May 3, 2016

DECISION MEMORANDUM

TO: Council members

FROM: Mark Fritsch, project implementation manager

SUBJECT: Step 1 review of Project # 2007-155-00, *Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin* and Project #2008-455-00, *Sturgeon Management* Columbia Basin Fish Accord projects.

PROPOSED ACTION: The Fish and Wildlife Committee recommends that the Council support Project # 2007-155-00, *Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin* to proceed to Step 2 activities. This recommendation is conditioned on the qualifications raised by the ISRP be addressed as part of the Step 2 submittal, and costs associated with Step 2 equal to approximately $450,000.

SIGNIFICANCE: On February 4, 2015, the Columbia River Inter-Tribal Fish Commission (CRITFC) submitted to the Council as part of the Three-Step Review Process a master plan for a *White Sturgeon Hatchery for the Lower Columbia and Snake River Impoundments*, as part of Project #2007-155-00.

The intent of the master plan is to specifically address sturgeon measures in the Council's fish and wildlife program as well as state and tribal obligations and agreements under *U.S. v. Oregon*. This master plan was prepared by participants in

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Council-funded sturgeon projects with input from a series of regional workshops that identified a series of findings and recommendations which provide guidance for sturgeon programs and projects throughout the region. This process led to a framework plan that identified careful use of hatcheries as an appropriate tool for perpetuating declining wild populations and mitigating for lost natural production in many impounded areas of the Columbia Basin. The goals of the proposed hatchery are to enhance harvest opportunities in the impounded area of the mid-Columbia habitat capacity, ensure protection and conservation of the remaining natural sturgeon populations and to use hatchery-produced sturgeon as an experimental tool for applied research on the needs of these natural populations.

BUDGETARY/ECONOMIC IMPACTS

The total amount associated with this Accord project totals $1,450,800 (e.g., approximately $75,000 to $238,007 per year) in expense funds for Fiscal Year 2009 through 2017. The capital associated with the project is $6,788,448.[1]

I. Overview of Step 1 Project Costs

The Step 1 Master Plan describes the development of an artificial production program and facilities needed to meet mitigation goals for white sturgeon in lower Columbia River Basin impoundments from Bonneville Dam to Priest Rapids and Lower Granite dams.

The program costs presented in master plan are consistent with Council's Three Step Review Process. It is important to note that these conceptual costs (+/- 35 to 50 percent) are a planning baseline from which to refine future costs, evaluate alternatives as the proposed project progresses through the preliminary (Step 2) and final (Step 3) design phases, and implementation. CRITFC intends to continue to seek input and review by Bonneville, the Council and the framework team through the Step 2 and 3 processes. Project costs provided in the master plan were based on the proposed programs and conceptual designs. CRITFC is proposing to construct facilities at Marion Drain in the Yakima Basin and a companion facility at the Walla Walla South Fork Hatchery. Cost estimates for facility planning and design, construction, acquisition of capital equipment, environmental compliance, operations and maintenance and research, monitoring, and evaluation are presented for the proposed program. In addition, a research facility may be developed at a third location, the Walla Walla Community College Water and Environment Center.

Capital and expense funds for the hatchery development including planning, design, and construction total $8,443,322. As noted, refinements to the hatchery plan and budget will be necessary during subsequent planning steps in order to reduce capital

[1] In addition, expense funds associated with accord Project #2008-455-00, *Sturgeon Management* totals $1,244,315 (ranging from $98,209 to $278,645 per year) for Fiscal Year 2009 through 2017. The Fiscal Year 2016 expense budget for this project is $148,586 and has a performance period of April 1, 2016 to March 31, 2017.

budget costs to the approximately $6.8 million reserved in the Accord budget for the project.

II. Key Expenditures by Program Area

The summary of key expenditures by step and program area provides an approximate overview of future costs for planned programs as presented in the master plan (Table 1). The estimated one-time costs by program area are as follows:

- Planning & Design Step 1- $1,071,995 (cost to date for the master plan as submitted)
- Planning & Design Step 2 - $250,000
    - Environmental Compliance Step 2 (Permitting, Environmental Assessment, Other) $200,000
- Planning & Design Step 3 - $700,000
- Construction - $6,793,322
- Capital Equipment $500,000[2]

Table 1. Summary of Key Expenditures by Program Area assuming that work proceeds as outlined in the Master Plan.

Program Area	Budget		
	Planning	Capital	Total
Master Plan Step 1	$1,071,995		$1,071,995
Planning and Design, Environmental Compliance Step 2	$450,000		$450,000
Final Design Step 3		$700,000	$700,000
Construction		$6,793,322	$6,793,322
Capital Equipment		$500,000	$500,000
Total	$450,000	$7,993,322	$8,443,322[3]

The total budget for the conceptual planning associated with the master plan is about $1,071,995. This figure is an estimate that includes conceptual planning, regional planning workshops and framework, engineering, and development of the master plan.

The preliminary planning and design stage, intended to meet the Council's Step 2 requirements, is designed to identify any major difficulties or concerns with the program and facility designs. Step 2 design work should provide sufficient detail and specifics to ensure that the intent and scope of the Step 1 conceptual design work can be met and to refine the cost estimates further. Step 2 will include refinement of scientific information, environmental compliance, and ESA reviews. A placeholder of about

[2] Reflects costs associated with various equipment for office, laboratory, water systems, and operations including transport.

[3] Total cost of completing hatchery planning, construction and outfitting based on conceptual plans is estimated to be $8.4 million. This amount is within the ±35 to 50% range specified for a Step I plan. Refinements to the hatchery plan and budget will be necessary during subsequent planning steps in order to reduce capital budget costs to the approximately $6 million available.

