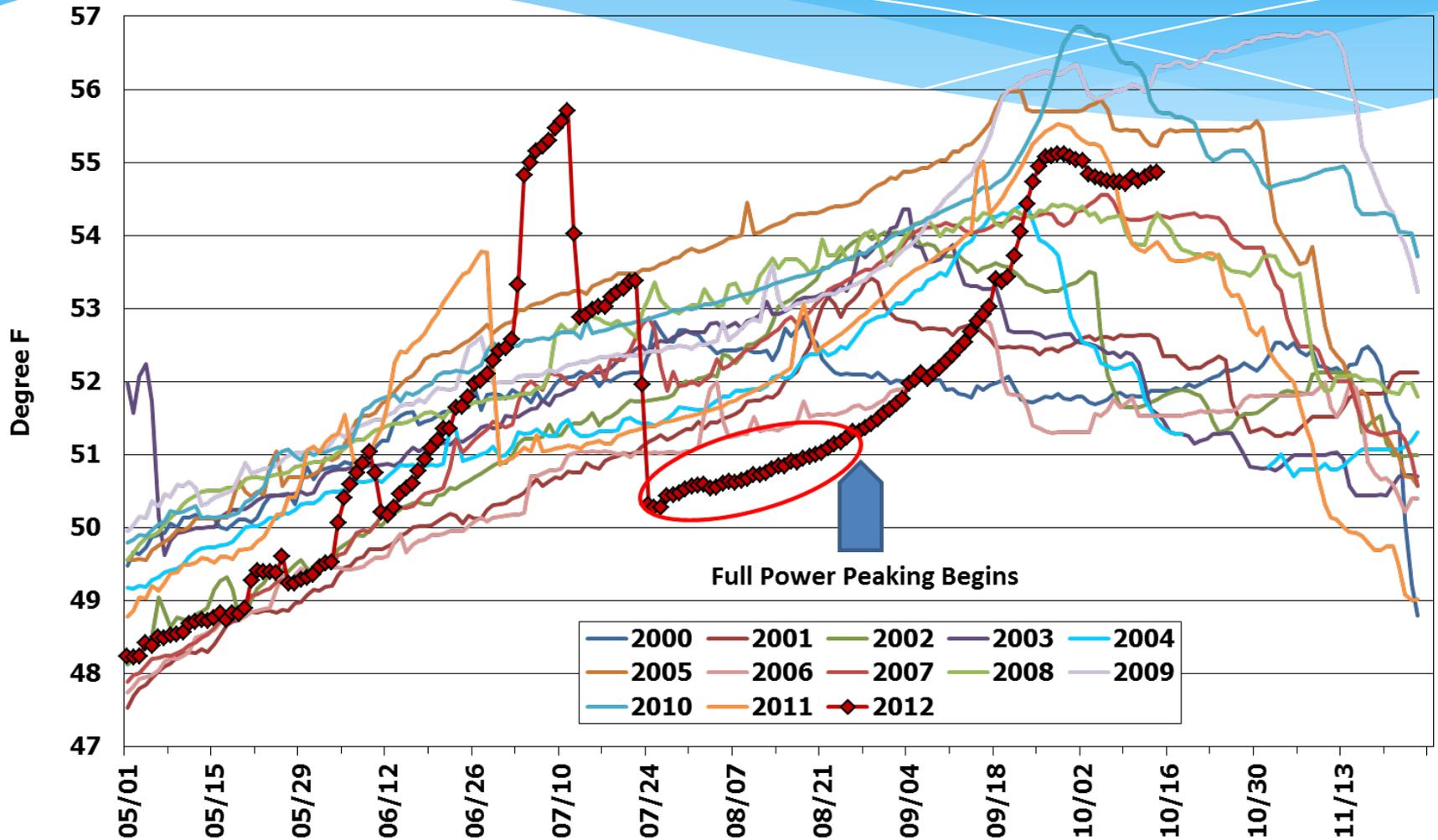
- **Thermal stress reduction – still need to provide biological justification for moving compliance point downstream - dynamics of temperature in holding areas [real-time measures of thermal changes between reservoir and holding areas]**
- **Better understanding of release authority and priorities**

