2011 White Sturgeon Stocking and Brood Collection Plan

Chelan Public Utilities District Natural Resources Department

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Prepared for:
The Rocky Reach Fish Forum
Rocky Reach Hydroelectric Project
FERC No. 2145

March 1, 2011

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<td>FIGURE 1. MEAN OUTFLOW, SPILL (KCFS), AND TEMPERATURE (°C) AT THE ROCKY REACH HYDROELECTRIC PROJECT, BY WEEK OF THE YEAR, 2001-2010. STANDARD ERROR BARS ARE INCLUDED.</td>
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BACKGROUND

White Sturgeon Management Plan

The relicensing process for the Project brought fisheries agencies, tribes, and interested parties together in a Natural Resources Working Group (NRWG) that provided an opportunity for comprehensive review of current and future management priorities for fish resources potentially impacted by ongoing Project operations. The NRWG was established to identify issues, develop study plans, review study reports, and develop long-term management plans for fish and wildlife species. The NRWG consisted of representatives from the USDA Forest Service, U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), the Washington Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), the U.S. Bureau of Land Management (BLM), Colville Confederated Tribes (CCT), Yakama Nation (YN), Columbia River Inter-Tribal Fish Commission (CRITFC), and other interested parties.

The WSTG collaborated during 2004 and 2005 on the development of goals and objectives, and, subsequently, developed Protection, Mitigation, and Enhancement measures (PMEs) to address white sturgeon within the Project boundary. During this process, the WSTG determined that white sturgeon life history characteristics and the limited number of fish estimated to exist in the Reservoir made it impractical to complete a definitive assessment of ongoing Project effects on white sturgeon. Therefore, the WSTG concluded that efforts should focus, initially, on increasing the number of fish in the existing population through supplementation, assessing natural recruitment, and then investigating the potential for natural reproduction once a population of sexually mature white sturgeon is established in the Reservoir.

The overall goal of this Rocky Reach White Sturgeon Management Plan (WSMP) is to promote white sturgeon population growth in the Reservoir to a level commensurate with the available habitat based on monitoring results. This is to be accomplished by meeting the following objectives: 1) increasing the population of white sturgeon in the Reservoir through implementing a supplementation program to a level commensurate with available habitat and allowing for appropriate and reasonable harvest; 2) determining the effectiveness of the supplementation program; 3) determining the carrying capacity of available habitat in the Reservoir; and 4) determining natural reproduction potential in the Reservoir, and then adjusting the supplementation program accordingly. The WSMP calls for Chelan PUD to
implement the following Protection, Mitigation, and Enhancement measures (PMEs), described in Section 4:

1) Prepare a brood stock collection plan within year one of the effective date of the New License and, if feasible, begin brood stock collection in year two of the New License;

2) Implement a white sturgeon supplementation program by releasing up to 6,500 yearling white sturgeon into the Reservoir each year for three years, with subsequent annual release levels to be determined by the RRFF, based on monitoring results;

3) By year seven of the New License, in consultation with the RRFF, determine a long-term source of fish to be used for continuing the supplementation program throughout the term of the New License;

4) Conduct an initial three-year index monitoring program for juvenile and adult sturgeon in the Reservoir to determine age-class structure, survival rates, abundance, density, condition factor, growth rates, and to identify distribution and habitat selection of juvenile sturgeon;

5) Continue index monitoring every third year over the term of the New License to monitor age-class structure, survival rates, abundance, density, condition factor, growth rates; identify distribution and habitat selection of juvenile sturgeon; and direct the supplementation program strategy;

6) Conduct tracking surveys of juvenile white sturgeon released with active tags as part of the supplementation program to determine emigration rates from the Reservoir;

7) Compile information on other white sturgeon supplementation programs in the region; and

8) Capture, insert active tags, and track reproductively viable adult white sturgeon for the purpose of identifying potential spawning locations, or, if no viable adult spawning white sturgeon are active-tagged as part of indexing program, place egg collection mats below Wells Dam to evaluate spawning activity and habitat utilization.

2011 STOCKING ACTIVITIES

Fish Origin and Stocking Levels

The Rocky Reach Fish Forum agreed on October 28th, 2010, that the Co-manager’s recommendation to target the maximum release of 6,500 juvenile white sturgeon into the Rocky Reach Reservoir is acceptable for the 2011 release. The origin of these juveniles will include approximately 3,900 (60%)
juveniles from a 1×2 mid-Columbia parental lineage, and 2,600 (40%) juveniles from 3×2 lower-Columbia captive-brood origin all collected by YN. These fish will be co-located at the YN-operated Marion Drain Hatchery and the WDFW-operated Chelan Hatchery until release.

