

SUMMARY MEETING REPORT

Marine Fisheries Advisory Committee (MAFAC) Columbia Basin Partnership Task Force (CBP Task Force) *Spokane, WA – June 26 & 27, 2019*

OVERVIEW

The Marine Fisheries Advisory Committee (MAFAC) Columbia Basin Partnership (CBP) Task Force met at the Historic Davenport Hotel in Spokane, Washington, on June 26 and 27, 2019. Barry Thom, Regional Administrator for the West Coast Region, Michael Tehan, Assistant Regional Administrator for the Interior Columbia Basin, and Heidi Lovett, Policy Analyst and MAFAC Assistant Designated Federal Officer, represented NOAA Fisheries leadership at the meeting.

Attendance included 26 CBP Task Force members (see *Appendix A* for list) representing Columbia River Basin (the basin) tribal and state sovereigns (including the states of Idaho, Montana, Oregon, and Washington) and stakeholders from throughout the basin.

Over the course of the meeting, CBP Task Force members discussed the following topics with each other and NOAA Fisheries staff:

- Review and reflection on the key questions and brainstormed ideas from the previous Task Force meeting
- Foundational overview and example applications of the slider tool for biological analysis
- Social, cultural, economic, and ecosystem considerations for scenario planning
- Workplan for the Integration Team and Technical Team over the summer
- Next steps for progress

This report summarizes the major meeting discussions, action items, and next steps for the CBP Task Force.

DAY 1 – June 26, 2019

1. Welcome, Introductions, Opening Remarks, and Proposed Agenda

Deb Nudelman, Kearns & West, and Michael Tehan, NOAA Fisheries

Michael Tehan, NOAA Fisheries, welcomed the group and thanked them for attending. He noted that Barry Thom, NOAA Fisheries, would not be able to attend on Day 1, and that he would join the meeting for Day 2. Michael passed on Barry’s message that he hoped the group would be able to have a productive conversation and start to fine tune the work that has been done since the last meeting.

Michael recognized that the group had a great meeting in April in Portland and that the Project Team, Integration Team, and Technical Team had worked hard since then to provide presentations and exercises for this meeting. He also noted that there were several members who were not able to attend the meeting and that some of them sent alternates to participate in their places. He explained that Bob Austin, Upper Snake River Tribes, retired for medical reasons in April and that Scott Hauser, Upper Snake River Tribes, would be replacing him on the Task Force. Michael welcomed Scott and noted that the Task Force is looking forward to working with him.

Deb Nudelman, Kearns & West (K&W), welcomed attendees and thanked them for their participation and effort. Task Force members then introduced themselves by name and affiliation.

Deb noted the following absences and alternates:

- Ben Enticknap, Oceana, Jess Groves, Port of Cascade Locks, Steve Fick, Fishhawk Fisheries, and David Doeringsfeld, Port of Lewiston, could not attend and were unable to send alternates.
- Joe Lukas, Western Montana Electric Generating and Transmission Cooperative, was only able to attend on Day 1.
- Justin Hayes, Idaho Conservation League, was standing in for Bert Bowler, Idaho Salmon Group, for both days.
- Walter Larrick, Kittitas Reclamation District, was standing in for Urban Eberhart, Kittitas Reclamation District, for Day 1.

Deb walked participants through the proposed agenda and logistics, meeting materials, and asked for clarifying questions. The agenda topics included an update on the recent MAFAC presentation and report, a review and reflection of the sticky wall and key questions from the April Task Force meeting, a presentation and small group discussion on the slider biological analysis tool, an update on Integration Team meetings since the last Task Force meeting, and a discussion about the social, cultural, economic, and ecosystem (SCE&E) considerations for scenario analysis.

Deb also reminded Task Force members to try to have an equal balance of speaking time during the meeting. Additionally, she noted that while Task Force members may have one-on-one conversations with each other, it would be important to also share relevant matters with the full Task Force.

Michael requested that Task Force members give updates about several topics, including the Northwest Power and Conservation Council (NPCC) amendments, the Idaho Governor’s Salmon Working Group, the Columbia River Treaty Town Hall meeting, and the Washington State Orca Task Force. He also asked other Task Force members to share relevant updates.

Mike Edmondson, Idaho Governor’s Office, said that Scott Pugrud, Administrator of the Governor’s Office of Species Conservation and a member of Governor Little’s cabinet, was present in the audience and would provide an update on the Idaho Governor’s Salmon Work Group. Scott explained that Governor Little asked the Office of Species Conservation to create a Task Force for an Idaho-based solution to salmon recovery. The governor would like the group to use a collaborative process to provide recommendations by the summer of 2020. Scott mentioned that the group will have a large focus on the ecological, economic, and social aspects of salmon recovery policies. He also noted that the Idaho Salmon Working Group’s first meeting would be on Friday, June 28. Mike added that the CBP Task Force members should let him know if they would like to be added to the Idaho Salmon Working Group’s “Interested Parties” email list to stay updated on the group’s status. He also reviewed the timeline of the group, explaining that the governor announced the creation of the Working Group in April and that they will have eight to ten meetings overall.

