

PRFF and RRFF Policy Meeting

Friday, 6 November 2015

9:00 am – 12:00 pm

Chelan PUD Auditorium

Wenatchee, WA

Chairperson, Tracy Hillman

Notes taken by Teneille Hatmaker

Meeting Minutes

I. Welcome and Introductions

Tracy Hillman welcomed everyone to the Policy Meeting and members introduced themselves. The group discussed attending representatives and asked about Alcoa's connection to the policy group. Tracy stated that Alcoa is a signatory on the Rocky Reach Agreement and White Sturgeon Management Plan. He added that the City of Entiat is also a signatory, but the policy representative, Keith Vrandenburg, was unable to attend today's meeting. Bill Towey asked about how policy and technical representatives are selected for the Forums. Tracy Hillman explained that each entity/agency selects their own technical and policy representatives to serve on the Fish Forums. Typically a letter is written to the Chair identifying each entity's representatives. The group agreed that it is valuable to have a policy representative with decision-making authority present at the policy meetings.

II. Review Agenda

The agenda was reviewed and approved with no changes.

III. Review Draft White Sturgeon Workshop Notes

The group reviewed and approved the edited workshop notes with no further changes.

IV. Identify Meeting Outcomes and Define Side Boards

Tracy Hillman began by asking if everyone was still in favor of defining the decision-support structure or framework, which would be provided to the technical groups. The policy group agreed.

Tracy stated that although the technical groups would like a juvenile sturgeon release number from the

policy representatives, they are well aware that such a number is unlikely to be given today. Therefore, they are asking for a framework from the policy representatives that can be used to guide future release numbers. Whatever the framework is, according to the White Sturgeon Management Plans (WSMP), the number released per year must range from 0 to 6,500 juvenile sturgeon.

Jeff Korth identified five issues he said should be included in defining the sideboards for the decision-support framework. He suggested that these five issues will help define the goals of the supplementation programs. The five issues are:

- Terms within the Licenses, 401, or Management Plans
- Emphasize Conservation Recovery
- Experimental Push
- Harvest Opportunities
- Definition of Front Loading vs. Post Front Loading

Tracy indicated that the WSMPs state that the programs will release annually 0 to 6,500 juvenile sturgeon within the project areas. The Plans indicate that these are supplementation programs with a goal of front-loading the Priest Rapids Project area with 32,500 juvenile sturgeon over a five-year period and front-loading the Rocky Reach Project with 19,500 over a three year period. Once these initial efforts are complete, the Plans call for releases commensurate with monitoring information. That is, according to the Plans, the number released post front-loading will be determined from the results of the monitoring programs and/or evaluation of spawning potential. In addition, after completion of front loading, the Plans allow the Forums to release juveniles at younger or older ages than yearlings to compare successes of juvenile released at different life stages.

Tracy noted that although the monitoring work is good and consistent with the WSMPs, the work at this time has not provided all the information needed to inform future release numbers. Keith Truscott noted that the type of M&E necessary and the timeframe needed to get this information wasn't properly considered at the time the management and monitoring plans were developed. He added that the goal is clearly stated, "Promote the growth of White Sturgeon commensurate with available habitat." Our struggle is determining the available habitat. Keith also pointed out that this is a 30-year plan and therefore we have time to make informed decisions.

Steve Parker stated that the Yakama Nation (YN) has always been clear that the idea of mitigation is to have access to the resource and fishery benefits. The goal has always been fishery benefits and the way you gain access to the resource is to develop a healthy population of sturgeon. He said discussions with the PUDs specifically avoided referring to harvest as a goal in the management plans, because that is not a part of the PUDs responsibilities. It is the fisheries co-managers obligation. Steve said the proxy for this was to fill the capacity of the habitat. That is, there will be fishing opportunities if the population is at full capacity. The YN supported the releases of 6,500 because they felt it was appropriate to be aggressive in order to push the abundance to the capacity of the habitat. This would allow the estimation of habitat capacity as quickly as possible. Steve said the M&E is telling us that we have not

yet achieved capacity within the project areas.

