**DRAFT Programmatic Issue:**

**White Sturgeon**

(does not include Kootenai River Sturgeon DPS or Lake Roosevelt Sturgeon)

(draft version March 1, 2011)

**Issue:** The program currently invests in four white sturgeon projects in the lower river (below Chief Joseph Dam on the Mainstem Columbia, and below Lower Granite on the Snake River) that collectively address monitoring and supplementation. Current funding is geared toward stock assessment monitoring and sustaining harvestable populations in the reservoirs and feasibility of hatchery supplementation. The ISRP’s review of the specific sturgeon projects was favorable (albeit with comments about certain elements and activities). Yet the ISRP, looking at the collective effort in light of the current condition of sturgeon and of sturgeon knowledge, had several significant programmatic concerns, which the ISRP summarized as:

1. An effective basinwide management plan for white sturgeon is lacking and is the most important need for planning future research and restoration.

2. Specific factors affecting recruitment of white sturgeon are poorly understood.

3. The importance of the estuary and ocean in sturgeon production below Bonneville Dam is poorly understood.

4. The productivity of pools above Bonneville Dam for sturgeon is poorly understood.

5. Consideration of adaptive management approaches should include a review of harvest regulations with the intent of facilitating the efficient, low cost acquisition of creel data needed for stock assessment.

**Background and Staff comments:**

White sturgeon are anadromous fish and are blocked from migrating up and downstream by the mainstem dams and are therefore found in freshwater and marine environments in the Columbia. Due to passage barriers, the marine environment is no longer available to most of the populations in the Basin[[1]](#footnote-1). Most impounded populations are recruitment-limited due to a lack of suitable spawning habitat or flow conditions suitable to produce significant recruitment in the available habitat. The primary spawning population with annual recruitment occurs below Bonneville where better flow and habitat conditions exist. These populations still have access to the estuary and ocean.

2009 Program Mainstem Plan:

The 2009 Fish and Wildlife Program included a section for sturgeon in the Mainstem chapter. It calls specifically for studies that evaluate effects and mortality with respect to dam passage and removable spillway weirs. It also calls for an evaluation of the importance of connectivity among populations; assessment of population isolations and evaluation of the feasibility of mitigation. This work should occur prior to investing in additional supplementation efforts.

Biological objectives from SOTR:

The number of populations and the distribution of sturgeon is not well-known. The Status of the Resource Report has limited data on sturgeon populations, abundance and biological or subbasin objectives. In some areas no information is listed and in other areas, biological objectives are expressed in terms of *harvest numbers*.

Predation:

Aside from human predation, recent estimates of sea lion predation are increasing sharply. The most recent report by the COE estimates that close to 1400 sturgeon have been taken by Stellar Sea Lions at the dam from January 1- February 16, most of which are in the 2 to 4 foot range. Of concern is the loss of several young age-classes to predation. The young ones are less likely to survive sea lion attacks at the dam, and the below-dam populations are considered “linchpins” of the basin for recruitment and reproduction and are potentially a source stock for supplementation for above-the-dam populations. While this is an issue that seems to be gaining attention, management actions to address are not clear.

Other comments:

* Project #2007-155-00 and Project #2008-455-00 are addressing the sturgeon populations in the reservoirs of the mid-Columbia River and lower Snake River and are collaborating on strategic planning efforts. The Boardman workshop in January focused on strategic planning for sturgeon management between the dams. This forum has potential to propel a coordinated effort for management above the dams. However, this is only part of the equation, and a companion effort is necessary to integrate and consider the naturally spawning anadromous populations below Bonneville Dam.
* White Sturgeon Implementation Monitoring Strategy (WSIMS) - The WSIMS serves to fulfill a component of the Resident Fish Implementation Strategy for the NPCC’s Draft MERR Plan. This effort may prove a starting point and/or be complementary to the collaborative and comprehensive strategic plan for sturgeon conservation, restoration and management for sturgeon populations in the reservoirs of the mid-Columbia River and lower Snake River (Project 2007-155-00, Objective 1).

**ISRP Comments/recommendations:**

**Data Gaps:**

*1. Effective basinwide management plan for white sturgeon is lacking and is the most important need for planning future research and restoration.*

* Recover wild fish or maintain fishery via hatcheries?
* Unified vision is lacking in projects (both individual and aggregate).
* Develop plan at Boardman managers meeting (1/2011).
* Effect of hatchery releases on wild populations is poorly understood and needs further M&E.

*2. Specific factors affecting recruitment of white sturgeon are poorly understood.*

* Why is recruitment better below Bonneville Dam?
* Lower river fish “last remaining linchpin” of reproduction and recruitment in the Basin.
* Possible reasons for poor recruitment: contaminants, predation, turbidity, habitat loss, et cetera.
* Need to go beyond monitoring to understanding WHY recruitment is poor above dam. This understanding is more critical than the “White Sturgeon Monitoring Strategy” (WSMS).

*3. Importance of the estuary and ocean in sturgeon production below Bonneville Dam is poorly understood.*

* Examine affect of estuary/ocean on rearing juveniles.
* Examine movements between estuary/ocean/lower river at various sex, size, and age classes.
* Acoustic telemetry, tagging, otolith, and fin ray studies may be useful in monitoring sturgeon movement in the lower river.

*4. Productivity of pools above Bonneville Dam for sturgeon is poorly understood.*

* Poor documentation of production levels compared with historical levels.
* Understand food web implications in upper river pools (see Food Web Report, ISRP).
* Avoid over stocking hatchery fish in pools/other spatial areas (actual carrying capacity may be lower than estimated).