B.J. Kieffer, Spokane Tribe, announced that the Upper Columbia United Tribes (UCUT) just finished their Fish Passage and Reintroduction Phase 1 Report. He noted that the report contains a life cycle model and habitat assessment and it shows there is potential for fish production in the Upper Columbia region without changes to Grand Coulee Dam. Randy Friedlander, Colville Tribes, added that the report has four parts: habitat, risk assessment, donor stock selection, and modeling. He noted a few important results and announcements stemming from the report:

- The report recommends using native redband rainbow trout as the donor stock for steelhead in Lake Roosevelt.
- UCUT plans to use summer and/or fall Chinook for cultural releases in the summer of 2019.
- They are considering testing Whooshh technology this year to help fish move through Chief Joseph Dam.

Guy Norman, State of Washington, updated the group on Washington’s Orca Task Force. He explained that Governor Inslee issued an executive order to create the Orca Task Force in 2018 with the goal of developing recommendations to improve the orca population. In November 2018, the group agreed on a list of specific actions that would contribute to the following three goals:

- Increase the prey – primarily Chinook salmon
- Improve the water quality, particularly in the Puget Sound
- Reduce disturbances from vessel traffic

Guy noted that Governor Inslee included the majority of the recommended actions in the budget and submitted them to the legislature. The legislature adopted most of the recommendations in bills associated with oil transportation safety, toxic pollution prevention, whale watching guidelines, boat safety education processes, and more – amounting to \$1.1 billion in funding. He mentioned that the primary focus of the bills was on improving habitat to increase wild salmon production and hatchery production that would not conflict with wild fish recovery. The Orca Task Force met in June 2019 to discuss the bills that the legislature passed and consider next steps. They will meet again in September 2019 to discuss writing a Phase 2 report, which could include recommendations for a supplemental budget to enact further recovery efforts.

After Guy's update, Task Force members asked the following questions:

When you mention increasing prey, is there recognition that prey comes from the Salish Sea in addition to the Columbia?

Guy responded that the group recognizes that the prey comes mostly from the Puget Sound/Salish Sea and also from the Columbia River at certain times of the year.

What is the focus of the funding that is directed towards studying the Snake River dams?

Guy explained that the Orca Task Force recommended hiring an independent facilitator to help gather information about impacts that would be associated with removal of the Snake River dams. There was \$750,000 designated for this effort, and the money will be available in July. Guy also noted that there is an ongoing National Environmental Policy Act (NEPA) process on the same topic and that the NEPA process has been expedited. The Governor's office is convening this month to develop a framework to move forward with the assessment of the Snake River dams.

Tony Grover, NPCC *ex-officio*, updated the Task Force on the draft addendum to the 2014 Fish and Wildlife Program. He noted that three quarters of the content for the amendment is based on performance, goals, objectives, and indicators to measure the progress of investments in salmon and steelhead recovery, as well as resident fish populations (e.g., sturgeon and lamprey). Tony explained that the addendum, which would likely be approved by NPCC within a month, draws heavily on the goals outlined in the MAFAC Phase 1 Recommendations Report. Tony invited Task Force members to review the addendum and comment during the 90-day period following its release. Tony concluded by explaining that NPCC is also implementing new structures to help educate people about the numbers behind the goals in the addendum, and he would welcome input from Task Force members.

Michael Tehan, NOAA Fisheries, and Jim Yost, State of Idaho, updated the group on the Columbia River Treaty Town Hall meetings. Michael explained that the state department has been holding town hall meetings with residents and tribes throughout the basin. Jim commented that the Idaho Governor's Office is cosponsoring a town hall on July 18 from 5:00pm to 7:30pm at the State House in Boise, and that they would send out information about it shortly. Scott Hauser, Upper Snake River Tribes (USRT), added that the chief negotiator would be meeting with the USRT prior to the Town Hall.

Kevin Scribner, Salmon Safe, announced that Salmon Safe is partnering with the Confederated Tribes of the Umatilla Indian Reservation on an initiative to deepen their knowledge about the river and its surrounding ecosystem.

Debrah Marriott, Lower Columbia Estuary Partnership, announced that her organization is breaking ground on the Steigerwald Lake National Wildlife Refuge restoration on September 5, 2019. This project will help protect the Port of Portland from flooding as well as open a significant amount of habitat for wild salmon.

Deb, K&W, thanked everyone for sharing their updates.