$450,000 has been identified for Step 2 preliminary planning, environmental compliance, site investigations and design. This is the expenditure amount associated with Council approval to proceed with Step 2. Additional expenditures associated with final design and construction will be subject to further review upon completion of Step 2.

A placeholder of about $700,000 has been identified for the Step 3 final planning and design stage. Refinement of the Step 3 budget will occur in Step 2 during development of the preliminary design.

The total estimated conceptual construction budget for the proposed facilities as outlined in the master plan is $6,793,322. The budget estimate used master planning guidance of +/- 35 to 50 percent and will be refined as part of the next submittals associated with Steps 2 and 3.

The 10 year operations and maintenance (O&M) budgets for the proposed facilities range from $402,000 to $624,000 assuming an annual inflation rate[4]. It is important to note that that savings are being achieved by the proposed siting of the facilities at existing hatchery sites. The monitoring and evaluation (M&E) budgets for the same period range from $220,000 to $545,000.

As previously noted, consistent with Step 1 of the Council's step process, cost estimates at this stage are conceptual. The CRITFC will be refining these estimates during the Step 2 and Step 3 planning phases. The 10-year estimated cost summary is designed to be a planning tool and will be updated as costs are refined.

BACKGROUND

Historically, the Columbia basin supported a healthy population of White Sturgeon from the Pacific Ocean upstream into Idaho and Canada. Initially these populations where depleted by overfishing in the late 1800s. This impact was then followed by dam construction and operation that fragmented their habitat and regulated the flow of the Columbia and Snake rivers. These actions have altered spawning and rearing habitats and resulted in poor or inconsistent natural production of most impounded subpopulations of sturgeon upstream from Bonneville Dam. Sturgeon still occur throughout most of their historical range but current production is far below the historical level. Low numbers severely limit sturgeon harvest opportunities throughout the basin, particularly for impounded populations upstream from Bonneville Dam. Small tribal subsistence and commercial fisheries, non-tribal recreational fisheries occur in the impoundments upstream from Bonneville Dam. Current fisheries are highly regulated in order to maintain small levels of harvest consistent with current productivity.

The program has supported the following actions associated with sturgeon since the mid 80's in the Columbia and Snake rivers:

1. Provide a fundamental understanding of the biology, population dynamics and habitat requirements,

[4] Based on FY 2015 dollar and a inflation rate of 5%.

2. Estimate the status and productivity of impounded populations;
3. Identify key life stages and factors limiting most subpopulations;
4. Evaluate passage at dams;
5. Document impacts of flow regulation on spawning habitat availability and annual recruitment;
6. Employ regular stock assessments to optimize harvest within the constraints of existing production;
7. Evaluate feasibility and efficacy of transplants and hatchery production; and
8. Begin to explore the feasibility and effectiveness of protection, mitigation, and restoration alternatives.

I. Sturgeon Strategic and Hatchery Master Plan

In May 2008, Bonneville, the U.S. Army Corps of Engineers, and the U.S. Bureau of Reclamation signed agreements with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Confederated Tribes of the Warm Springs Reservation (CTWSRO), the Confederated Tribes and Bands of the Yakama Nation (YN), the Columbia River Inter-Tribal Fish Commission (CRITFC), the Confederated Tribes of the Colville Reservation, and the states of Idaho and Montana to implement a set of projects and actions that will deliver specific, scientifically sound results for the region's fish and wildlife. Collectively these agreements are known as the Columbia Basin Fish Accords.

On February 24, 2009, the Council received from Bonneville a Columbia Basin Fish Accords proposal from the Columbia River Inter-Tribal Fish Commission (CRITFC) for Project #2007-155-00, *Sturgeon Strategic and Hatchery Master Plan*.[5]

The proposal was submitted to the ISRP for review, and on April 1, 2009 the ISRP provided a review (ISRP document 2009-10). The ISRP found that the proposal "Meets Scientific Review Criteria (In Part, Qualified)."

The goal of this project is to restore productive, viable sturgeon populations and fishery opportunities in the reservoirs associated with the Federal Columbia River Power System portions of the lower mid-Columbia and lower Snake River reservoirs. The objective of this project is to develop a collaborative and comprehensive strategic plan for sturgeon conservation, restoration and management (i.e., Objective 1). The strategic plan will be developed in a facilitated workshop process involving co-managers, significant stakeholders, and technical experts in order develop a consensus for goals and strategies for restoration of depleted sturgeon populations in mainstem reservoirs. In addition, if necessary, objectives include following a step review process to implement hatchery-related actions if identified in the comprehensive strategic plan (Objectives 2 and 3).

[5] The proposal is listed in the May 2008 agreement in Attachment B; Hatchery Planning, O&M. New, and Hatchery Capital. In addition, detail is also provided in Attachment G, Sturgeon.

On April 14, 2009, based on the ISRP review, the Council supported this Accord project. This recommendation was conditioned by the understanding that future activities associated with Objectives 2 and 3 are dependent on a future step review.

II. Columbia Basin White Sturgeon Planning Framework

In the final 2011 programmatic recommendations (Issue #7) for the sturgeon projects in the RME/AP category review (table below), the Council called for the "d*evelopment of a comprehensive management plan for white sturgeon through a collaborative effort involving currently funded projects"* and submission to the Independent Science Review Panel (ISRP) for review. This action confirmed the process that was initiated under objective 1 outlined above for the CRITFC sturgeon project.

The White Sturgeon Planning Framework was prepared by participants in Council-funded sturgeon projects with input from a series of regional workshops in 2009, 2011, 2012 and 2013.

