



**Yakama Nation Sturgeon Management
2011 Non-Technical Annual Report
April 1, 2011 – March 31, 2012**

Project Number: 2008-455-00

Contract Number: 52389

Submitted by

Donelle Miller, Yakama Nation

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Abstract

This non-technical report summarizes the activities of the Yakama Nation Sturgeon Management Project # 2008-455-00 (Project), during the performance period April 1, 2011 to March 31, 2012. A non-technical report of work performed is appropriate at this time during Phase 1 of the Project since data collection is ongoing into future years. Progress of the administrative work elements are covered sufficiently through the status reports on Pisces.

Introduction

The long-term goal of the Yakama Sturgeon Management Project #2008-455-00 (Project) is to facilitate restoration of viable populations and fisheries for white sturgeon in mid-Columbia River reservoirs. Phase I (2009-2012 or beyond as determined) of the Project will accomplish the following:

1. Assist in the development of a recovery, research and monitoring strategy, and hatchery Master Plan for depleted sturgeon populations in FCRPS portions of the mid-Columbia (below Priest Rapids Hydroelectric Project) and lower Snake rivers.
2. Continue to develop critical expertise and refine effective sturgeon culture methodology for spawning and rearing of white sturgeon using tribal staff, facilities and resources, and captive broodstock currently maintained on the Yakama Reservation at the Prosser and Marion Drain Hatcheries.
3. Identify facility and staff requirements and costs of hatchery alternatives for use in research/monitoring and hatchery Master Plan considerations (based on #2 and #3 above).
4. Develop a detailed implementation plan, in coordination with other regional efforts, for production and rearing of juvenile sturgeon as appropriate for use in experimental research and hatchery feasibility evaluations (as identified in #1 above).
5. Assist in the development and implementation of effective experimental research and hatchery feasibility evaluations (as identified in #1 above).

This work complements other ongoing sturgeon research and restoration efforts in both the mid-Columbia River and Master Planning efforts undertaken by the Columbia River Inter-Tribal Fish Commission (Project 2007-155-00) (through Fish Accords funding) and directly addresses the objective of the 2004 NPCC Subbasin Plan to increase sturgeon abundance in the lower mid-Columbia mainstem by: 1) continuing to develop hatchery technology and methodologies, and 2) evaluating the need for hatchery supplementation. Over 20 years of dedicated research and management has failed to date to restore natural productivity or opportunities for harvest of mid-Columbia River sturgeon impacted by the hydropower system. Policy choices affecting reservoir conditions and associated sturgeon habitat make it clear that future sturgeon restoration efforts will involve some use of hatchery sturgeon either as experimental subjects for research of limiting factors or for supplementation of unproductive natural populations upstream from Bonneville Dam.

During Phase I, the Project is not building new hatchery facilities for release of hatchery-reared sturgeon in the FCRPS reservoirs. However, under different contracted obligations we are involved with supplementation efforts in the Grant and Chelan County Public Utility Districts. These efforts are distinctively different from, but are very complementary towards the #2008-455-00 Project. Work associated with the Mid-Columbia PUDs provides substantial opportunities and experience in hatchery techniques and field training.

Phase I identifies hatchery evaluation and development work to be completed concurrent with CRITFC comprehensive strategic and hatchery master planning which will clarify appropriate applications and objectives for hatchery sturgeon in the lower Columbia River (downstream from Priest Rapids). Phase II work of the YN Project will depend on the outcomes of the CRITFC strategic and master planning effort and YN Phase I results. YN Phase II might include significant new facilities contingent on the outcome of the strategic and master planning process. Work will be completed by Yakama Nation tribal fishery program staff in coordination with fishery co-managers from other treaty tribes and the states. Hatchery activities are intended to occur primarily at established tribal facilities at Prosser and Marion Drain Hatcheries, and may involve limited temporary modifications.

Work Elements

A: 165. Produce Environmental Compliance Documentation

The existing contract with the Bonneville Power Administration does not include the development of new facilities. The addition of circular tanks at the Marion Drain Hatchery was solely funded by the Yakama Nation so no environmental clearances were required under this contract.

Phase 1 of the Project does not include any outplanting of hatchery fish into the environment so NEPA and ESA compliance was not necessary during the contract period.