*5. Consideration of adaptive management approaches should include a review of harvest regulations with the intent of facilitating the efficient, low-cost acquisition of creel data needed for stock assessment.*

* Need to improve effectiveness of monitoring fisheries.
* Management regulations too static; collecting creel data difficult and expensive.
* Need to develop meaningful season area restrictions (preferably within a wider basin plan).

**Preliminary Recommendation**

The ISRP’s review of the specific projects was favorable, albeit with comments about certain elements and activities. Yet the ISRP, looking at the collective effort in light of the current condition of sturgeon and of sturgeon knowledge, had several significant programmatic concerns, which the ISRP summarized above, with probably the most important, being the lack of an effective basinwide management plan for white sturgeon to plan for future research and restoration.

Draft Staff recommendation is for the development of a basinwide comprehensive management plan for White Sturgeon. All four currently funded projects can contribute to the development of such a plan, but two of the four are specifically tasked with leading or assisting with a comprehensive management plan. Accord funded CRITFC project (Project # 2007-155-00) is contracted in Objective 1 to:

*Complete, in conjunction with regional, tribal, state, and Federal management entities, a collaborative and comprehensive strategic plan for sturgeon conservation, restoration and management to include specific objectives, strategies, actions, milestones and schedules for habitat protection and restoration, natural production, hatchery production, fishery management, research, monitoring, and evaluation.*

Accord funded YN project (project # 209945500) is contracted in Objective #1 to:

*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.*

The sponsors are in agreement to collaborate on this effort and to work with the Council on the plan. This effort is outside of the current scope and intent of Project #1986-050-00; however the sponsors see the importance of this strategic plan and will assist in its development for the Council. In early discussions with the sponsors, the basin-wide comprehensive plan should include but would not be limited to:

Basin-wide management plan for Sturgeon: (basic outline not in any particular order)

What we know

* Population abundance and distribution (including trends)
* Life history
* Limiting factors
* Other factors affecting populations and recruitment (harvest, predation, toxics, ingestion of fishing gear)
* Mitigation, management and restoration actions – immediate needs/changes
* Current management strategies

What we don’t know

* All of the above
* Research needs
* Long-term research needs/questions

Planning and feasibility for supplementation (This should feed Master Plan; assuming there is one)

* Purpose (objectives)
* Locations
* Impacts for and for other fish

Literature Search – life history, restoration and recovery, and supplementation

* Inside basin
* Outside basin

**Timeline:**

The basin-wide management plan to be complete by June 1, 2012.

**Draft Project Recommendations (for project specific comment field):**

Recommend funding for each sturgeon projects until the plan is complete (June 1, 2012). Funding in FY 2013 dependent on outcome and review of the plan to reflect the need to implement the highest priority actions.

**Draft Programmatic Recommendation:**

**Workshop**

The ISRP called for an evaluation of Mainstem passage in their programmatic review of white sturgeon projects. The Council should consider working with Bonneville, the USACE and the fish and wildlife managers to conduct a sturgeon passage workshop. This would serve to explore and describe the current state of knowledge for passage of sturgeons with a focus on the Columbia River Basin. Staff supports holding this workshop in the future The purpose of the workshop would be to:

* Review sturgeon passage projects in other areas -- regionally, nationally and internationally;
* Define and characterize or quantify anticipated risks and benefits of passage among reservoirs;
* Identify opportunities and constraints to implementing white sturgeon passage improvements among lower mainstem dams;
* Identify critical unknowns and potential assessments to address them;
* Consider experimental and adaptive approaches for implementing changes; and
* Identify monitoring needed to assess passage effectiveness.

Such a workshop should solicit broad participation from individuals with expertise in Columbia River salmonid passage as well as those with expertise in passage of other sturgeon species[[2]](#footnote-2).

**Projects included in this programmatic review:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Number** | **Title** | **Proponent** | **Accord** | **BiOp** | **Proposed Funding** |
| 198605000 | Evaluate Sturgeon Populations in the Lower Columbia River | ODFW |  |  | $1.4 m/year Ave |
| *200715500* | *Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin* | *CRITFC* | Y |  | *$230,000 (2012)* |
| *200850400* | *Sturgeon Genetics* | *CRITFC* | Y |  | *$43,000 (2012)* |
| *200845500* | *Sturgeon Management* | *Yakama Confederated Tribes* | Y |  | *$134,000 (2012)* |

**Relationship to Council Questions:**

The ISRP noted several gaps and critical uncertainties most of which relate directly to the research plan under the hydro and Mainstem passage sections and the impact of ocean conditions. Sturgeon are not specifically called out in the research plan, however passage, flow, downstream effects, Mainstem habitat and actions to increase productivity in the Mainstem are addressed. The ISRP noted a gap that relates to understanding the importance and use of the estuary and ocean in the life history for sturgeon. The sturgeon projects currently funded *primarily* support harvest monitoring, setting harvest regulations and studying the feasibility of hatchery production.

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1. Though sturgeon are anadromous fish and historically were highly migratory the Program efforts are currently supported as “resident fish”. [↑](#footnote-ref-1)
2. Note that the 4th Annual North American Sturgeon and Paddlefish Conference will take place July 11-14, 2011 at Vancouver Island University, in Nanaimo British Columbia, Canada. This may be a good venue for encouraging participation by sturgeon experts from outside the Columbia Basin. [↑](#footnote-ref-2)