#1986-050-00	White Sturgeon Mitigation and Restoration in the Lower Columbia and Snake Rivers	Oregon Department Of Fish and Wildlife (ODFW)
#2007-155-00	Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin	Columbia River Inter-Tribal Fish Commission (CRITFC)
#2008-455-00	Sturgeon Management	Yakama Nation
#2008-504-00	Sturgeon Genetics	Columbia River Inter-Tribal Fish Commission (CRITFC)

The framework summarized and synthesized the large volume of active sturgeon research monitoring and management efforts on a basinwide scale; provided information specific to individual management units; and provided regional goals for conservation, management, restoration, and mitigation activities.

In addition, current status, limiting factors, and conservation, restoration, and mitigation efforts are detailed in the framework, which also identifies a series of findings and recommendations that provide guidance for sturgeon programs and projects throughout the region.

The following 20- to 50-year vision was identified for white sturgeon in the Columbia River Basin:

> *Abundant and diverse White Sturgeon populations and optimum sustainable fisheries throughout the historical range, achieved by a combination of natural production and careful supplementation, and supported through an adaptive, collaborative, coordinated, science-based mitigation, management, monitoring, and evaluation program.*

The following three goals were identified during the White Sturgeon workshops that define further direction to help attain a shared regional vision:

1. Viable, persistent populations throughout their historical range, where feasible.
2. Significant, stable and sustainable fisheries and harvest.
3. Diverse, functional ecosystem supporting essential habitat, conditions, and resources

The draft framework was submitted to the Council on February 26, 2013 for review. In March 2013, the Council solicited regional review and comments on the draft framework concurrent with the ISRP review (ISRP document 2013-05), at the team's request. The team then incorporated ISRP and regional/public comments into the final White Sturgeon Planning Framework and presented it to the Council at the March 2014 meeting (see the following link).

Based on the science review and regional review and input, the Council found that the regional team fulfilled the programmatic issue recommendation (Issue #7) for the sturgeon projects in the RME/AP review. With regard to hatcheries, as noted above, the framework found that careful use of sturgeon hatcheries has the potential to help perpetuate declining wild subpopulations and mitigate for lost natural production in many impounded areas.

III. White Sturgeon Hatchery Master Plan for the Lower Columbia & Snake River Impoundments

Consistent with regional sturgeon framework recommendations, the Columbia River Inter-Tribal Fish Commission prepared the Master Plan describing a sturgeon hatchery program designed to help mitigate impacts of development and operation of the Federal Columbia River Power System on sturgeon population productivity and fishery opportunities in lower mid-Columbia River and lower Snake River reservoirs

The master plan details the following 3 goals:

I. Enhance commercial, subsistence and recreational fisheries for impounded subpopulations of sturgeon consistent with habitat capacities.
II. Conduct sturgeon enhancement in a manner which ensures protection and conservation of natural populations and the ecosystem.
III. Employ hatchery-produced sturgeon as an experimental tool for applied research on limiting factors, habitat capacity, broodstock limitations, population parameters, and immigration/entrainment in natural populations.

These goals are supported by seven quantitative objectives to provide criteria by which the success of the proposed hatchery program will be measured, and are supported by 13 implementation strategies to achieve the proposed hatchery program objectives while also controlling associated ecological, demographic, genetic, and uncertainty risks.

Initial release targets are estimated to be 31,500 juvenile sturgeon per year. Of these, 26,500 are planned for release into John Day Reservoir and 5,000 total are planned for release into the lower Snake River (Ice Harbor, Lower Monumental and Little Goose reservoirs). Preference will be given to juveniles produced from wild-caught larvae to the extent feasible but the balance will come from a conventional wild broodstock program.

Facilities

The primary sturgeon production facility is proposed to be constructed at the Marion Drain Fish Facility on the Yakama Reservation. Companion facilities will also be developed at the Walla Walla South Fork Hatchery and the Walla Walla Water Resource Center.

Marion Drain Fish Facility: This will be the primary production facility. Currently the Yakima Nation operates a hatchery at this location for sturgeon and salmon. The sturgeon production is associated with activities funded by the upper mid-Columbia public utility districts, and the Yakama Nation through Project #2008-455-00, *Sturgeon Management.*[6] In addition, this site is also used for the experimental rearing of Chinook associated with proposed actions for Yakima Subbasin Summer and Fall Run Chinook and Coho Salmon Master Plan, a component of Project 1988-115-25, *Yakima River Design and Construction-Yakima/Klickitat Fisheries Project (YKFP)*.[7] The proposed major facilities needed at this facility include a new production building, rededication of an existing structure for a wild rearing building, construction of a new pollution abatement pond, new garage/workshop building, and small office/lab/meeting room building.

Walla Walla South Fork Hatchery: This site is proposed for juvenile rearing. This site is the current home of the Bonneville-owned facility supported through Project #1983-435-00*, Umatilla Hatchery Satellite Facilities and Maintenance (O&M)* and is currently operated by the Confederated Tribes of the Umatilla Indian Reservation. The Umatilla Basin artificial production program consists of Umatilla Hatchery for fish production and

[6] On August 12, 2009 the Council the supported the implementation of Objectives 1 (*comprehensive strategy*) and 2 (*develop critical expertise and refine effective sturgeon culture methodology for spawning and rearing of white sturgeon*) of this proposal. A condition of this recommendation is that additional detail and confirmation will be provided (regarding objectives 3,4, and 5 – *master planning process*) when the Master Plan is submitted associating this proposal with the hatchery-related actions of Project #2007-155-00, if identified in the comprehensive strategic plan. The Yakama Project funds involvement by Tribal staff in the Master Planning conceptual hatchery design process and has also supported experimental development of effective sturgeon hatchery aquaculture at the Marion Drain site. The future role of the Yakama Tribe in hatchery implementation is subject to a memorandum of agreement among the involved parties to be completed in consultation with BPA during Step II of the planning process.

