TRRP Fish Workgroup Meeting Summary
FWS Office, Arcata, CA
Tuesday, September 13, 2016

Participants

Core members: Todd Buxton (FWS), George Kautsky (HVT), Kyle De Juilio (YT), Mary Claire-Kier (CDFW), Seth Naman (NOAA)

Others in attendance: Shane Quinn (YT), Mike Dixon (BOR)

Note taker: Todd Buxton

New Actions Items

- Kautsky will draft a letter for FWG review discussing proposed changes to adult weir infrastructure and operations at Willow Creek. He will use the letter from Buxton to the FWG (attached) as the basis for his writing.
- Clair-Kier will conduct analysis comparing funding for current weir operations at Willow Creek to projected costs to operate the weir with video technology to make a census of fish passing the weir.

Work Group recommendations/decisions

- None

Notes

The group discussed changes to the suite of long-term fish monitoring projects and the idea to bundle projects in groups that will not be prioritized for funding on an annual basis, but rather targeted for long-term funding and annual review for potential adjustments to methodology as the need arises. The group agreed the bundle of fish monitoring projects should include harvest monitoring (lower Klamath tribal harvest, sport harvest in lower Klamath, lower Trinity tribal harvest, and upper Trinity tribal harvest), adult escapement estimates (at Willow Creek weir), adult age structure and cohort analysis, and juvenile outmigrant assessments (at Pear Tree and Willow Creek screw traps).

The lower Trinity sport harvest (LTSH) creel was not recommended for inclusion because of costs involved (e.g., $70,375 in 2015 when the estimated catch was 31 fish, resulting in a cost of $2,270/fish), the low catch in this fishery (average 312/year, 2005-15 data), and because a linear regression of LTSH and adult escapement estimated at the Willow Creek (2005-15 data) can predict the catch with 78% accuracy. Essentially, this means the TRRP has a model for predicting LTSH, so monitoring may no longer necessary.

The same can be said for the upper Trinity sport harvest (UTSC), which can be predicted with a linear regression of escapement with 83% accuracy. The FWG has for now recommended retaining the UTSC monitoring project because it annually involves, on average, about twice the number of fish (730) as the LTSC (312; 2005-15 data). However, the FWG agreed the UTSC

project should be operated as a creel survey rather than a tag-return estimate because the fundamental assumption in the latter estimate (percent tag return assumed 100%) can never be met, which results in erroneous estimates with unknown precision.

It is also not possible to know whether a salmon harvested in the lower Klamath originates from the Trinity or Klamath River. To reduce the hatchery component of this unknown, the FWG recommends complete tagging of hatchery fall Chinook. For reference, this recommendation has also been made by the California Hatchery Review Project.

The above recommendations are being forwarded as starting points for discussion at the next FWG meeting in Weaverville on November 15.

Buxton explained that his efforts to obtain past years data from harvest monitoring projects are bearing little fruit. Despite frequent recognition over the past year that the missing data is necessary to conduct variance estimates on catch in order to adjust monitoring effort to produce desired levels of confidence in estimates of catch, most years' data have still not been provided to the TRRP. Buxton informed the group that he will attempt to raise this issue through the proper channels to the TMC, and Kautsky mentioned this might be an appropriate tact given that funding may be required to pay for staff to accumulate the data for sharing.

Krauss presented a draft DSS for flow scheduling for discussion by the group. The FWG made several recommendations to Mr. Krauss.

Dejuilio gave a presentation on "bridge hydrographs" that propose flow releases be variable and above 300 cfs for a month or so before the traditional start of the spring flow release. Buxton recommended proposed bridge hydrographs be accompanied with a plan to assess functions used to justify them.

Bill Pinnix provided an update on synthesis reporting for juvenile salmon outmigrant populations:

-Nick Som has improved the Schwarz method to allow for running models (population estimates) until full convergence. Stock Schwarz method had a set number of iterations that did not always allow models to converge
-Population Estimates have been run for the Willow Creek Trap Site Back to 1990; this effort required 'reconstructing' mark-recapture estimates in years without mark recapture. These are conservative estimates with large error bars due to the uncertainty introduced in this processing. This portion of the analysis took longer than expected due to the complexity of the model
-Population Estimates have been run for the Pear Tree Trap Site for 2003-2015 (which is the period of record for the site).

Currently we are working to:
-Identify problematic weeks within the yearly runs to ensure that the model output is 'realistic' (i.e. a model run that puts half the yearly estimate into a single week is highly unlikely). Determine if the problematic weeks are due to the input file or an artifact of the model run; rectify problems; re-run the model.
-We are working on a method for identifying 'springer' outmigrants in the Pear Tree estimates. Some years show a distinct early peak assumed to be springer juveniles that are easy to separate

from the fall-run estimates; other years this separation is not distinct so we are working on a solution to identify the two sub-components of the estimates
-Long-Term analysis of emigration timing related to population size.

Next Steps:
-Once final population estimates are in hand (rectifying problematic weeks; identifying spring vs. fall; assembling full time series) we will conduct trend analyses of each trapping site
-Conduct emigration timing studies building on analyses initiated by the Yurok Tribe relating emigration timing to flow and temperature