2. MAFAC Presentation and Report Update

Katherine Cheney, NOAA Fisheries

Katherine Cheney, NOAA Fisheries, updated the group on the status of the MAFAC Phase 1 Recommendations Report and the presentation that CBP Task Force members made to the

MAFAC in April. She noted that Marla Harrison, Port of Portland, B.J. Kieffer, Spokane Tribe, and Mike Edmondson, Idaho Governor's Office, presented the Phase 1 Recommendations Report to the MAFAC in Portland, Maine. Katherine also participated in the presentation, and she commented that MAFAC members received the report enthusiastically. They were impressed with the collaborative nature of the group, and they were excited about Phase 2 of the Task Force. MAFAC voted to unanimously support the report and they wrote a letter of support to Chris Oliver, Assistant Administrator for Fisheries at NOAA, asking that he accept the recommendations. Katherine invited BJ, Mike, and Marla to share their reflections:

Mike commented that he was impressed with MAFAC's support and interest in the group. Marla added that it was a powerful experience and a great opportunity to acknowledge the uniqueness and importance of the CBP Task Force. B.J. reflected on the fact that MAFAC members expressed frustration with current stakeholder relationships and fish stocks in the Gulf of Mexico, and that MAFAC members wanted a process similar to the Columbia Basin Partnership to take place in the Gulf of Mexico.

Mike Okoniewski, Pacific Seafoods and MAFAC member, noted that B.J. did an excellent job explaining the tribal perspective in the presentation of the report. Heidi Lovett, NOAA Fisheries, added that many MAFAC members told her they were impressed with the meeting and that they hold the work of the Task Force in high regard. Heidi commented that the relationship between the Task Force and MAFAC has deepened over the last two years and that both groups have developed respect for one another. Mike O. thanked the Project Team for all the work and support that has made this Task Force possible.

After these reflections, Katherine updated the group on next steps for publication of the report. She explained that NOAA Fisheries is moving forward with the necessary formatting and production requirements. She noted that Task Force members should expect the following steps over the next few weeks:

- Chris Oliver will share a letter with MAFAC that demonstrates his support
- The report will be posted on the NOAA Fisheries website
- Katherine will send talking points and PowerPoint slides to Task Force members
- NOAA Fisheries will send Task Force members printed copies

Katherine thanked Jennifer Anders, State of Montana, Randy Friedlander, Colville Tribes, and Ben Enticknap, Oceana, for offering to be press contacts for the report. She told Task Force members to let her know if they have any questions as the roll out process moves forward.

3. Where Have We Been and Where Are We Going

Michael Tehan, NOAA Fisheries

Michael Tehan, NOAA Fisheries, noted that he wanted to give Task Force members an overview of where the group is in the Phase 2 process as well as discuss the group's trajectory. Michael asked Task Force members to look at their Logic Path, a document that demonstrates the progression of Phase 2, and the Phase 2 Workplan to orient themselves. He highlighted the progress that was made at the Task Force meeting in April – particularly the effort that group members made to populate the sticky wall with their ideas and concerns for salmon and steelhead recovery in the basin. He explained that all of the notes on the sticky wall solidified that there are myriad ways to approach these issues. He referenced that Patty Dornbusch, NOAA Fisheries, would be giving an update on how the Project Team has used the sticky wall since the last meeting.

Michael also explained that Ray Beamesderfer, NOAA Fisheries, would give an update about how the biological analysis has progressed since the last meeting. Michael highlighted that Ray and Patty have been working on the slider, which is a tool for biological analysis, and calibrating it with existing science to show how fish stocks across the basin respond to various impacts. He noted both the importance and challenge of quantifying impacts on stocks. He commented that the slider would help the group develop scenarios for reaching the goals they set out in Phase 1, and that they will have an opportunity to use the slider and explore scenarios in the afternoon.

Michael also referenced that there have been two Integration Team meetings since the last Task Force meeting and that the Integration Team has been helpful in determining how to analyze the social, cultural, economic, and ecosystem (SCE&E) considerations of scenarios. He explained that the group would hear a report on the Integration Team meetings and discuss SCE&E considerations on Day 2 of the meeting. Michael noted that the Project Team has been working hard to figure out how to integrate the biological and SCE&E analyses and that he hopes the Task Force can offer creative ideas about how to do so successfully.

Michael then turned his attention back to the Logic Path and asked Task Force members to look at a box that was added as an outcome of Phase 2: “Path Forward, Governance, and Big Picture.” He explained that these three categories arose from the sticky wall and that they are important components in thinking about how the group may eventually implement the scenarios and goals. He noted that the Project Team looks forward to working with the Task Force to determine what the product from this new box on the logic path will be.

Michael concluded by telling Task Force members that they should refer to a definition sheet in their packets as they work through discussions about scenarios and strategies during the meeting.

4. Review and Reflection on Sticky Wall and Key Questions

Patty Dornbusch, NOAA Fisheries

Patty Dornbusch, NOAA Fisheries, reminded Task Force members about the brainstorming exercise from the April Task Force meeting. Task Force members expressed the key questions that they would like answered in Phase 2 as well as the strategies and actions that they think are important for salmon and steelhead recovery. Patty explained that she would be updating Task Force members on how the Project Team has been reviewing and processing the information from the sticky wall and key questions.

Patty noted that there was a broad spectrum of ideas expressed on the sticky wall and that the Project Team has worked through several ways to organize and categorize these ideas. Patty described the following categories:

Strategies that can be easily analyzed in slider scenarios (coarse-scale analysis)

These are strategies and actions that are straightforward, so it is easy to estimate the impact that they will have on different stocks in the slider. Patty provided many examples, including “close all hatcheries or maximize hatchery production, maximize habitat restoration in all areas, and reintroduction into blocked areas.”