[7] On October 8, 2013 the Council approved the Yakima Subbasin Summer and Fall Run Chinook and Coho Salmon Hatchery Master Plan (Step 1) for the Holmes Ranch component of the coho program (Project #1988-115-25, *Yakima River Design and Construction-Yakima/Klickitat Fisheries Project (YKFP)).* Though both coho and Chinook are addressed in the master plan, coho is the action being addressed by this review and recommendation. Fall Chinook actions will remain as currently reviewed and recommended and any expansion will depend on future revisions and ISRP review and Council recommendation.

this satellite facility for adult holding and spawning and juvenile acclimation/release. In addition, this site is the proposed area for the additional incubation, early rearing, and final rearing facilities associated with the Walla Walla Spring Chinook Hatchery Master Plan, a component of Project #2000-038-00, *Walla Walla Hatchery Final Design/Construction*.[8] As part of the proposed improvements and expansion to meet the needs as outlined in the Walla Walla Spring Chinook Hatchery Master Plan, the sturgeon needs will be addressed by the conversion of the existing ozone treatment building to a juvenile sturgeon rearing building.

Water and Environmental Center at the Walla Walla Community College: This site presents an excellent opportunity for dedicated experimental research in a controlled setting as well as education and outreach in support the broader sturgeon hatchery program. Studies addressing unknowns in incubation, early life history and juvenile rearing of white sturgeon cannot be assessed under production circumstances, yet are essential for future improvements in conservation aquaculture. Improvements proposed at the site includes the development of a well for an additional water source and treatment.

IV. Major Project Review (The Three-Step Process)

On February 4, 2015 the Council received a submittal intended to initiate the review process associated with a proposed hatchery (i.e., Major Project Review) master plan. The Master Plan (Step 1) received is titled White Sturgeon Hatchery Master Plan, Lower Columbia & Snake River Impoundments. This Master Plan is a component of Project #2007-155-00, *Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin*. In addition, this submittal is also a component of the Yakama's Project #2008-455-00, *Sturgeon Management*.

On February 17, 2015 the request was submitted to the Independent Scientific Review Panel (ISRP) and on April 15, 2015 the ISRP provided their review (ISRP document 2015-3). Overall, the ISRP found that the draft Master Plan was well organized and clearly written. However, the ISRP requested a response to address the following 10 issues as part of the Step One review:

1. Provide more comprehensive life history data in the Plan.
2. Describe how sustainable harvest rates are presently determined for impounded populations (and how this may be modified after stocking).
3. Demonstrate how management will ensure that wild sturgeon will not be overharvested.
4. Provide better justification for expanding the harvest.
5. Evaluate alternative strategies more thoroughly.
6. More thoroughly evaluate long-term consequences and uncertainties of a hatchery program based on small numbers of brood fish.
7. Clearly describe how carrying capacity will be assessed by monitoring "post release responses to increasing density."

[8] On October 8, 2013 the Council approved the Master Plan (Step 1) for the Walla Walla Spring Chinook Hatchery associated with Project #2000-038-00, Walla Walla Hatchery Final Design/Construction.

8. Is stable annual recruitment natural or necessary for the ecological well-being of the sturgeon populations or is it just desirable for the fishery?
9. More fully consider effects of stocked hatchery sturgeon on other species and the fishery.
10. Provide clarification on facilities.

On December 17, 2015 the Council received a revised Master Plan from the CRITFC intended to address the response requested by the ISRP in its previous review (ISRP document 2015-3) and on December 18, 2015 the documents were submitted to the ISRP for review. On March 16, 2016 the ISRP provided its review (ISRP document 2016-5). The ISRP found that the revised White Sturgeon Master Plan *Meets Scientific Review Criteria for Step 1 (Qualified)*.

The ISRP found the revised master plan addressed the issues raised in their previous review and was comprehensive and well formulated. The master plan was strengthened by this revision and the ISRP feels that the program can proceed to step 2 activities. As noted the ISRP qualified their recommendation in requesting additional information on the following 12 topics.

1. *Management of the fishery.* Provide additional support and evidence for the assertion that management of a white sturgeon fishery, pursued over a wide area with long seasons and monitored as in the past, will provide the necessary outcomes for limiting harvest rates and protecting wild fish from overharvest.
2. *The ecological justification for the B40 biological reference point.* Its applicability to impounded white sturgeon populations is not clear.
3. *The fish ticket system.* Provide a more complete description and justify its adequacy for accurately quantifying harvest.
4. *Commercial catch.* Provide additional information on how biological data including lengths, weights, marks, and tags will be collected from subsamples of the commercial catch. Information should also be provided on the sampling design and the intensity of sampling.
5. *Tribal subsistence catch.* Provide additional information on how subsistence harvest will be estimated.
6. *Recreational catch.* Provide more information on the roving-clerk angler survey design, the accuracy of harvest estimates, and other biological data that may be obtained from the sport fishery.
7. *Catch-and-release mortality.* Provide a description of plans for quantifying post-release mortality.
8. *Illegal catch.* Provide a description of plans for addressing illegal harvest concerns.
9. *Sanctuaries.* Provide details on plans to create areas where harvest is prohibited.
10. *Carrying capacity.* Provide clear, justified benchmarks for survival, condition, and growth, which are based on literature and actual data, that can be used to determine if carrying capacity has been exceeded, thereby adversely affecting the viability of the natural population.
11. *Contaminants.* Provide a discussion of plans to assess contaminants in fish in the harvest slot as they relate to human consumption.

