

## **Scope of Work for Juvenile Salmonid Dam Passage and Survival at McNary and John Day Dams, 2014. Task 1: Surgeon Training 2014**

**Title of Project:** Juvenile Salmonid Dam Passage and Survival at McNary and John Day Dams, 2014

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### **PROJECT SUMMARY**

In 2014, survival studies are planned for McNary (MCN) and John Day (JDA) dams. This research is being conducted to obtain data on the biological performance standards mandated in the 2008 Biological Opinion. To accomplish research goals, accurate estimates of survival for migrating juvenile salmonids must be attained. Survival studies are used to make inference about the population at large. Inference based models have a set of basic assumptions that need to be met to accurately derive survival estimates for these fish. The first step in testing these assumptions is to train adequately fish surgeons while incorporating both PNNL and USACE Juvenile Salmon Acoustic Telemetry System (JSATS) tagging protocols.

### **Research Goals**

Evaluate survival model assumptions related to the 2014 Lower Columbia River Acoustic Telemetry Survival Investigations. Many changes have been made through the years of training surgeons at PNNL. Years ago, it was observed that surgical experience alone (tagging hundreds of fish) did not make a good, more important, successful surgeon. PNNL found that it is important for the surgical trainees to receive this feedback on the outcome of their surgeries and given methods of improvement. Experience has shown that even a “small” change to the surgical method should be re-trained (including feedback) by experienced surgeons to minimize the effect will be on fish and tag retention. It is important to hold fish (for approximately 14 days) and examine them at several intervals in order to demonstrate that the sutures will be retained, the surgery did not cause excessive trauma to the fish, that the tags will be retained for the duration needed for the study, and that no fish die as a result of the procedure. This also provides surgeons to examine their work over the 14 days to better understand the healing process.

### **Task 1.0: Fish Surgeon training using JSATS tags**

#### **Project Dates: March 01-April 30<sup>th</sup>**

There will be 3 cohorts of surgeons trained during the 2 month period. The training involves classroom (held at PNNL North Bonneville Field Office) and laboratory work (held at Bonneville Dam Smolt Monitoring Facility (BON SMF)).

#### **Classroom** (@ N. Bon. Office):

- Introduction (to all modules and week)
- Modules:
  - Module 1: Fish Health and Condition
  - Module 2: Fish Handling
  - Module 3: Rejection Criteria

- Module 4: Anesthesia
- Module 5: Tagging
- Module 6: Disinfection and Sterilization
- Surgery video

**Surgery (@ BON SMF):**

- Introduction to surgery (Surgery materials, sutures, tools, handling and usage)
- Suture Practice:
  - Demonstration on model (brick w/foam)
  - Practice on models
  - Feedback from suturing practice on models
- Assignment:
  - Complete 100 sutures on model
- Dead Fish Practice:
  - Demonstration on dead fish
  - Practice on dead fish
- Live Fish Practice:
  - Demonstration on live fish (real surgery setup)
  - Practice on live fish (n=20)
- Necropsy of live fish practice (n=20 fish per trainee)
  - Trainer and trainee evaluate together
- Live Fish Practice:
  - Practice on 75 live fish held for 14 days
- TEST
  - N=25 fish
  - Will be graded at Day 7, and 14

The following attachment “USACE\_SurgicalProtocols\_Version1.0.pdf” explains the detailed JSATS surgery guidelines suggested for USACE compliance studies.



USACE 2011 Surgical Protocol