Keith Truscott disagreed. He said the biological signals have not had a chance to fully manifest themselves and therefore, at this time, we cannot get an accurate interpretation of what is going to happen in the future. This is a long-lived fish that is going to have a large effect over the course of their life history in the Columbia River system. Keith indicated that many times we (referring to modern society) have pushed forward with what we thought was right only to find that Mother Nature did not respond as we thought she would. This resulted in a mess because we didn't allow ourselves adequate time to fully evaluate our actions. He explained this is why Chelan PUD is advocating a more conservative approach that allows for more learning before we push the system too far. Keith said he believes the Forums have done a good job of pushing the systems with the front-loading efforts. He noted that it is wise to give M&E time to track our front-loading efforts. Allowing a little extra time would not be a bad thing.

Finally, Keith pointed out that the supplementation program is a habitat-based program, not a harvest-based program. The language in the WSMP states that the stocking program is intended to be commensurate with available habitat. It is not intended to create a put-and-take fishery. He said focusing on the capacity of the habitat does not mean there can't be beneficial uses. That is, although the supplementation programs are not intended to create a put-and-take fishery, the WSMPs allow for harvest opportunities. Therefore, the Forums need to evaluate the use of harvest to reduce catchable-sized fish if carrying capacities are exceeded.

V. Identify Elements to Include in a Decision-Support Framework

Tracy Hillman reviewed the elements that were identified during the white sturgeon workshop that could be included in a decision-support framework. Those included: genetics, survival rates and population growth, natural reproduction, food webs and ecological interactions (e.g., interactions with lamprey and ESA-listed stocks), density dependence and carrying capacity, broodstock and/or larvae collection effort, and harvest opportunities. Tracy said the WSMPs identify release number, genetics, and carrying capacity as important elements. Referring to page 33 in the Priest Rapids WSMP, Tracy stated that genetics is equally as important as releasing large numbers of healthy fish. Tracy added that we currently do not have estimates of carrying capacity. As a result, the Forums have discussed two different approaches:

1. Attempt to release 6,500 juveniles per year but use genetics (i.e., family equalization) to guide the number released.
2. Set an interim carry capacity level (based on concerns about population growth rates and species interactions) for each project area and use genetics (family equalization) to inform the numbers released each year.

Tracy said the intent of the first approach is to release the maximum number, within the limits of family

equalization, and allow monitoring to tell us when we achieve carrying capacity. The second takes a more conservative approach allowing an interim carrying capacity target, genetics, and survival rates to guide release numbers. The second approach still requires monitoring to assess when carrying capacity is reached. Although both approaches have been discussed within the Forums, no agreement has been reached on which one to use.

Jeff Korth asked what factors will be used to assess density dependence. Tracy said the monitoring plans are currently equipped to assess changes in sturgeon growth rates, mortality rates, habitat use, and movement or entrainment. As populations approach or exceed carrying capacity, a lack of food and/or space will cause a reduction in individual growth and survival rates, changes in life-stage specific habitat use, and increased emigration or entrainment. Tracy noted that fish populations typically show signs of density dependence before the populations achieve or exceed carrying capacity. Tracy diagrammed population growth curves (logistic growth) and stock-recruitment curves (Ricker and Beverton-Holt) to demonstrate the presence of density dependence before carrying capacity is achieved or exceeded.

Tracy asked what factors or elements the policy representatives believe are important to include in the decision-support framework. Tom Dresser pointed out that it is important for the policy representatives to not only identify what action items they are responsible for, but to identify the timeframes associated with them so that the technical representatives are not burdened with these issues.

Steve Parker asked about the expectation of negative species interactions in restoring sturgeon. Keith Truscott said the PUD is concerned about the effects of large numbers of sturgeon on lamprey (both juveniles and adults) and on ESA-listed species. Jeff Korth indicated that WDFW is concerned about the effects of sturgeon on juvenile Chinook salmon, especially summer and fall Chinook. Members indicated that it is important to identify and define interactions of concern and identify what level of risk is acceptable.

Tracy asked if members agreed that genetics should be included as an important element in the decision-support framework. Jeff Korth questioned if family equalization, as defined in the Statement of Agreements (SOAs), would provide enough diversity. Jeff Grizzel noted that genetic issues go away if you use larvae collections. Tracy indicated that both Forums agreed to prioritize the use of larvae, and backfill gaps with juveniles from broodstock collections. Policy members agreed with the technical representatives and noted that progeny from broodstock collections carry higher genetic risks and uncertainty than do larvae collections.