12. *Objectives.* Clarify how objectives will be quantified and their time frames (see closing section).

ANALYSIS

It is evident that the ISRP appreciated the effort and attention that went into the revised master plan and the regional planning to date. It is important to note that this master plan is just the most recent product from a regional effort associated with white sturgeon in the Columbia River Basin. As you are aware, sturgeon was identified as one of the seven emerging program priority areas in the Investment Strategy chapter of the 2014 Fish and Wildlife Program[9]. This interest, as captured in the 2014 Program, had its origins in the annual series of sturgeon planning workshops from 2009-2013 culminating with the completion of the framework document and the master plan.

The goal of this master planning effort is to enhance commercial, subsistence and recreational fisheries for impounded subpopulations of sturgeon consistent with habitat capacities. This hatchery production of sturgeon is intended to augment rather than replace natural production – it is regarded as a long-term interim mitigation measure until such time as other alternatives for mitigation and restoration of naturally-produced sturgeon populations (e.g., flow management, spawning and rearing habitat restoration, passage) can be identified and implemented. This is reflected in the proposal's primary objective to avoid significant harm to natural production. This is all complemented by the proposed use of hatchery-produced sturgeon as an experimental tool for applied research on limiting factors, habitat capacity, broodstock limitations, population parameters, and immigration/entrainment in natural populations to test potential management alternatives.

It is important to note that the proposed facilities associated with the master plan are linked with two hatcheries already recognized and supported through the Fish and Wildlife Program. The Council's ongoing O&M Strategic Plan needs to take this into account during the asset management strategy phase 2 (condition assessment), phase 3 (prioritization) and phase 4 (strategic planning) for the Marion Drain Fish Facility and the Walla Walla South Fork Hatchery. Efficiencies can be accomplished and step 2 activities need to assist in collaborating with the asset management strategy.

In addition, confirmation of the relationship with Project #2008-455-00, *Sturgeon Management* needs to continue as the sturgeon hatchery proceeds through the review process steps.

Based on the ISRP review, and the collaboration/coordination activities and the dedication that the CRITFC and member tribes have shown over the past decade for the Columbia basin white sturgeon the Fish and Wildlife Committee recommends to the Council that they support Project # 2007-155-00 to proceed to Step 2 activities that will

[9] Priority Item #5 - *Implement additional sturgeon and lamprey measures (passage and research)*

address the qualifications raised by the ISRP as part of the Step 2 review. This recommendation is conditioned on costs associated with Step 2 not exceed $450,000.

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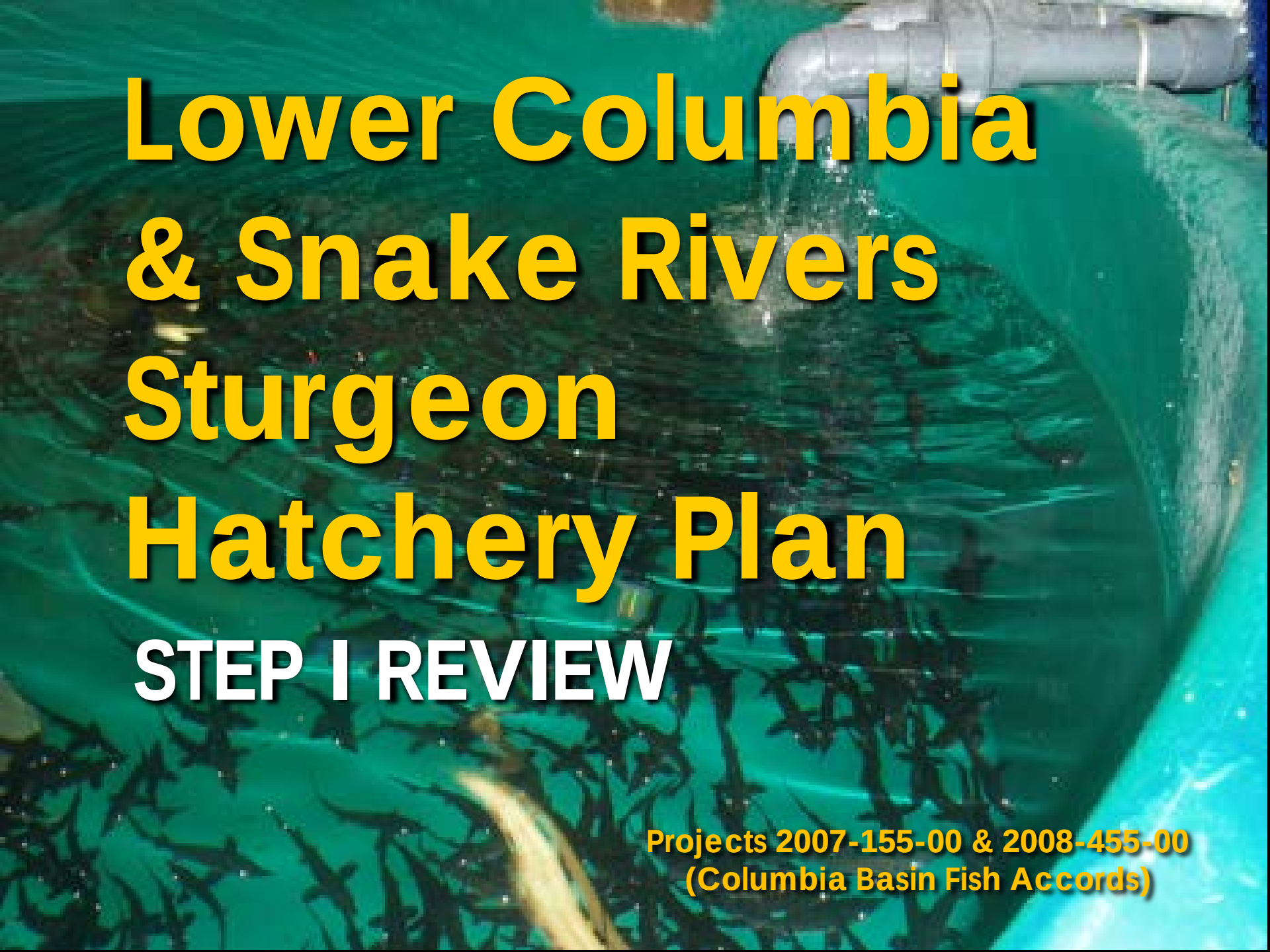