Strategies and actions for which technical experts could provide estimates for the slider (finer-scale analysis)

These are more specific actions for which the Project Team would have to work with technical experts to provide estimates for the effects that they would have on stocks throughout the basin.

Patty provided examples, including “remove lower Snake River dams, provide adequate riparian buffers, and reduce exploitation rates on weak stocks.”

Specific actions that would be difficult to analyze with the slider

These are actions that would fit better into a discussion about implementation. Additionally, for some of these topics, there is not readily available science to provide impact estimates on different stocks. Patty provided many examples, including: “change irrigation practices to be more efficient, address management of non-native species, and designate salmon sanctuaries or strongholds.”

Strategies and questions that will be informed by SCE&E and future worlds discussions

These are strategies and questions that relate more to social, cultural, economic, and ecosystem considerations or to varying future conditions than to biological analysis. Patty explained that these ideas will be incorporated into the discussions that the group will have about the SCE&E considerations and future worlds. Patty provided many examples, including: “develop strategies that are robust to climate change and population growth, consider mechanisms to mitigate the economic and social impacts that will result from actions necessary to meet natural production goals, and cost-benefit of proposed actions.”

Ideas that relate to the Task Force’s path forward, governance, and big picture

Patty explained that ideas related to governance, path forward, and big picture are the reason that the Project Team added the additional outcome to the Logic Flow. She explained that the group wants to balance the primary objectives of the Task Force with the big picture implementation considerations.

Patty noted that the Task Force will continue to talk about the slider and SCE&E considerations during this meeting and the meeting in September 2019, and that the group will take a renewed look at the big picture questions at the December 2019 meeting.

Task Force members provided the following questions and comments after the presentation:

How do specific types of habitat restoration actions fit into the habitat category?

Patty explained that the slider operates more at the strategy-level and helps to demonstrate the effects of categories of impacts on stocks, such as increasing or decreasing the availability of habitat. She mentioned that the slider analysis would not allow you to look at specific actions, like improving riparian habitat or reconnecting floodplains without developing some estimates, based on modeling or expert opinion, of how those specific types of actions might affect habitat capacity and productivity.

Does it make sense to try to do this whole analysis in the slider? There may be other ways to analyze this information.

Patty agreed and noted that some of the ideas from the sticky wall are easy to analyze in the slider, but it is important to have discussions about the SCE&E considerations as well as the big picture questions to make sure the analysis is moving forward on multiple fronts.

You gave an example of “close all harvest.” Is that just one end of the spectrum that you will be analyzing? It may not be legally possible to do that.

Patty explained that these examples were ideas that Task Force members provided on the sticky wall and that many of the extreme strategies serve illustrative and educational purposes. Michael Tehan, NOAA Fisheries, added that considering ideas such as “remove all harvest” helps demonstrate how important it is to overlay SCE&E considerations when thinking about whether it makes sense to include an idea in a scenario.

Will we return to the discussion about brainstorming potential strategies and identifying early actions that the Task Force could take?

Patty noted that the Project Team would consider adding those topics to the agenda for future meetings.

5. Foundational Overview and Example Applications of the Slider

Ray Beamesderfer, Patrick Frazier, and Michael Tehan, NOAA Fisheries

Michael Tehan, NOAA Fisheries, introduced the presentation. He explained that the slider tool can help develop coarse-scale scenarios, but that it is not a comprehensive tool. Adjusting the impacts (also known as the “dials”) of each category of the slider helps to think about how different strategies lead to changes in adult salmon and steelhead abundance. Michael highlighted that the Task Force has not agreed upon strategies and approaches, but that this tool will help the group start having that conversation. Michael also acknowledged that Ray Beamesderfer, NOAA Fisheries, and Patrick Frazier, NOAA Fisheries, have put a lot of effort into calibrating the slider, but there is still a lot of work needed to fine-tune it. The Project Team is open to Task Force members’ ideas for how to go about refining the slider estimates.

Michael also explained that Task Force members would have an opportunity in the afternoon to use the slider and develop different scenarios by turning the dials of the tool. Michael noted that Ray and Pat would give brief presentations about how they populated the information for each impact category. It is the hope that these presentations give Task Force members enough awareness about how the slider reached its current state to be able to have a productive conversation in the afternoon.

Ray highlighted that his presentation would serve as an introduction to the slider and how it can help the group think about the best ways to achieve the provisional quantitative goals that they identified in Phase 1. He explained that the biological analysis is complicated and that the slider is just one way of looking at the data. He commented that he hopes the slider exercise will help the group think through the fundamental questions that they want to answer.

In thinking about the biological analysis, Ray identified four important categories of questions to explore:

- Impacts: what factors are responsible for each stock’s decline?
- Coarse-scale analysis: what combinations of improvements achieve the goals?
- Fine-scale analysis: What is the scope for improvement in each factor?
- Roll-up: How do all the changes add up when looking across the stocks?