Clear Creek

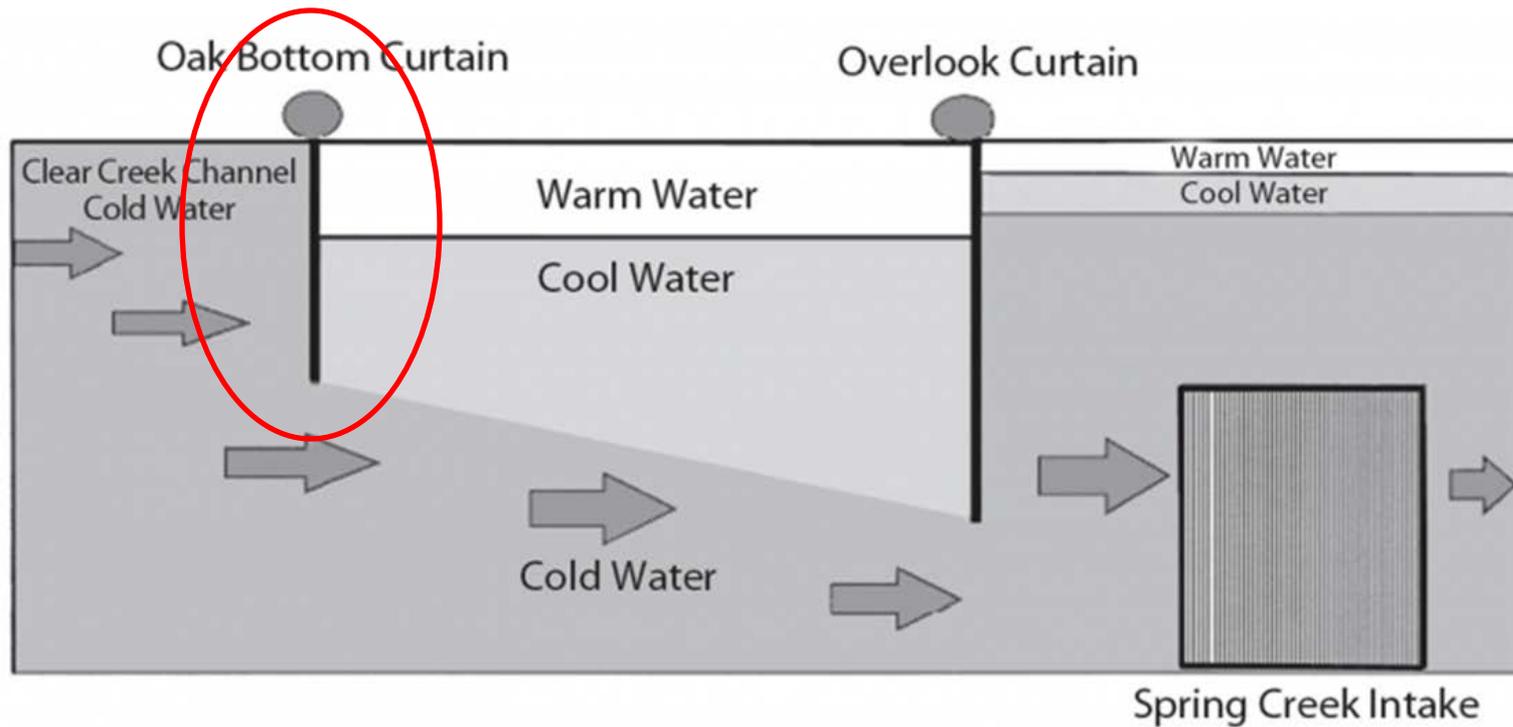
- **Appropriateness of the “restoration target” (i.e., has one been defined? Is it acceptable?) – Can a list of target metrics be created?**
- **IFIM studies need to be completed. Several issues related to appropriate period of record for T-S analysis (reference condition), habitat suitability criteria, appropriate targets.**
- **HYDROPEAKING – not enough evidence to support changes or improvements**
- **Models to predict thermodynamics – CE-QUAL-2**
 - **Will do selective withdrawals and network analysis – Scott Wells**

Avoiding Full Power Peaking Associated with Temperature Improvement In Whiskeytown?