Lower Columbia & Snake Rivers Sturgeon Hatchery Plan

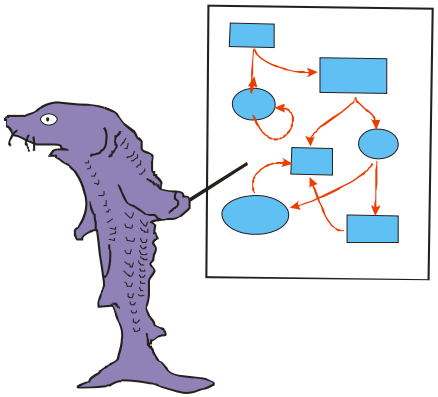
STEP I REVIEW

Projects 2007-155-00 & 2008-455-00
(Columbia Basin Fish Accords)

Summary

Who	• Columbia River Treaty Tribes
What	• Release ~30,000 juvenile hatchery sturgeon per year
Where	• Columbia: John Day & McNary • Snake: Ice, LoMo, Goose
Why	• Fishery hydro mitigation
How	• Marion Drain Sturgeon Hatchery • SF Walla Walla Hatchery

White Sturgeon Strategic Planning Workshop for the Lower Columbia and Lower Snake River Impoundments



Workshop Proceedings

Boardman Oregon – December 1-2, 2009

Edited by Ray Beamesderfer & Alison Squier

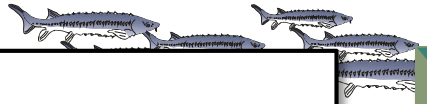
August 3, 2010

White Sturgeon Strategic Planning Workshop for the Lower Columbia and Lower Snake River Impoundments

Workshop Proceedings

Boardman Oregon – January 26-27, 2011

Edited by Ray Beamesderfer, Alison Squier & Dani Evenson



Columbia River Basin White Sturgeon Planning & Passage Workshop

Proceedings

January 11–12, 2012

Troutdale Oregon

Edited by

Ray Beamesderfer, Alison Squier, and Dani Evenson

Workshop Proceedings
Columbia River Basin White Sturgeon
Workshop IV

McMenamins Edgefield, Troutdale, Oregon
March 26 and 27, 2013

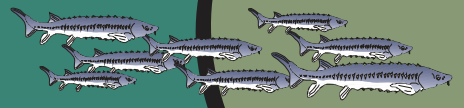
Edited by Ray Beamesderfer and Alison Squier

December 2013

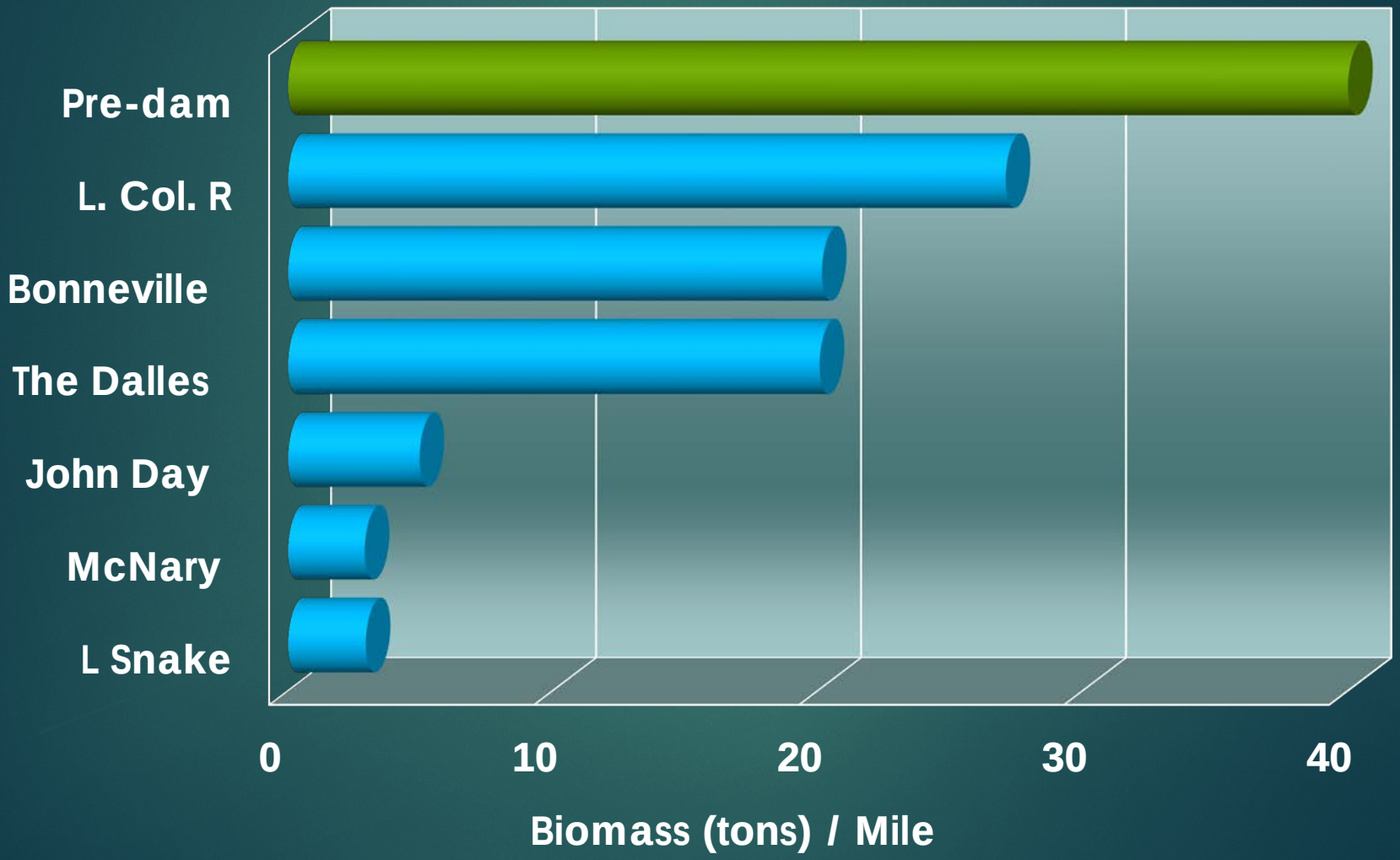
Columbia Basin White Sturgeon Planning Framework