After reviewing the questions, he reviewed the main topics of his presentation:

- Introduce the salmon slider approach
- Identify prototype stocks to test-drive the slider exercise
- Define the factor-specific impacts that are used in the slider
- Identify example scenarios and use the slider to start thinking about scenarios
- Update from the Technical Team meeting

The salmon slider approach

Ray showed an image of the slider tool and told the Task Force that they would have an opportunity to use the tool in small groups later in the afternoon.

Prototype stocks

With the input of the Technical Team, Ray identified example stocks from various regions of the basin. Each stock represents different challenges and is affected by different limiting factors. The six prototype stocks are Lower Columbia fall Chinook (tule), Mid-Columbia summer steelhead, Upper Columbia spring Chinook, Upper Columbia sockeye, Snake River spring Chinook, and Williamite winter steelhead. Ray explained that the most effort has been put into populating the data for these six species in the slider, but there are numbers for all of the stocks in the tool as well in case Task Force members would like to explore different stocks at this meeting.

Factor-specific impacts

Ray referenced that the impacts analysis will be the backbone of scenario analysis. Factors include the 4 H's (hydrosystem, harvest, hatchery, tributary habitat, estuary habitat), predation, and future conditions. The impacts analysis puts the impacts of all of these factors in a common currency: percent reduction in adult abundance. Ray noted that he and Pat would explain how they defined and analyzed each factor for the slider over the course of the next hour. Ray also underscored the importance of taking uncertainty into consideration as they analyze the impacts of each factor. Each impact will have a range of possible effects.

Ray explained that the slider is broken up into the following impact categories for ease of analysis: habitat, estuary, hydro migration, blockage, predation, harvest, hatchery, contaminants, and climate. He noted that he and Pat made a first attempt at identifying the range of estimates for each impact on each stock. They hope that technical experts from around the basin will contribute their expertise to refine the estimates.

Ray commented that the presentations about each impact will include: an impact definition, the basis for estimates, uncertainties, preliminary stock estimates, and actions related to the particular impact. The Technical Team and additional subject matter experts will help to quantify and refine these numbers so that the group can decide how much they can reasonably move each dial. The ultimate goal is to help the Task Force weigh the implications and tradeoffs of moving each dial.

Example Scenarios

Ray showed an image of several scenarios that each include a combination of changes in different impacts to reach the high goals that the Task Force set out in Phase 1. The image demonstrated the fact that scenarios consist of many strategies, which achieve the goals when combined.

Update from Technical Team meeting

Ray noted that the Project Team discussed the slider approach with the Technical Team. The feedback they gave focused on the following topics:

- Heuristic utility: The slider is a simplification of complex data, but it helps us to capture and discuss key questions.
- Complex truths: Each element of the slider reflects a complex array of related factors, relationships, actions and implications. There was a full range of enthusiasm and skepticism among Technical Team members.
- Ambitious: The slider is an ambitious undertaking and it will take significant effort to do it well.
- Documentation/qualification: It will be crucial to qualify and document the data behind the slider.
- Incorporation of climate change: It is important to incorporate climate change into the model to reflect its effects on the stocks.
- Shared impacts among stocks: It is essential to consider the shared impacts across stocks.

Task Force members provided the following questions and comments after the presentation:

Is water temperature embedded into any of the impacts?

Ray noted that water temperature is embedded in one or more impacts.

Where are ocean conditions incorporated into the slider?

Ray explained that ocean conditions will be part of the future conditions category. He noted that the Project Team plans to identify a subject matter expert to help with the analysis in the future.

Have you discussed the impact ranges with the Technical Team?

Ray commented that the Project Team introduced the slider idea in concept to the Technical Team, but that they have not seen the numbers yet. Ray noted that he and Pat are creating documentation of how they identified the numbers in the slider, and they plan to get feedback from the Technical Team and other subject matter experts.

Why did you add contaminants as an impact?

Ray explained that contaminants are an important part of the recovery plans and that contaminants have significant effects on some stocks. He added that there is very little information available about the effects of contaminants at the stock scale, so the Project Team is going to seek input from the Task Force and Technical Team to determine the best way to move forward with this impact.

All models are incorrect, but some are more useful than others

One Task Force member commented that it is important to remember that all models are incorrect, but some are more useful than others. He noted that this model will be helpful, but that the group must remember that they will need to conduct the analysis at a watershed scale at some point in the future.

It is concerning to use the slider if we do not know the data behind it

One Task Force member expressed concern about using the slider when the Task Force has not seen all the data behind it. The Task Force member did not want people to get influenced by the results that they see in the slider if it still needs to be refined.

Ray acknowledged the concern and encouraged Task Force members not to focus on particular values in the slider, but rather to focus on the larger picture that the slider provides. He noted that he, Pat, and the Technical Team would be working together to make sure that the slider was fully transparent and all the appropriate science and data are incorporated into the slider over the next several months.