Whiskeytown Dam Outflow Water Temperatures 2000-2012



Whiskeytown Curtains





GENERAL OBSERVATION:

Greater application and analysis of existing models to better understand the system and to examine “what-if?” scenarios to aid in creating an adaptive management strategy – models to predict down to the location of the fish [e.g., CE-QUAL-2 will interface reservoir/river processes for Clear Creek]

Simple example: AMO in Florida and the southeast US.
Two sets of management plans: (1) Wet Tri-Decade and (2) Dry Tri-Decade



RECOMMENDATION:

Use Models [like CE-QUAL-2]to:

1. Focus on the issues of interest – effect of hydropeaking
2. Endpoint must be at the point of interest [Igo]



CLEAR CREEK

Better technical communication -
operation of Redding
Powerhouse or the northern
system



CLEAR CREEK

Proposed changes to RPAs
appear not to be supported by
existing data



GENERAL OBSERVATION:

- VAMP and Acoustic Tag Studies: Are observed low survivorship rates real or artifacts of sampling and experimental design or method [detection limits, other physical conditions, etc.]. 2% survival is not sustainable [are these sink populations]
- Predation assumptions need to be verified – tagging striped bass?
- Are sentinel fish from hatchery appropriate models for existing populations?



GENERAL OBSERVATION:

- Separate working group for behavioral modeling to understand route selection linked to results of tagging studies – creation of model standards [sooner than later]
- Consider other barrier design [hybrid rock and bubble barrier] – Results of barrier / predator study

GENERAL OBSERVATION:

- Pumps managed by “triggers” at Railroad Cut
– how should this be done from acoustic tag data? – need to be tied more to real-time data
- Low survivorship suggests alternative ways to manage the system – neither e:i or fish triggers will work to manage pumps
- It may be that the system can’t be managed for chinook and steelhead – first engineered for water supply and the engineering can’t be abandoned **SO DON’T DO IT AGAIN!**



