Updated; Dec‘14

WINTER MAINTENANCE DEWATERING PLAN
THE DALLES DAM EAST FISHWAY

FISHLADDER

Overview

Low to moderate numbers of fish can be expected during dewatering the east fishway for annual winter maintenance (December, January, February). Efforts are made to capture all fish in the upper section near the count station, due to crane access and convenient release to forebay. If possible, all fish downstream of count station will be pushed to tailwater with receding water levels. Captured adult salmonids will be released into the forebay and juveniles released into the tailrace whenever possible. Juvenile salmonids will be released into areas of higher flow in the tailrace to reduce predation potential. Resident fish will be released to the river at the most practical location. Lamprey will be captured before encountering exposed diffuser grating to prevent from entering diffuser chambers. Fish release sites will be predetermined. Personnel will access the lower section where diffuser grating becomes exposed as soon as possible to prevent fish stranding atop the grating. Sturgeon over 4’ in length will be pushed to tailwater or removed by crane with stretcher for release to river.

Preparation

Operations (TDO)

- Orifice flow 48-72 hours prior to dewatering.
    1. Both fish turbines off.
    2. Raise weir 159 to decrease ladder flow.
    3. Pull weir JP6 out.
- Immediately prior to dewatering.
    1. Notify rescue personnel prior to start of dewatering.
    2. Hang necessary clearance cards.
    3. Open flushing valve at weir 159 immediately prior to dewatering ladder.
    4. Raise weirs 154-157 out of water.

Structural (TDS)

- Assure adequate exit bulkhead seals. Install exit bulkheads.
- Request necessary safety clearances and confined space entry if needed.
- Notify project if deck blockage required.

Mechanical (TDM)

- Standby for any immediate mechanical needs

Electrical (TDE)

- Disconnect all fishway automation systems

Fisheries (TJF)

- Provide extension ladders near required access locations.
    1. Count station
    2. 180 bend
- Coordinate dates and times for outage with all involved project personnel, COE Portland District and regional fish managers.
- Open picket leads by rotating.
- Establish teams to work at predetermined locations.
- Provide fish rescue equipment.
- Conduct a pre-work/safety meeting. Activity Hazard Analysis, job responsibilities, radio contact plan, preparation status
- Station salvage tank in best location.

Procedures

- Mobile crane installs exit bulkheads.
- Safety clearances accepted. (preferred by radio to save time)
- Personnel entering fishladder sign clearance master tag and lock onto box.

- As water level allows, three fisheries personnel enter at count station with necessary equipment.
- Install triangular orifice blockers immediately downstream of count station.
- Two personnel will follow fish down the fish ladder as the water level recedes. Crawling through orifices is preferred method for safety and speed. Push fish toward tailwater.
- As water levels permits, two personnel enter at the 180 bend to keep fish moving downstream. Fish should be removed by rope and fish bag and lowered to a person below the ladder for release in tailwater if needed. They will continue downstream when upper personnel arrive. Personnel may proceed ahead to reduce stranding on lower diffuser grating.
- After all fish are moved to tailwater, orifice-blocking grates will be installed at the lowest exposed weir, with ropes attached to deck handrails.
- All personnel will egress at lower 180 bend.
- The entire ladder will be checked same day following the initial dewatering. The diffuser chambers in the lower section will be monitored for Lamprey entrapment.
- All personnel sign out clearance master tag and remove locks.
- Flushing water will remain open through the night.
- Ladder will be checked the following day.

LADDER ENTRANCE DEWATERING (below tailwater);

Overview

The south, east and west entrances, collection channel and transportation channel may require dewatering for maintenance and diffuser grating inspection. The south channel and entrance are isolated from the remaining areas and may be dewatered separately. All water must be pumped below tailwater elevation. Fish rescue efforts will be done as water levels allow access. All pumped areas will be monitored to prevent stranding fish. To reduce handling stress, all fish will be immediately released to tailwater via rope and bag. Juvenile salmonids will be released into areas of higher flow in the tailrace to reduce predation potential. Fish release sites will be predetermined. Sturgeon over 4’ in length will be removed by stretcher and crane.

Preparation/Procedure

Operations

- Notify rescue personnel prior to start of dewatering
- Hang necessary clearance card.
- Raise weir between collection and transportation channel west end
- Start dewater pumps and monitor water level

Structural

- Install bulkhead in entrances S1, S2, W1, W2, W3, E1, E2, E3.
- Provide crane support at junction pool, west and south entrance for access and/or removal
- Request necessary safety clearances and confined space entry
- Start necessary PMs

Mechanical

- Standby for immediate mechanical needs
- Start necessary PMs

Electrical

- Assure power for pumps
- Disconnect all entrance automation systems
- Start necessary PMs

Fisheries

- Coordinate outage dates/times and personnel required
- Establish teams at predetermined locations
- Provide fish rescue equipment
- Conduct a pre-work/safety meeting. Activity Hazard Analysis, job responsibilities, radio contact plan, preparation status

- Station salvage tank in best location

Procedures

- Mobile crane installs entrance bulkheads
- Safety clearances accepted
- Entering personnel sign master tag and lock onto box
- All personnel enter at junction and teams disperse to predetermined locations as water level allows. Two personnel cover junction pool and east entrance. Two personnel cover collection channel to west entrance and two personnel cover transportation channel to south entrance
- East and west entrance sloping pool will eventually be pumped dry. Personnel are to attend this area until <1' water is present for thorough inspection for fish.
- Blocker device installed at south entrance to prevent fish jumping onto grating
- Personnel egress from junction pool and south entrance

Safety Concerns

- Slippery conditions on fishway floor. Felt soled waders recommended
- Secure all extension ladders to handrails
- Be aware of unstable rock walls along south fishway channel
- Remove bags from safe locations. Use proper lifting technique. Do not overload bags with water

Equipment Required

Submersible pumps (optional) - remove water from lower fishway.
Crane - remove fish and personnel from upper and lower ladder areas.
Fish tank - transport fish from dewatered areas to predetermined release sites. Aeration provided.
Fish bags - transport fish to tank
Dipnets - capture fish
Seines - crowd fish for capture
Safety Harnesses- fall prevention where require
Hardhats – mandatory
Chest Waders - depending on water depth encountered
Safety glasses - optional.
Gloves - hand protection.
Personal Floatation Device – drowning protection
Several Vehicles - transport of personnel and equipment
Radio - communication
Sturgeon stretcher and cargo net - large sturgeon removal