After addressing Task Force members' questions, Ray and Pat gave five presentations on the impacts that form the basis of the slider. The five topics were: freshwater habitat, harvest, hydro/mainstem and blocked areas, hatchery, and predation. For each category, Ray and Pat explained the definition, what components of the category are included and excluded in the slider analysis, estimates of impacts from the category for each stock, and example actions that fit into the category.

Freshwater Habitat

Definition: Freshwater habitat impacts are defined as the percent reduction in natural capacity and productivity that is due to habitat degradation in freshwater natural production areas.

Included: Tributary habitats, including spawning grounds, incubation and rearing habitats, overwinter habitats, and local and cumulative effects are all included in this impact category of the slider.

Excluded: Tributary dam blockages, migratory corridor habitat, and estuary habitat are not included in this impact category of the slider. Ray explained that these components are included in other impact categories. He also noted that the Project Team is still exploring the best way to account for estuary habitat in the slider.

Stock estimates: Ray showed an image of the estimates of habitat impacts for all stocks. He explained that he and Pat used numbers from a variety of sources including the Ecosystem Diagnosis and Treatment (EDT) model, which was utilized as part of the NPCC sub-basin planning process. He noted that the Project Team will request help from the Technical Team to refine these values. He also highlighted that many of the stocks have high habitat impacts.

Example Actions: Ray noted that the following types of actions could all contribute, individually and cumulatively, to improving habitat capacity and productivity: watershed conditions, floodplain connection, riparian conditions, channel morphology, habitat types, substrate/sediments, woody debris, stream flow/hydrograph, water temperature, water quality, and local access.

Questions and Comments

Are you referring to a percentage loss of habitat or a percent mortality due to loss of habitat?

Ray noted that those two measurements are the same for the purposes of this exercise. He explained that Task Force members can think about the impact as the number of births plus the number of deaths.

Are you referring to a loss of historical productivity or of egg to smolt survival?

Ray explained that the definition that he used was equivalent to spawner to smolt survival for this exercise. He noted that they compared that value to the historical value.

Harvest

Definition: Harvest impacts are defined as the percent mortality from harvest, including direct and indirect impacts. Pat explained that indirect impacts are mortality stemming from fish that are encountered in the fishery but escape or are released.

Included: Both indirect and direct fishery mortality for ocean and freshwater fisheries are included (where available).

Stock Estimates: Pat showed an image of estimates of fishery impacts for all stocks. He noted that some stocks have large fishery impacts and some are very small. Pat also provided example harvest rates for Upper Columbia Summer Chinook. He described the harvest patterns from the Columbia

River to Alaska, and he explained that the cumulative harvest rate of this stock is 61%. Pat also discussed examples for six prototype stocks and demonstrated that the catch distribution varies greatly between each one – for some species harvest is distributed geographically between ocean and freshwater, whereas for others, the distribution is uneven. Some stocks also have more harvest-related mortality from indirect causes rather than direct causes.

Example Actions: Some example actions that would affect harvest impacts are as follows:

- *Management strategies:* mixed stock, weak stock, escapement-based, abundance-based, de minimus harvest rates.
- *Time and area restrictions:* closed seasons, closed areas, terminal areas, fishery closures/moratoriums
- *Gear and retention:* gear type, gillnet characteristics, mark-selective fisheries, terminal tackle barbless hooks, catch limits/quotas, bag limits
- *Other:* limited entry, harvest sharing/allocation

In addition to the above categories, Pat also described the management trends over the last 75 years and the harvestability goals that the Task Force set out in Phase 1. He explained that for some stocks, the harvestability goals are close to level that the stock can sustain, but for others, there is a lot of work to be done to increase abundance to be able to harvest at the high goal harvest rate.

Questions and Comments

Is the slider broken out by harvest areas or by harvest overall?

Pat noted that the slider is not broken down geographically. The Task Force member responded that he would prefer to see a geographic distribution because that scale will make it clear where the biggest impact is occurring.

When you use harvest percentages for different areas, are the numbers based on the maximum number of fish before any harvest, or is the percentage based off abundance at the time that the fish reach a certain geographic area?

Ray explained that for the purposes of this exercise, the rates are estimated relative to ocean abundance.

For hatchery-reared spring Chinook, are the mortalities that you referenced for the hatchery?

Pat replied that the mortalities were focused on natural origin populations, not hatchery stocks.

What is the basis of the harvest goals and why are they different for different stocks of the same species?

Ray noted that the harvest goals were identified in Phase 1. He also explained that the harvestability rates within a species represent a maximum sustainable yield (MSY) that also considered the needs of different fisheries.

Alaska and Canada harvest rates

One Task Force member commented that it would be interesting to see if the harvest rate trends for Alaska and Canada are commensurate with those in the Columbia River. Another Task Force member noted that as summer Chinook abundance increases, the harvest rates in the Columbia River will increase assuming that the Canadian fisheries are focused on other stocks.

Hydro/Mainstem and Blocked Areas

Hydro/Mainstem

Definition: Hydro impacts are defined by the percent mortality associated with passage through the Columbia Basin mainstem hydropower system.