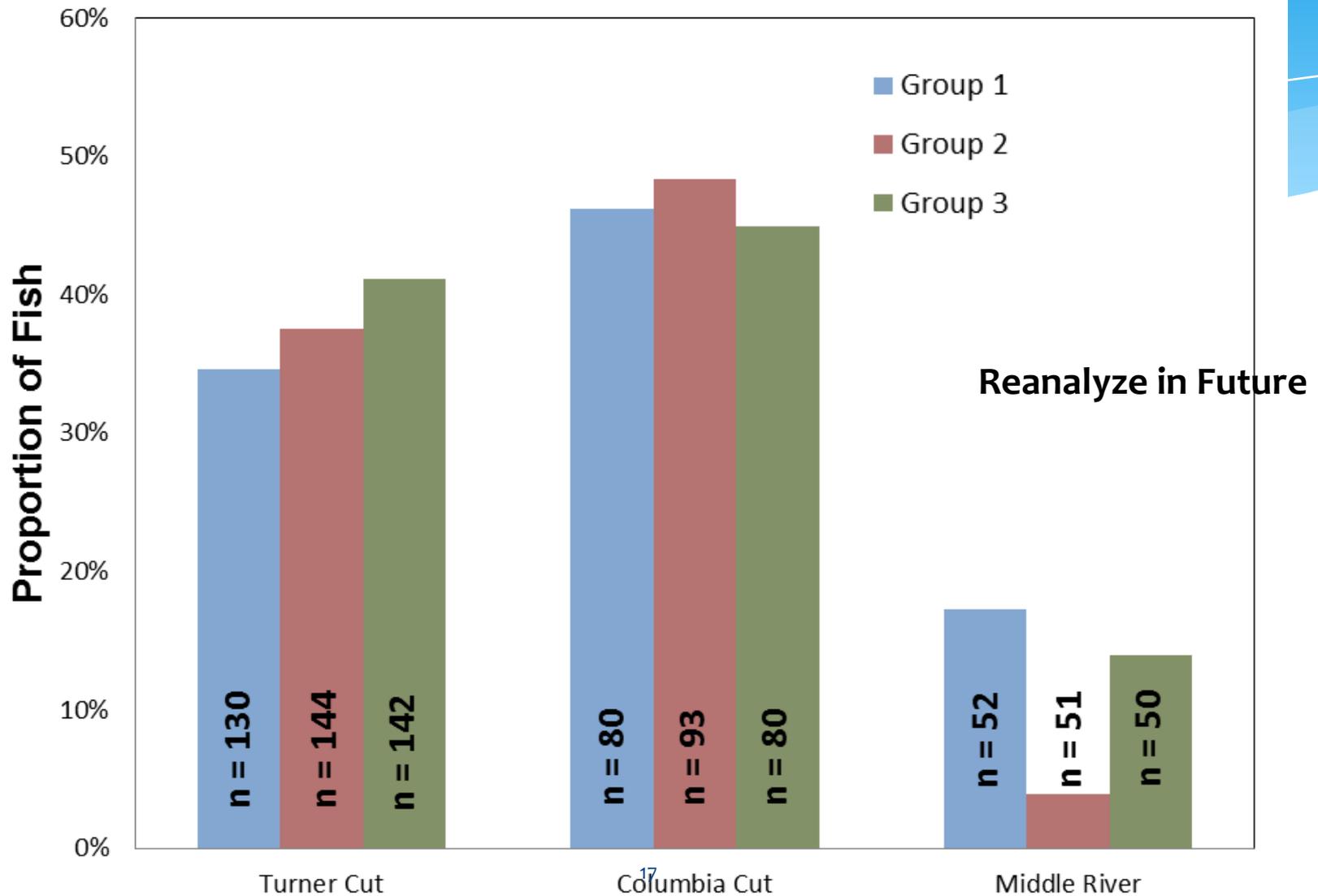
GENERAL OBSERVATION:

When presenting data for reports, it is critical to give the audience an indication of confidence intervals, error bars, means, medians, and statistical significance. Otherwise, it must be assumed that the data are conjectural, at best.

- Hypotheses listed but not statistically analyzed or repeated

Observed

Proportion of Fish to Interior Delta by Junction





**How well did implementation
of the Clear Creek RPA Actions
and Spring 2012 Delta
Operations meet the intended
purposes of the action?**



**Where the 2011 Independent Review
Panel made recommended adjustments
to implementation of the Clear Creek
RPA Actions,**

- (a) Were the adjustments made?**
- (b) How well did these adjustments
improve the effectiveness of
implementing the actions?**



**How effective was the process
for coordinating real-time
operations with the Clear Creek
technical team analyses and
input as presented in the
NMFS's Long-term Operations
Opinion?**



**Were the scientific indicators,
study designs, methods and
implementation procedures used
appropriate for evaluating the
effectiveness of the Clear Creek
RPA Actions and the Spring 2012
Delta operations?**