Steve Parked stated that there are many dimensions to the uncertainty factor. He said there is high uncertainty with our ability to catch larvae and therefore we need a program goal. Bill Towey asked what we would do in years when we don't reach levels of success. Steve Parker responded that we need to include this in the decision-support matrix. We would need to assess the number of families or sibling crossings to help us determine the stocking rate. Sliding or proportional scales were mentioned as possible options. Jeff Korth said that depends on a number of conditions. He said sturgeon do not necessarily spawn at the same capacity every year, and the larvae are not produced at the same

capacity every year. Depending on the number that we choose, there will be years that we may not achieve the larvae numbers we want.

Jeff Korth asked where larvae will be collected and how collection sites will be prioritized. Jeff Korth said that he has always pushed for downstream collections because there is a greater chance of increasing genetic diversity by collecting larvae from downstream locations. Keith Truscott agreed and stated that collections from the upper Columbia would also contribute to genetic diversity. Jeff Korth said this is an important discussion, because if we can successfully collect larvae from Lake Roosevelt, genetic uncertainty goes down. Steve Parker reiterated that the uncertainty is based on successful larvae collection. Bill Towey asked if larvae collection uncertainty should be included as another element for the decision-support framework. The group questioned if they should leave some of these details to the technical representatives. Jeff Korth recommended that the technical representatives identify and prioritize larvae collection sites. Tracy indicated that as a starting point, the technical representatives could review the fish sources identified in the WSMPs. If these sources are suitable for broodstock collection, they may be suitable for larvae collection as well.

Bill Towey encouraged the policy representatives to discuss future plans for research and development on the collection of larvae. Jeff Korth explained that both PUDs have supported the learning and collection of larvae. Jeff Korth asked if we have a catch-per-unit-effort (CPUE) calculation for larvae. Tracy indicated that Donella Miller (YN), Chad Jackson (WDFW), and Jason McLellan (CCT) have information on CPUE.

With regard to broodstock collection, Tracy asked if the policy representatives agreed to the use of family equalization. He indicated that all SOAs developed this year included family equalization. The policy group approved to prioritize the collection of larvae and maintain broodstock family equalization. Progeny from the broodstock collections would be used to backfill any gaps in larvae numbers.

Tracy asked if there is a limit to the amount of effort needed to collect larvae and broodstock. He said a wide range of effort can be spent collecting larvae and broodstock within the window in which the larvae and broodstock are available. In the decision-support framework, effort could be included as a separate element. Steve Parker asked how we define effort when ultimately the effort is centered on how many fish you need. Steve said we can fix the release number and then identify the amount of effort needed to meet the release target, or we can fix the level of effort and release whatever we get. Those variables only make sense if they are related to some goal. Jeff Korth said that the effort should remain the same regardless of the release number. Jeff Korth stated we know from past work how much effort is needed to collect broodstock, and we must maintain that level in the future. The group agreed that the level of effort should be commensurate with the effort used in the past.

The group then discussed carrying capacity and the risks associated with species interactions. Jeff Korth stated that he believes the high life-stage survival of sturgeon plays into the risk of species interactions. He said we know the survival rates of sturgeon and therefore we can calculate how many fish will be in the project areas over time. With this information, we can evaluate the risk of interactions. Jeff

suggested looking at densities of sturgeon within other reservoirs and use those data to model how quickly the project areas achieve those densities under different stocking rates.

Steve Parker indicated that many of these species evolved together and therefore they have sorted out their interactions. Keith Truscott agreed that many of these species have evolved and adapted over time to interactions; however, that occurred without our intervention. When we start manipulating the numbers, we are forcing fish to interact over a much shorter time period. He said we must consider ecosystem structure and function and how the release of large numbers of long-lived fish such as sturgeon, when interfacing as a predator to other fish, will affect the structure and function of the ecosystem. The group agreed that a review of the literature (both published and unpublished) would be useful and would help assign potential risk.