B: 63. Rear Fish C:157. Collect/Generate/Validate Field and Lab Data & D: 176. Produce Hatchery Fish

Approximately 97 captive brood, 3,000 BY07, 115 BY08, 35 BY09 and 5,000 BY10 fish were maintained during the project period. The fish were fed a daily ration according to their body weight and water temperature. Dissolved oxygen was monitored and maintained within the proper parameters and tanks were cleaned on a regular basis to provide a healthy rearing environment for the fish.

Nine female and eight male brood were segregated in order to conduct a surgical bioassay to determine sexual maturity for possible spawning in 2011. The well water at the hatchery remains at approximately 14C throughout the year with minimal temperature fluctuation even during the winter months which allowed the captive brood to ripen earlier in the spring than

anticipated. In BY10 the fish were determined ripe for spawning in April so in BY11 by the fish were evaluated in February for spawning in March.

In February, two females and eight males were determined mature but only one of the eight males produced viable milt, which was the same male that produced milt during BY10. Due to logistical reasons from the early maturation of the fish, we were unable to spawn the two ripe females until March and by that time they had already begun follicular atresia.

In March 2011, two females were spawned with the one male which produced a 2x1 spawning matrix, approximately 100,000 eggs were taken at spawning. Due to the atretic condition of the eggs 0% survival was observed in one female and approximately 10% survival at hatch in the second female which produced approximately 1,000 juvenile fish from the 2011BY.

H: 189. Coordination-Columbia Basinwide

The Project described is closely affiliated and complementary to the ongoing sturgeon mitigation and restoration project in Columbia and Snake River reservoirs upstream from Bonneville Dam and the comprehensive strategic and master planning effort initiated under the MOA by the Columbia River Inter-Tribal Fish Commission. Restoration needs and alternatives were identified in Phases I and II of the joint agency and tribal Columbia River sturgeon project (BPA #1986-050). Phase I of the CRITFC strategic and master planning project (BPA #2007-155) will involve all management partners in a comprehensive planning process to provide guidance for further restoration and monitoring actions in the FCRPS portion of the mid-Columbia and lower Snake rivers, including guidance for appropriate usage of hatcheries for sturgeon research or supplementation. Phase I of the Project will provide critical input into the strategic and hatchery master planning process, help determine the potential suitability of tribal hatchery facilities for sturgeon, and facilitate implementation of appropriate hatchery-related measures identified in the strategic and master planning process. Guidance in the Strategic and Master Plans will be incorporated into Phase III of the joint Columbia River sturgeon Project and further work by the Yakama Sturgeon Management Project.

Representatives from the Yakama Nation participated in the “White Sturgeon Strategic Planning Workshop for the Lower Columbia and Lower Snake River Impoundments” in Boardman, Oregon in December 2009, January 2011, and Troutdale Oregon in January 2012.

Sturgeon mitigation issues in upper mid-Columbia River reservoirs operated by the Public Utility Districts (PUDs) fall under the purview of FERC license requirements of Grant County PUD (Priest Rapids, Wanapum), Chelan County PUD (Rock Island, Rocky Reach), and Douglas County PUD (Wells).

The Yakama Nation is independently involved in discussions with the PUDs regarding objectives, opportunities, and alternatives for sturgeon mitigation in PUD project areas. FCRPS sturgeon restoration and monitoring efforts can provide a useful template and expertise for

effective implementation of sturgeon mitigation measures in PUD portions of the system. Coordination of hatchery development and monitoring efforts among areas may also promote economies of scale.

In July 2011, one female and one male were spawned under contracts with Grant and Chelan Public Utility Districts (PUD). The eggs were successfully incubated, hatched and brought onto an artificial diet and were raised for 14 months in the hatchery and were scheduled for release in September 2012. The fish were held in the hatchery until the fall, in 2010 the fish were released in spring, because of slow growth and increased mortality within the group caused by issues associated with a hyper-inflated swim bladder. Due to the poor growth and increased mortality of the group, pathology screening was done prior to release. The virology samples were negative but the histology fin samples in 6 of the 60 fish tested were positive for low levels of white sturgeon iridovirus (WSIV). Due to the presence of the WSIV none of the fish were released into the wild from BY11.

I: 174. Produce Plan

Phase I of the CRITFC strategic and master planning project (BPA #2007-155) is ongoing and the first draft of the strategic plan was not completed during this contract period.