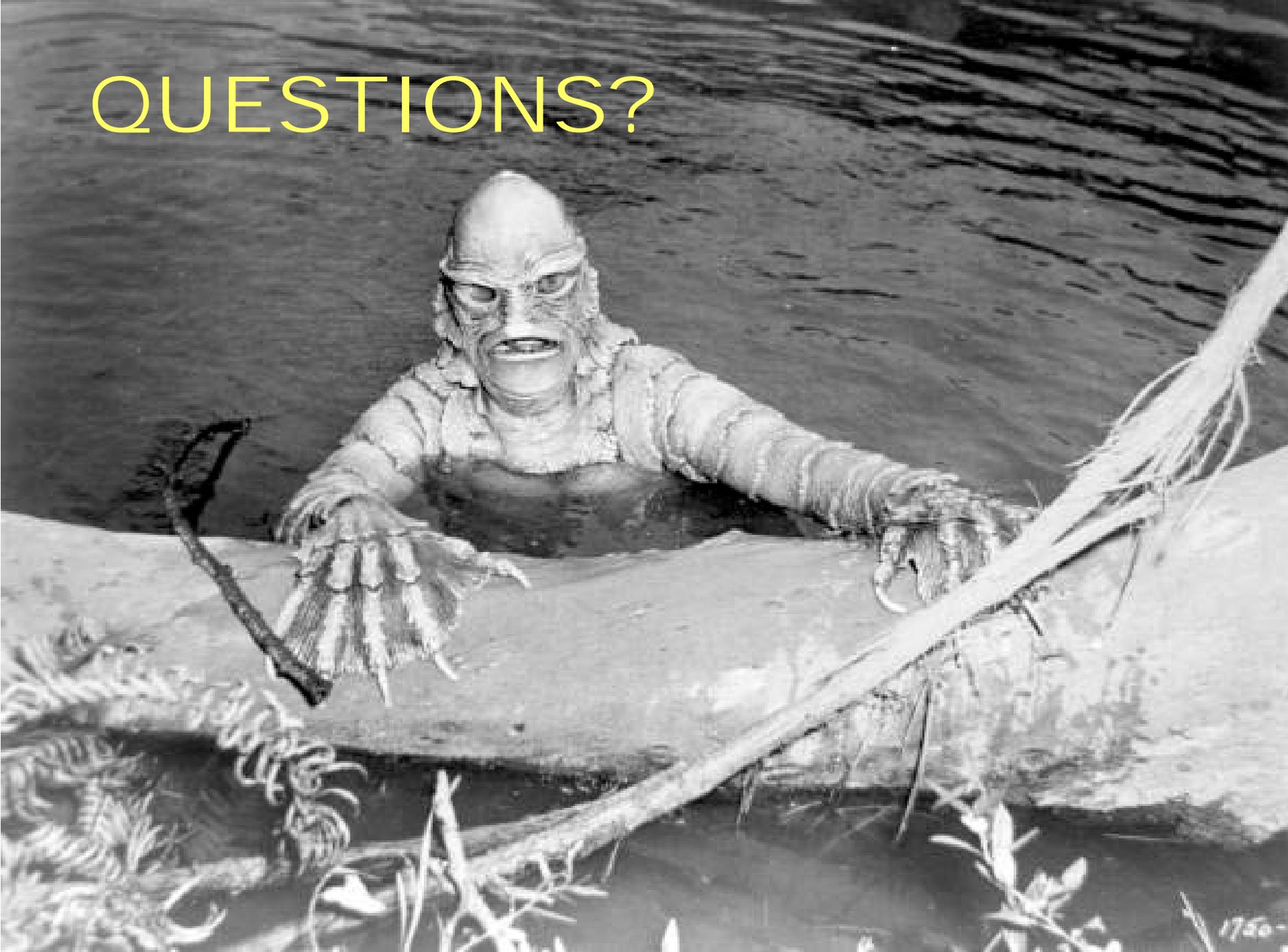


How should multi-year data sets on NMFS's Long-term Operations Opinion Action implementation be used to improve future implementation of the Clear Creek RPA Actions?



**What scientific indicators,
study designs, methods and
implementation procedures
might be more appropriate for
evaluating the effectiveness of
the RPA Actions?**

QUESTIONS?



SCHEDULE

- * **Finish drafting and send lead author (12 Nov)**
- * **Lead author incorporates comments and sends first draft to panel (15 Nov)**
- * **Panel sends comments back to Lead Author (18 Nov)**
- * **Teleconference (20 Nov)**
- * **Lead Author revises, and sends second draft (24 Nov)**
- * **Panel sends comments back to Lead Author (27 Nov)**
- * **Teleconference? (28 Nov)**
- * **Final Panel report sent to Delta Science Program (1 Dec)**