Included: Hydro impacts include reach mortality of juveniles, reach mortality of adults, and latent mortality. Ray provided an example diagram of Snake River spring Chinook and explained the different types of mortality:

Reach mortality (juveniles): This is the average mortality rate for the fish who either swim down the river or are transported down the river in barges. It includes dam and reservoir passage, hydropower and natural losses, direct and indirect effects, and predation in reservoirs.

Reach mortality (adults): This is the average mortality rate for the fish who are making their way upstream through the hydrosystem. It includes upstream migration mortality and straying, and it accounts for estimated harvest.

Latent mortality: This measurement captures the delayed mortality of juveniles in the estuary and ocean that is due to passage through the mainstem hydrosystem. Ray noted that there is a lot of uncertainty and debate around latent mortality, so it is crucial to include a range of estimates.

Stock Estimates: Ray showed an image of estimates of hydro impacts for all stocks. He noted that there is great variability across stocks – some are greatly affected by the hydrosystem and others are not. The graph includes a range of mortality based on the varying estimates that go into the model.

Example Actions: Some example actions that would affect hydro impacts are as follows

- *Dam passage (juveniles):* juvenile bypass systems, transportation, increased spill, fish-friendly turbines, dedicated/normative flow, spillway weirs
- *Reservoir mortality (juveniles):* gas abatement structures, gas caps, bypass outfalls, pikeminnow reward fishery
- *Reach mortality (adults):* fish ladders, operational criteria, temperature augmentation
- *Latent mortality:* spill program, reservoir drawdown, dam removal

In addition to the above categories, Ray also explained the different ways that fish can pass through dams and how they each relate to mortality. For instance, small percentages of mortality occur for fish passing through the turbines at each dam and mortality rates are typically less for fish diverted into bypass systems or passing via the spillways. Additionally, he discussed the survival trends for Snake River spring/summer Chinook smolts over the last 60 years. He commented that ocean condition and migration conditions have the largest effects on smolts and that it is challenging to determine how much of the latent mortality results from hydrosystem impacts.

Blocked Areas

Definition: Blocked areas are large pieces of habitat which once produced fish, but which are now unable to do so due to the presence of mainstem or large tributary dams. Significant blocked areas occur in the Upper Columbia, Upper Snake, Deschutes, Willamette, Cowlitz and Lewis rivers.

Included: Ray explained that the blocked areas slider category includes potential production estimates for blocked areas along the mainstem and near large tributary dams. He noted that these numbers were based on historical estimates that Technical Team members provided.

Stock Estimates: Ray showed an image of estimates of blocked area impacts for all stocks. He noted that some stocks are not able to access their historical production habitat, so their abundance would greatly increase if fish were introduced into those areas. He also explained that other stocks are barely affected by blocked areas.

Example Actions: Some example actions that would affect blocked area impacts are:

- *Upstream passage (adults):* fish ladders, trap and haul, and hatchery outplants
- *Downstream passage (juveniles):* collection and bypass systems
- *Other:* hatchery mitigation, resident fish “substitution”

Questions and Comments

Is the baseline hydro mortality 0%?

Ray noted that the baseline for mainstem migration mortality is not 0% because it is impossible to know what natural mortality was before the hydrosystem was in place.

Are the mortality rates 10-year averages?

Ray explained that the reach mortality is a 10-year average and the latent mortality is a range.

Are all the latent mortality causes reflected in the one latent mortality number that you presented?

Ray confirmed that the different causes are considered as part of one statistic for the purpose of this coarse-scale exercise.

How can the juvenile reach mortality, adult reach mortality, and latent mortality add up to more than 100%?

Ray explained that the percentages apply to the number of fish that are available at each stage of the fish’s life cycle.

Are there separate sliders for blocked areas and mainstem mortality?

Ray noted that there are two separate sliders that one can adjust in the slider tool.

Can the slider take into account increased spill, operational enhancement, and other similar actions?

Ray explained that the slider does not take specific actions into account, but it allows one to see how abundance is affected if hydro impacts are increased or decreased.

How do you convert increased juvenile mortality into decreases in adult spawners?

Ray noted that the slider uses a multiplicative formula to calculate this. There is an underlying assumption that the percentage of fish killed as adults or juveniles will translate to the percentage decrease in adult fish that return to the Columbia Basin.

Do hydrosystem stock impact estimates exclusively include the hydro-related mortality and latent mortality?

Ray answered that the estimates include the latent mortality and the mortality that happens during migration. For the mortality that occurs during migration, some of it is natural and some of it is due to the hydrosystem.

Does the blocked areas slider include all potential habitat or just the current suitable habitat?

Ray explained that the blocked area slider is based on historical habitat. He commented that the slider model assumes that the quality of all historical habitat is comparable to that of current habitat. He added that he and Pat would like to address this further when they make finer-scale refinements to the slider.

The slider shows a lot of promise and it would benefit from Technical Team input

One Task Force member pointed out that the slider shows a lot of promise, but that it would be worth having a two-day retreat with the Technical Team to explore and solidify the details and assumptions that go into the tool. Ray confirmed that the Project Team would welcome the Technical Team's input and consider organizing a retreat if feasible.