Prepared for

The Northwest Power & Conservation Council



Standing Stock



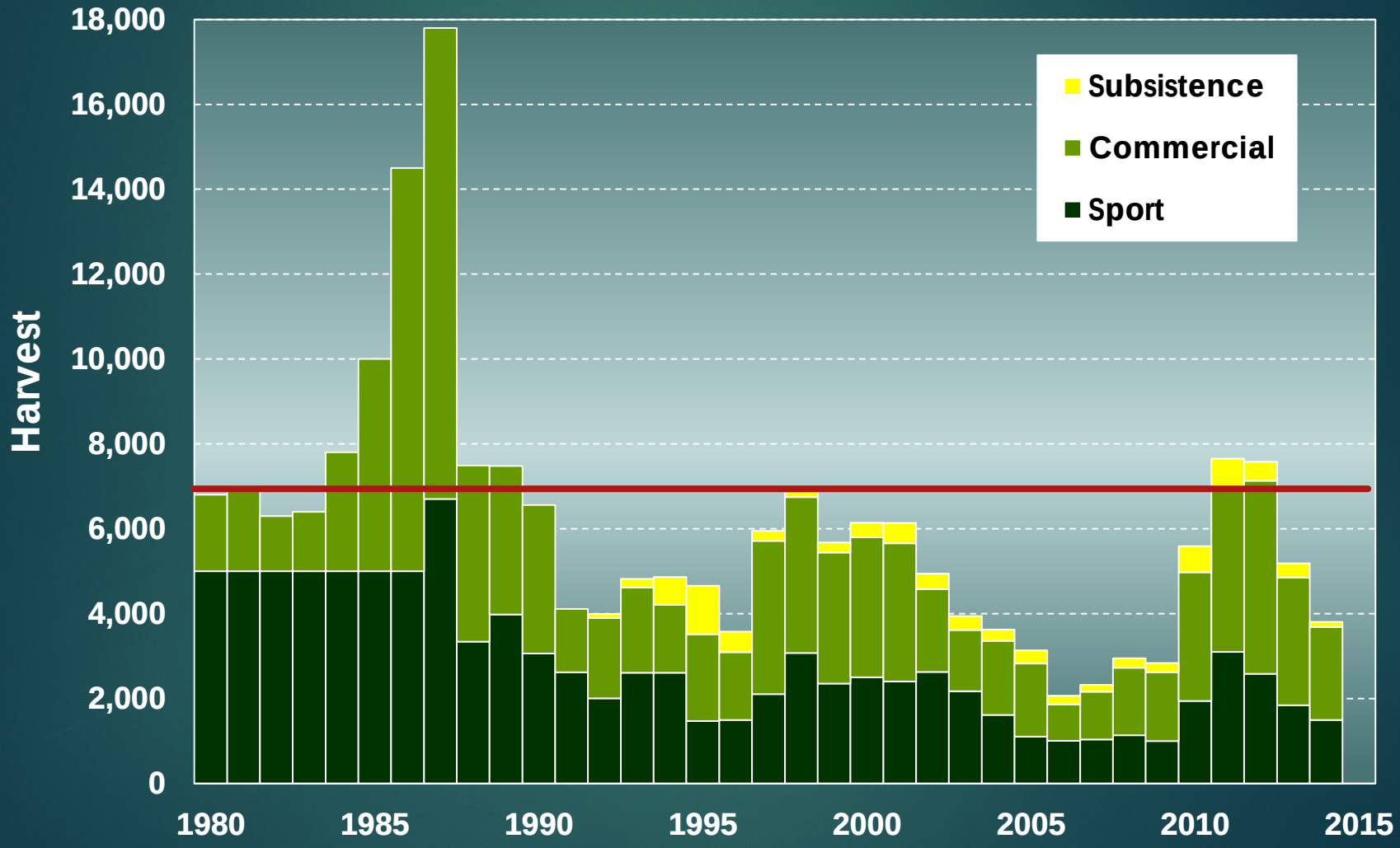
Alternatives Considered

Alternative	Pros	Cons	Benefit	Likelihood of success	Cost	Risk
Flow Augmentation	Natural production	Competing uses	High	High	Very High	Moderate
Hatchery	Effectiveness	Unintended consequences	Moderate	High	Moderate	Low to Moderate
Transplants	Control	No good source	Low	Moderate	Low	Low
Passage	Connectivity	Population sink & salmon interference	Low	Low	Very High	High
No action	Optimizes existing	Fails mitigation	Low	None	--	Low
Habitat Restoration	Natural recruitment	Uncertainties	Unknown	Unknown	High	Low to moderate

