

Fish Tagging Forum

Meeting Notes

Thursday October 11, 2012

Northwest Power and Conservation Council

Attendees: see list on the Fish Tagging Forum website www.nwcouncil.org/fw/tag

Introductions/Meeting Objectives/Recap of Last Meeting

Kevin Kytola provided an overview of the topics and work to be accomplished today. Kevin mentioned that the Council expects recommendations by May 2013. Therefore, the FTF Committee needs to discuss today how to wrap up their analysis and formulate recommendations by February 2013. A February deadline for draft recommendations would provide adequate time to refine as needed and meet the May 2013 deadline.

Tony Grover updated the FTF committee that the Council has approved IEAB task 199 to assist the FTF Committee with the cost-effectiveness task. A description of the IEAB task can be found at www.nwcouncil.org/media/23457/2012ProgressReport.pdf.

Report Back from Management Question Subcommittee

Kevin Kytola provided an update on the subcommittee's accomplishments in regards to the tasks assigned to them by the FTF Committee during August 2012. The Subcommittee did some small group and individual pre-work to complete the 4 new columns related to the 3 levels of data collection/direct responsibility (required, funds, implements) and the column related to interest. The subcommittee, on October 4th, discussed by conference call the pre-work done for the Hatchery, Habitat, Predation and Population Status recovery tabs. Some remaining uncertainty remained that the subcommittee suggests be tackled by the FTF today as they verify the overall content.

The FTF committee worked as a group to validate the content of the 4 blue columns (Data collection/Direct responsibility by requiring that data, funding its collection, implementing the work to collect the data, and the Interest column) and to address the remaining uncertainty identified by the subcommittee. Modifications were made by the FTF and clarifications added as needed. A column was added for the FERC licenses related to Grant PUD.

As the FTF reviewed the indicators on the Hydro tab, they populated the tag type associated with the various indicators using designations of "current use" (c) and potential "future use" (f). The assignment of tag types is preliminary at this point and will need to be revisited as the Management Question spreadsheet is finalized.

The FTF Committee reviewed and corrected the majority of the Hydro tab.

Items that were brought up for further consideration:

- Identify instances where data is collected by entities that are not associated with the BPA F&W program, but the data is used within the BPA program to evaluate specific indicators. The example provided was PIT tag data funded by Idaho Power that is considered in combination with BPA funded data as part of F&W program evaluations.
- Determine the necessary level of detail and effort to complete the Management Question spreadsheet. Perhaps once we understand the level of our recommendations that may help guide what level of detail we need to achieve in the spreadsheet since at that point we will know how we plan to use this information.
- Suggestion to contact Sue Ireland (Kootenai tribe) to clarify sturgeon cell R50 or R 60 on the Hydro tab related to whether the Kootenai recovery plan requires data be collected on the number of sturgeon trapped in draft tubes etc.

Next Steps

The FTF Committee still needs to verify the content of the blue columns, and identify which tags are appropriate for each indicator. The Committee agreed that this task needs to occur outside of the formal FTF Committee meetings.

Council Staff (Nancy and Jim) will initially populate the cells associating indicators to tag types. Nancy will email a doodle poll of potential dates and times for the series of 2-hr conference calls to finish the task of verifying the content of the blue columns and the green Tag Type columns.

The spreadsheet will then be emailed to the full FTF committee along with the schedule of a series of 2-hr conference calls in October and in November to cover each of the tabs individually. On these conference calls, participants will review the 4 blue columns related to Data Collection (Direct Responsibility) and Interest, and the green Tag Type columns. If discrepancies arise between the blue column 'required by forum X' and the previously completed yellow columns these will be aligned.

Completion of this activity is a necessary precursor to completing the discussion of "fair share", alignment of management questions to tag types, and identification of gaps and overlaps in tagging efforts.

Begin discussing how best to prioritize the management questions

The FTF Committee did not have the time to discuss this item.

Presentation about University of Idaho radio tag studies on adult salmon and lamprey migration behavior by Chris , University of Idaho

See Chris Caudill's [PowerPoint presentation](#) for detailed information on radio telemetry applications for salmon and lamprey. A few items of note from discussions include:

- Most studies have shown few tag effects from radio tags (RTs). Tag effect depends on relative tag size. We have seen a consistent RTs effect on adult lamprey, especially on smaller lamprey.
- Known tag losses are between 2-4% within one week after tagging.
- Roughly 12% of tagged fish is the upper limit for unaccounted fish for during upstream migration.
- Typically between 3,000 and 7,000 adult salmon or lamprey have been tagged annually.
- Sample sizes are driven by balance of study precision, cost and potential negative tagging effects. The Corps' SRWG group usually sets the precision/confidence levels based on study recommendations. Adult passage studies are typically multi-objective, so it can be qualitative.
- It is very challenging to convert radio telemetry data to a (useful) open-source data base such as PITAGIS. Few people have used/asked for it. As a result radio telemetry data isn't readily accessible throughout the region.
- Many adult fish passage studies in mainstem Columbia/Snake Rivers are Before-After/Control-Impact (BACI) studies and are designed to evaluate fish passage metrics such as passage time and fallback at dams. RTs are also useful for determining fish that turn-off at specific tributaries.
- Based on radio tag studies it has been observed that high spill conditions at dams for juvenile fish passage have been shown to impede or slow down adult fish passage upstream.
- RT studies have also evaluated temperature effects on adult passage using temperature data loggers as part of the RT.
- Researchers have also used RTs to evaluate pre-spawning mortality.
- We cannot detect RT fish in a saline environment, but it is suitable for use in freshwater.
- The scale and scope of study will define infrastructure needs. Typically, a series of fixed (or mobile) receivers are needed for a large, reach scale study. RT receiver costs are \$15-20K, and tag costs are \$200-300 each; data management and analysis costs usually run between 20-30% of a study. An estimate of direct cost is \$100K for a small-scale study up to \$600-700K for a large reach-scale study in the mainstem (does not include costs of receivers or tags, which are typically funded by AAs).
- The Corps' SRWG sets RME priorities. However, many of the RME priorities are also included and affected by fish passage improvement priorities at dams, which are set by the SCT. The research questions are identified and the researchers develop study proposals to address the specific questions. This top-down approach isn't necessarily the best way to address the most critical RME questions.
- Summer and fall Chinook and steelhead stocks are showing the greatest effect of passage delays due to elevated temperatures.

