February 2006

# APPENDIX J

# PROTOCOLS FOR JUVENILE MONITORING FACILITY OPERATIONS AT BONNEVILLE DAM

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1. **General.** The following protocols will be implemented by agencies conducting research in the Bonneville Dam second powerhouse Juvenile Monitoring Facility. These protocols were coordinated with fish agencies and tribes through the Fish Passage Operation and Maintenance Coordination Team (FPOM). The purpose of these protocols is to provide precautionary measures to limit delayed mortality resulting from stress when handling fish.
    - **a.** Trapping is not recommended when water temperatures exceed 70°F as measured in the sample holding tank, unless ESA-permitted and the need for sampling is prioritized by the Regional fish managers through discussion with FPAC.
    - **b.** Personnel conducting 24 hour research or monitoring must be present at the facility to monitor the separator bars for debris and stranded fish.
    - **c.** The Corps reserves the right to terminate trapping operations at any time.

2. **General requirements for JMF users.** All personnel conducting research in the JMF will implement the following requirements.
    - **a.** Users must have appropriate documentation for conducting research at the dam. (See Guide for Researchers at Bonneville Dam).
    - **b.** Users must have valid state and federal permits that cover all listed species passing the project during the trapping period and users shall comply with all fish handling conditions in the permit. **Note: If permit conditions are more restrictive than the following protocols, users must follow permit conditions.**
    - **c.** Hard hats are to be worn outside at all times.
    - **d.** Long pants or raingear are to be worn at all times. Shorts or sweats will not be permitted in the lab.
    - **e.** Steel-toed shoes or rubber boots are to be worn at all times. No tennis shoes or sandals will be permitted.
    - **f.** If users supply project biologists with a season schedule, it will not be necessary to notify project biologists upon arrival and departure.
    - **g.** Users may coordinate with smolt monitoring personnel regarding sample rates.
    - **h.** Users are permitted to routinely operate flushing valves, fish lifts, and release pipes/valves within the monitoring building.
    - **i.** Any modifications to the building or equipment will first be approved by Bonneville Project through Project Fisheries.
    - **j.** All anesthetic water is to empty into the sewage lift station after running through the activated charcoal filters.
    - **k.** Project Biologists will operate the upper switchgate at the start and end of each season. JMF researchers may operate the upper switchgate as necessary when separator bar monitoring is not available.
    - **l.** The lower switchgate is in automatic control. JMF personnel will monitor and report to Project biologists any problems with the lower switchgate.
        i. On seasonal ascending tailwater elevations, the transition from low to high outfall should be between tailwater elevations at the upper end of 16’ to 18’ range.

ii. On seasonal descending tailwater elevations, the transition from high to low outfall should be between tailwater elevations at the lower end of 18' to 16' range.

**m.** Avian cannons will be operated from March 1 through August 31.

i. During August, avian cannons may be shut off if project observes no predatory birds at the outfall, and coordinates through FPOM.
ii. If birds reappear at the outfall, cannon operation will resume and FPOM will be informed.
iii. The cannons will be operated 24 hours/day during fish passage season.
iv. Project operators and mechanics are responsible for starting up and shutting down the avian cannons.

3. **Operation in sample mode (normally fish passage season)**
   - **a.** Smolt monitoring personnel will operate the sampling facility as part of the smolt monitoring program and to collect fish for regionally approved research.
   - **b.** Research updates and equipment or sampling trouble reports will go through the project biologist to the FPOM Coordination Team.
   - **c.** Research personnel will monitor the JMF continuously while in sample mode. This is to ensure its proper functioning and to provide quick response to an emergency while the JMF is in sample operation.
   - **d.** Research personnel will perform a walk-through inspection of the entire facility (except the 2-mile transport flume) every two hours to ensure safe fish passage conditions.
     i. Particular attention will be paid to the following: dewatering facilities including the PDS, SDS, PDS screen cleaner system, adult transport flume, juvenile hopper, all valves and auxiliary water systems, flushing water systems and their perforated plates, all gates including switch and diverter gates, PIT tag detectors, and all monitoring building systems including holding tanks, valves, and conduits to prevent injury and/or mortality to passing fish.
   - **e.** Personnel will also observe video monitors at least every half hour or continually, and inspect manually every two hours or more frequently according to trash sweep operation or other debris potential.
   - **f.** Research personnel shall monitor kelt passage over the separator.
   - **g. Sampling shall be restricted to every other day when temperatures meet or exceed 72°F**

4. **Operation in bypass mode, or when PDS monitors are not present.**
   - **a.** The upper switchgate will be in bypass mode.
   - **b.** The Emergency fish release valve will be open.
   - **c.** All rotating gates will be set to bypass.
   - **d.** The bypass flume gate will be raised.
   - **e.** Project Biologists will inspect the facility daily.

5. **System failures**
   - **a.** Any system failure or abnormality will be reported to a project biologist immediately. If a project biologist is unavailable, the control room will be contacted at ext. 2221 or 2222.

**b.** If a high or low water situation occurs in the PDS area-
   i. Contact the control room immediately.
   ii. Switch the upper switchgate to bypass mode until the problem is corrected. .
   iii. Immediately open the emergency fish release valve
   iv. Raise bypass flume gate. **DO NOT ADJUST ANY WEIRS.**

**c.** If a monitoring facility failure occurs
   i. Open the emergency fish release valve.
   ii. Switch the upper switchgate to bypass
   iii. Raise bypass flume gate
   iv. Begin fish salvage operations.

**d.** If a lower switchgate failure occurs that results in releasing to the wrong high or low outfall and repairs can not be made within 24 hours, the special operation will be coordinated through FPOM.

**e.** If a problem with either the 2 way or 3 way rotating gates (e.g. stuck open or partially open) is discovered, the response protocol should be as follows:
   i. Switch upper switchgate to bypass.
   ii. Open the emergency fish release valve.
   iii. Raise bypass flume gate
   iv. Turn off the air to the rotating gate and manually rotate the half-round pipe section to the bypass position.
   v. Inspect the affected areas for stranded fish and return them to the flume. **Dead fish should be held in a bucket for processing by research personnel.**
   vi. Contact the project biologist, or if that is not possible, the control room operator.
   vii. Project personnel will request maintenance crews. Repairs should commence within 4 hours of discovering the problem.
   viii. Once all fish safety issues have been addressed and repair requests made, the problem should be thoroughly documented in writing and that information e-mailed to the project biologist and other interested parties.