Goals & Objectives

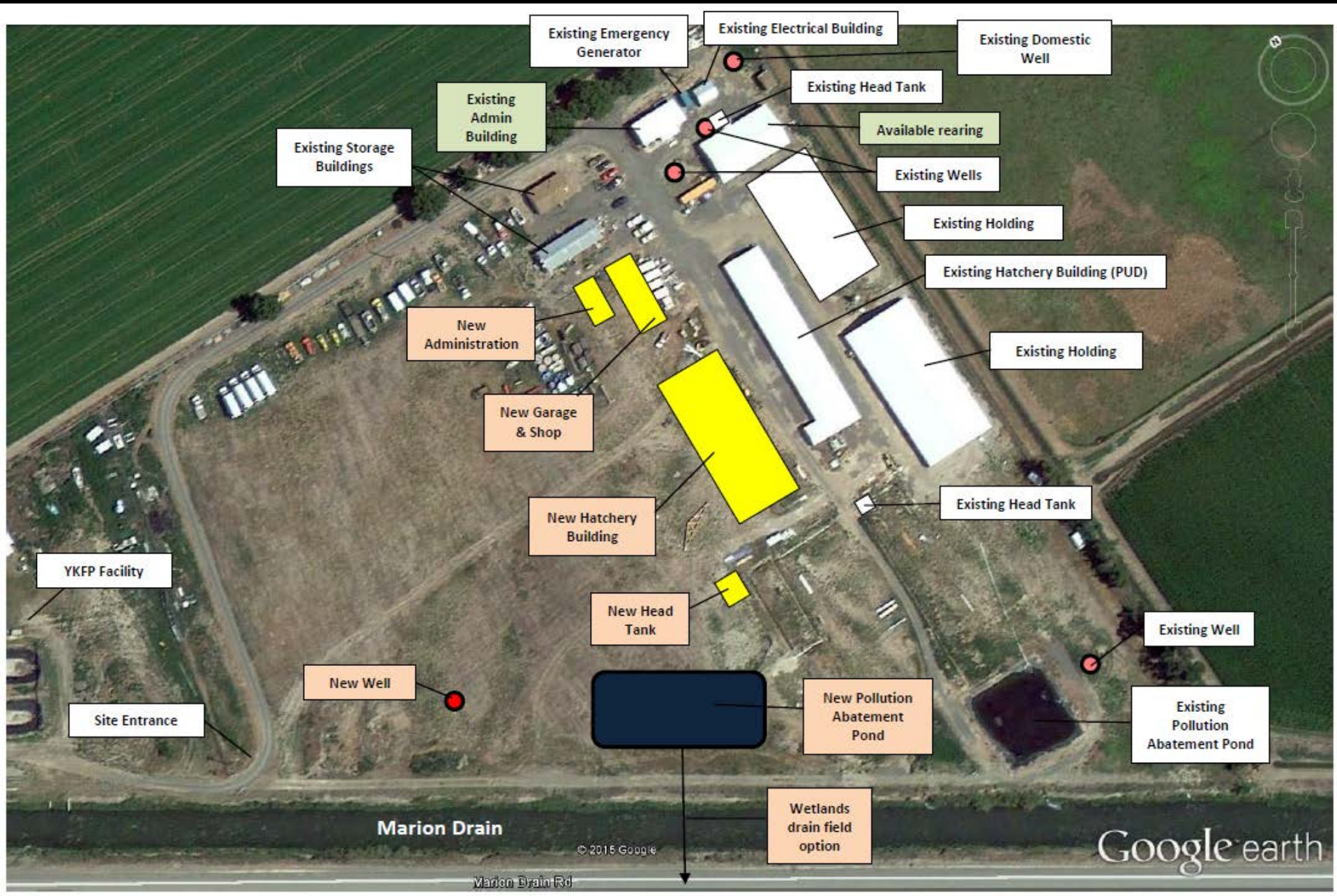
Enhance Fisheries	Double Harvest & Abundance
Protect Nature	Carrying capacity HSRG guidelines Sustainable Exploitation
Tool for Learning	Population Food habitats, etc.

Zone 6 Sturgeon Harvest



Hatchery Strategies

- Integrated program
- Wild brood & larvae
- Mid-Columbia GMU
- 100% marking
- Comprehensive M&E


Existing Emergency Generator
Existing Electrical Building
Existing Domestic Well
Existing Head Tank
Existing Admin Building
Available rearing
Existing Storage Buildings
Existing Wells
Existing Holding
Existing Hatchery Building (PUD)
New Administration
Existing Holding
New Garage & Shop
New Hatchery Building
Existing Head Tank
YKFP Facility
New Head Tank
Existing Well
New Well
New Pollution Abatement Pond
Existing Pollution Abatement Pond
Site Entrance
Wetlands drain field option
Marion Drain
© 2015 Google
Marion Drain Rd
Google earth

ISRP (Mar 2016)

- Plan sufficient for Step I
- 12 topics for additional information in Step II
- Recommendation from Fish and Wildlife Committee