Steve Parker responded that when we don't have a solid base of information, it would be best to approach this empirically and try to get the information we need through monitoring. He stated that he lacks confidence in some of the models that have been used and in values used to parameterize the models. He said he is not opposed to modeling, but urged caution in making management decisions using models that have limitations with data quality. Jeff Grizzel responded that these uncertainties need to be resolved regardless of which path or scenario is selected. He said we have to pick a number at the same time we work towards resolving these uncertainties. He noted further that we have to release fish in the spring, and tags need to be ordered in February, so we must make decisions quickly. Jeff Grizzel said he is willing to have further discussions, but noted that we are running out of time for this year, and a release number must be selected soon.

Based on Jeff Korth's recommendation, Tracy asked the group if they would like to see additional modeling work. Jeff Grizzel said only if the YN agrees that the modeling work will be used to inform decisions. Steve Parker replied that he is not opposed to modeling. He said for the modeling work to be useful, he wants to know the assumptions of the model. In addition, he asked that the modelers identify what data are used in the model, where those data came from, and how appropriate those data are for modeling sturgeon within the project areas. The group agreed that modeling population growth over time with different stocking levels (e.g., 500, 2,500, 4,500, and 6,500 juveniles) is appropriate. They also recommended using sturgeon densities within Bonneville Reservoir as a modeling target.

Jessica Gonzales asked about the use of harvest to reduce population size if carrying capacity is exceeded. Jeff Korth noted that he is unaware of a case where harvest was unable to fish down a population. Typically, the problem is harvesting too many fish. Therefore, harvest appears to be a useful tool to reduce the population size if necessary. Others agreed, but questioned if harvest would be an acceptable method on small, younger sturgeon if they exceed their capacity. Members recommended that the technical representatives identify methods to reduce sturgeon numbers in the project areas if carrying capacities are exceeded.

Referring back to the concern about not having a decision on a 2016 release number before February (when tags need to be ordered), Tracy asked if the policy representatives would be willing to move

forward with using the approved genetic rules to guide 2016 releases if the representatives cannot reach consensus on issues associated with population growth and ecological concerns. In other words, the number of fish released in 2016 would be based only on genetics, not elements of carrying capacity. Steve Parker asked Tracy to explain what he meant by “genetic rules.” Tracy said it includes the genetic issues discussed and approved earlier, namely family equalization. That is, if the number of half-siblings produced is less than 18, the release number will equal the number of half-siblings produced times 361 fish/half-siblings. Although all policy representatives agreed with the genetic rules, they did not all agree with only using genetic rules to guide the release of juveniles in 2016.

Finally, Tracy shared with the policy representatives the results from the White Sturgeon Subgroups’ evaluation of the current monitoring plans. Tracy noted that the Subgroups reviewed in detail the current monitoring efforts and concluded that the plans fulfill the requirements outlined in the WSMPs. However, the Subgroups did identify some modifications to the plans that would provide useful information in a short time period. This information would be fed into the decision-support framework. Tracy stated that the Subgroups recommended annual juvenile index monitoring through 2018. At that time they would reevaluate the program. In addition, the Subgroup recommended seasonal analysis of sturgeon diets (evaluation of stomach contents). This would occur four times per year through 2018. At that time the work would be reevaluated. Steve Parker indicated that given the concern about ecological interactions, the evaluation of sturgeon diets is a good first step. The policy representatives agreed with and approved the Subgroup recommendations.

VI. Recommendations to the Fish Forums

Tracy Hillman reviewed the issues that the policy representatives approved and identified the different assignments for the technical representatives.

- The Forums will develop an objective, decision-support framework that will guide the number of juvenile sturgeon released into the project areas in the future.
 - As indicated in the White Sturgeon Management Plans, numbers of juvenile sturgeon released into the project areas will range from 0-6,500 fish.
- As described in the White Sturgeon Management Plans, the decision-support framework will include the following major components:
 - Genetics
 - Carrying Capacity
- With regard to genetics:
 - The Forums will prioritize the collection of larvae and rear them for release.
 - The Forums will identify and prioritize larval collection sites (beginning with recommendations in the Management Plan for broodstock collection).
 - Upper Columbia River larvae may be considered as partial contribution to annual larvae collection efforts.
 - The Forums will consider methods to improve the collection of larvae.