2011 Marking Plan

Chelan PUD field staff will PIT-tag ~100% of yearling sturgeon destined for release into the Rocky Reach Reservoir with 134.2 kHz 12 mm glass tags purchased from Biomark (Boise, Idaho). PIT tag files will be uploaded to PTAGIS in an effort for regional coordination and establishing accessible information for future monitoring and evaluation. PIT-tagging will occur during the week of March 7th, 2011 at Chelan Hatchery, and will follow regional guidelines for tagging. Fish will be allowed adequate time to heal prior to stocking. In addition to PIT-tags, field staff will be implanting 40 HTI acoustic tags (model 795LG) to pilot the effectiveness of active telemetry consistent with arrays in place for juvenile salmonid behavior studies in the Rocky Reach Reservoir.

All hatchery-origin juvenile white sturgeon will have scutes removed consistent with the Mid-Columbia Sturgeon Technical Workgroup recommendations (December 16th, 2011). These techniques have been standardized by WDFW and Canadian entities for sturgeon supplementation. The marking design is removal of three scutes on the left side of each fish, beginning at the anterior origin of the dorsal fin and moving forward. The mark will identify the fish as a hatchery-origin individual, implanted with a PIT-tag. Detailed information on each hatchery fish will be accessible through the regional database, PTAGIS.

Release Locations and Dates

Consistent with the marking plan and typical outflows and spill at the Project, the 2011 juvenile releases will occur following prior to substantial flow increases typically observed in mid- to late- May. These flow increases are also associated with increased spill at Rocky Reach Dam (Figure 1). The goal is to allow sufficient time for juveniles to seek habitat and distribute volitionally through the reservoir prior spring run-off. All releases, based on logistics, access points, and reservoir morphology, will occur in the upper end of Rocky Reach Reservoir, between Chelan River and the tailrace of Wells Dam (Figure 2).
2011 BROOD COLLECTION ACTIVITIES

The Co-Managers (WDFW and YN) called a white sturgeon brood collection coordination meeting with the Mid-Columbia River Public Utility Districts (PUDs), including Grant, Chelan, and Douglas County. The meeting was held on February 8th, 2011 at Douglas PUD headquarters in East Wenatchee, Washington. Attendees included YN representatives Bob Rose and Donella Miller, WDFW representative Chad Jackson, Grant PUD representative Mike Clement, Chelan PUD representatives Joe Miller and Josh Murauskas, Douglas representative Beau Patterson, Ecology representative Marcie Mangold, and Wanapum representative Alyssa Buck (via phone).

During this meeting, the following guidance was offered by the Co-Managers: (I) **Target brood locations in 2011** will include the lower Columbia River (above Bonneville Dam to McNary Dam, targeted by YN staff [Chelan-funded]), and the middle Columbia River (above McNary Dam to Rock Island tailrace, targeted by Golder Associates staff [Grant-funded]). Chelan will provide discretionary support through fishing guides in the McNary Tailrace or sturgeon incidentally captured through predator-control programs. (II) **Minimum target spawning matrix** will include no less than two males and two females (i.e., a 2×2 parental matrix). Brood collection efforts resulting in less than a 2×2 parental matrix will be considered unsuccessful and one of two options will be presented to the Rocky Reach Fish Forum for consideration: (1) reduced stocking efforts for the following year, endorsed by the Co-Managers to meet FERC License requirements; or, (2) consideration of alternative sources of juveniles, endorsed by the Co-Managers to meet FERC License requirements. (III) **Ideal target spawning matrix** in 2011 will include six males and six females collected from the target locations (i.e., a 6×6 parental matrix collected from above Bonneville Dam and below Chief Joseph Dam). Brood collection efforts will conclude upon reaching the full parental matrix and efforts will shift towards spawning, egg fertilization, and early rearing. A full parental matrix will be indicative of successful efforts and on-going broodstock collection efforts will be discontinued.

Consistent with the WSMP and regulatory compliance, juvenile sturgeon destined for Rocky Reach Reservoir will be spawned at the YN Marion Drain facility, and fertilized eggs will be relocated to the WDFW-operated Chelan Hatchery for early rearing. Prior to stocking in 2012, an updated report will be provided to the Rocky Reach Fish Forum.
REPORTING

Each year, Chelan PUD shall provide a report to the RRFF summarizing the year’s activities under the WSMP. The report shall include a summary of stocking levels, indexing and tracking survey results (if such activities were conducted), and other significant decisions or evaluations made pursuant to this WSMP. The supplementation program review described in Section 4.2.3 shall also be contained in this report, with periodic updates included as appropriate.

Figure 1. Mean outflow, spill (kcfs), and temperature (°C) at the Rocky Reach Hydroelectric Project, by week of the year, 2001-2010. Standard error bars are included.
Figure 2. Mid-Columbia River near Rocky Reach Dam. White sturgeon stocking will occur above Chelan River and Below Wells Dam in 2011.