USGS radio tag studies on juvenile salmon passage and survival studies in the CRB (including the Willamette) by John Beeman, USGS

See John Beeman's [PowerPoint presentation](#). A few items of note from discussions include:

- Regarding tag burden, there is no safe limit. A rule of thumb is <5% burden is common. Most studies use a >95mm minimum juvenile fish size limit. Radio Tags (RTs) are now a similar size as JSATS tags (2-3 grams). Short term effects have been quantified, but long-term effects have not.
- Use of RT tags has decreased in recent years with the increased use of JSATS tags in Corps of Engineers studies at mainstem dams. RTs will continue to be used where/when they are best suited to address particular questions. RT usage is also driven by the funding agencies technological preferences.
- There is little regional coordination in RT usage, except for tag code coordination. There is no regional data base. This is not problematic given the small scale of implementation and the small group of experts/vendors.
- Surgical implantation of RTs in juvenile fish is better than gastric implants.
- Tag costs are similar to acoustic telemetry, but difficult to compare costs for receivers and hydrophones since they have different capabilities built-in. For hydrophones, cost can range about \$10,000 +- \$2,000. Deployment cost and anchor costs are extra. RTs cost for the RTs LGS study was about \$3M, while JSATS study runs about \$5M per dam.
- Both radio and acoustic telemetry technologies require similar data analysis effort (i.e., both need to review and remove "false positive" readings). However, acoustic tag 3-D data takes quite a bit of time to sort through and analyze. Data analysis is part art and science, subject to professional judgment. Software is being developed to attempt to remove subjectivity from the analysis.
- Even PIT tags can have false positive readings.
- RT studies often rely on technology synergies. For example, researchers can use each other's receivers, whenever possible and take advantage of existing arrays. Additionally, the use of RTs in tributary passage and escapement studies relies upon PIT tagged fish to be able to reduce sample size by targeting specific adults at trap locations based on PIT tag detections. Similarly, RTs and PIT tags were used in combination for the transportation and straying study.

Recap and Plan Next Meeting

The recap discussion focused primarily on defining the future activities for the FTF to complete pursuant to the Charter. Key points included:

- Kevin Kytola recapped the FTF's original objectives for the group.
- Sapere will update the summary spreadsheet of tagging information associated with the FTF objectives to include other tagging technologies we've recently covered (e.g., otoliths, RTs) and recirculate for review and comment.
- The IEAB work scope has been approved and the FTF and IEAB will begin to work together to complete the cost-effectiveness evaluation.
- Tony Grover volunteered to bring some sample Council recommendations to the next meeting so that the FTF can begin calibrating its expectations for final deliverables.
- BPA will review the tag related project cost information and recommend to the FTF a means to organize the data so that it best supports the discussion of "Fair Share" and evaluation of cost-effectiveness.

- For the discussion/evaluation of fair share, it will be useful to understand BPA expenditures from a couple of perspectives:
 - The portion of the total regional investment in a tag type does BPA provide. George Nandor provided some of this type of information for CWT.
 - For the portion that BPA funds, which management questions and indicators are supported by those dollars. This can then be evaluated against the designation of direct responsibility and interest from the Management Question spreadsheet.
 - Costs should include tags, tag recovery, and data analysis.

Next Committee Meetings

Next FTF Committee meetings are scheduled and conference call and go-to-meeting information is posted on the council’s website: www.nwcouncil.org/fw/tag. The dates and main topics for the next three meetings are:

Meeting Date	Suggested Focal Topics (link to FTF Charter Objectives)
Prior to next meeting	<ul style="list-style-type: none"> • Complete management question spreadsheet (responsibility and tag applicability). (Obj. A). This will be completed using conference calls prior to the December meeting
December 3, 2012	<ul style="list-style-type: none"> • Identify and evaluate overlaps and gaps in tagging, data collection, management, and infrastructure as relates to program and cost effectiveness (Obj. B, Obj. C) • Discuss BPA/ACOE cost broken out by tag type <ul style="list-style-type: none"> • Maybe also report by 6 categories of management questions • Identify funding entities and beneficiaries of data produced through tagging efforts for fair share analysis (Obj. D) • Discuss example Council recommendation to inform development of the FTF Committee recommendations.
January 8, 2013	<ul style="list-style-type: none"> • Discuss approach to cost effectiveness evaluation with IEAB (Obj. B) • Identify necessary responses/updates to 2009 ISRP/ISAB report recommendations (Obj. E) • Follow-up on open items from the December meeting.
February 19, 2013	<ul style="list-style-type: none"> • Generate recommendations to improve program and cost effectiveness (Obj. B) • Generate project recommendations for opportunities to cost share for fair share issues (Obj. D)
March 19, 2013	<ul style="list-style-type: none"> • Finalize necessary responses to 2009 ISRP/ISAB report recommendations (Obj. E) • Draft recommendations to the Council
April 2013	<ul style="list-style-type: none"> • Finalize recommendations to the Council
May 2013	