- The Forums will use juveniles from broodstock collections to backfill any gaps needed to achieve the release goal.
 - Regardless of how many unique crosses are produced, family (cross) equalization will be reflected in the releases (as defined in all the 2015 SOAs).
- Larvae and broodstock collection efforts will be commensurate with past collection efforts and will be limited to the window (timeframe) in which larvae and broodstock are available for collection.
- The fate of surplus production (i.e., juveniles in excess of the release goal) will be decided by the fisheries co-managers. Excess production cannot be released into the project areas.
- With regard to carrying capacity, the Forums will include the following elements in the decision-support framework:
 - Age- or stage-survival rates
 - The Forums will conduct age-structured modeling (using the Beamesderfer-Hildebrand model) to evaluate population growth rates using different stocking rates (e.g., 500, 2,500, 4,500, and 6,500 juveniles).
 - The Forums will provide the Policy Representatives with figures showing growth rates under the various scenarios and tables of projected numbers of fish of each age class.
 - The Forums will use densities of sturgeon in Bonneville Reservoir as an initial estimate for carrying capacity within the project areas.
 - The Forums will justify any data used in modeling (e.g., source of age-specific mortalities or survival rates, etc.).
 - Ecological Interactions
 - The Forums will evaluate the literature (including gray literature) to determine the effects of sturgeon on other species with a focus on interactions with Pacific lamprey and ESA-listed species.
 - Harvest
 - Although the supplementation programs are not intended to create a put-and-take fishery, the Management Plans allow for harvest opportunities. Therefore, the Forums will evaluate the use of harvest to reduce catchable-sized fish if carrying capacities are exceeded.
 - The Forums will include various harvest scenarios in the modeling of sturgeon populations.
 - The Forums will explore opportunities to reduce juvenile sturgeon if the capacity for juvenile sturgeon is exceeded within the project areas.
- The Forums will include the following additions to the sturgeon monitoring programs:
 - The Forums will conduct annual juvenile index monitoring through 2018 and then reevaluate the monitoring program.
 - The Forums will conduct seasonal sturgeon diet (gut) analyses through 2018 and then

reevaluate the monitoring program.

The technical representatives will complete the following assignments by Monday, 14 December.

1. Model population growth rates within the project area using the recommendations/guidance provided above.
 - *Grant PUD is working with Larry Hildebrand to complete this assignment.*
2. Examine the literature (including unpublished literature) and compile a summary of findings on ecological interactions.
 - *Chelan PUD is currently compiling information to help address this assignment.*
3. Identify methods to reduce juvenile and/or adult sturgeon numbers if carrying capacities are exceeded.
 - Technical members need to think of ways to reduce numbers of sturgeon if supplementation efforts exceed the carrying capacities of the project areas. Technical members will discuss and compile ideas during the December Fish Forum meeting.
4. Each entity of the Fish Forums will identify their greatest concerns with annual releases of 6,500 juvenile sturgeon into the project areas, and identify what information is available or needed to support their concerns.
 - Technical members will share their concerns during the December Fish Forum meeting.
5. Compile and prioritize locations for collecting white sturgeon larvae.
 - Technical members will address this assignment during the December Fish Forum meeting.

VII. Next Meeting

The Policy Representatives will reconvene on Thursday, 17 December at Grant PUD in Ephrata, WA. Assignments for the technical representatives will be submitted to the policy representatives by Monday, 14 December.

ATTENDEE LIST

NAME	ORGANIZATION
Brown, Jim	WDFW
Dresser, Tom	Grant County PUD
Gonzales, Jessica	USFWS
Grizzel, Jeff	Grant County PUD
Hatmaker, Teneille	Chelan County PUD
Hillman, Tracy	BioAnalysts
Kerec, Matt (phone)	Alcoa
Korth, Jeff	WDFW
Lewis, Steve	USFWS
McGuire, Pat (phone)	Department of Ecology
Parker, Steve	Yakama Nation
Skiles, Tom (phone)	CRITFC
Towey, Bill (phone)	CCT
Truscott, Keith	Chelan County PUD
Wyena, Patrick	Wanapum