Hatchery

Definition: Hatchery impacts are defined as the effect of hatchery fish interactions with natural origin fish on the abundance of natural origin fish. Also stated as the percent reduction in natural productivity due to hatchery straying and interactions.

Included: Number of hatchery “strays” and relative fitness (related to genetic composition) of hatchery fish are all included in this impact category of the slider.

Excluded: Legacy effects, freshwater competition, predation, disease transmission, out-of-basin interactions, supplementation benefits, reintroduction benefits and mitigation needs are not included in this impact category of the slider.

Stock estimates: Pat showed a slide with a graph that displayed the stock estimates and the uncertainty surround each one. He explained that the numbers may change over time as they refine the slider. He noted that some stocks have high hatchery impact rates, but others are barely affected. He reminded the group that the slider is only measuring the negative effects of hatcheries.

Example Actions: Pat explained that there are a variety of actions that can be taken to reduce the impact of hatchery programs on natural populations.

- *Management strategies:* These focus on reduced interaction on spawning grounds by strategically modifying programs. Examples include program elimination, production limits, broodstock integration, segregation, and refuge areas
- *In-hatchery practices:* These focus on improving the quality of smolt produced. Examples include: limiting blood transfers, factorial mating, fish health, and natures rearing
- *Release practices:* These focus on limiting interactions among both juveniles and adults. Examples include: acclimation, volitional release, and release size and time
- *Limit contribution:* These focus on reducing hatchery fish on spawning grounds. Examples include: increasing natural production, exclusion weirs, and hatchery selective fisheries

In addition to the above categories, Pat also showed a slide about management trends. He explained that hatchery reform has been implemented over the last 20 years to benefit natural populations and that these changes have likely resulted in a significant reduction in hatchery impacts. He displayed a slide with a graph of the Columbia Basin hatchery releases from 1950 to 2010 and explained that

while the figure shows a reduction in total production, there has been increased production in some areas.

Questions and Comments

Are the error bars different for each species?

Pat noted that the bottom of the bar demonstrates the effect that an integrated program would have on a stock and the top of the bar demonstrates the effect that a segregated program would have on the same stock.

Why are only negative hatchery impacts shown here?

Ray explained that hatchery fish can make a positive contribution to the population parameter of abundance, a consideration that is not currently accounted for in the slider. At this coarse-scale level, the slider is looking at how much improvement can be made towards the abundance goals by decreasing the negative effects of hatchery fish on natural populations. Going forward, the Project Team will consider options for incorporating the benefits of hatchery fish into the slider.

What does the axis labeled "hatchery impact" mean?

Pat stated that hatchery impact is defined as the reduction in productivity associated with natural origin spawners from that hatchery program.

There is a large amount of hatchery information that is listed as excluded from the analysis. Why?

Pat explained that the negative effects of the excluded components (freshwater competition, predation, etc.) are much smaller than those of the genetic influences and are also difficult to quantify.

Positive impacts of hatcheries

One Task Force member noted that the discussion around hatcheries has tended to have a negative tone. They explained that the tribes have worked extremely hard over the last 10 to 15 years to modernize hatchery practices and that it is not right to assume that all hatchery practices are going to have a negative effect.

To address this, another Task Force member suggested integrating bars into the slider that go below zero, indicating a positive impact. Another suggestion was to conduct two hatchery coarse-screening exercises – one that investigates the negative impacts and one that investigates the positive impacts.

Another Task Force member hoped that the finer-scale analysis would include the recognition that hatcheries can help to increase abundance. For example, Snake River fall Chinook populations have been rebuilt significantly from hatchery supplementation programs.

Predation

Definition: Predation impacts are defined as the percent mortality due to (potentially manageable) predators.

Included: Types of predation included are:

- Avian: terns, cormorants, gulls, etc. in estuary and inland areas. Minimum estimates were used in the slider.

- Pinnipeds: California and Steller sea lions, harbor seals in the estuary, Bonneville Dam and Willamette falls. Minimum estimates were used in the slider.
- Piscivorous fish: pikeminnows and introduced species below Bonneville Dam and in inland areas. The initial parameterization included a placeholder for estimates downstream from Bonneville Dam.

Stock Estimates: Ray showed an image of estimates of predation impacts for all stocks. He noted that predation is a particularly significant issue in the lower Columbia River.

Example Actions: Some example actions that would affect predation impacts are:

- *Terns and cormorants:* reduce nesting habitat, construct out-of-basin habitat, lethal removal, dam tailrace measures
- *Pinnipeds:* ladder exclusion gates, hazing, relocation, lethal removal
- *Pikeminnow:* sport reward fishery, juvenile bypass outfalls, water temperature management, smolt travel times
- *Northern pike:* suppression

Ray also showed graphs of the avian population growth over time in the Columbia River Estuary as well as seal lion salmon predation rates at Bonneville Dam over time. He discussed the causes of the variability.

Questions and Comments:

Why is predation in the reservoir included in the hydrosystem category and not the predation category?

Ray explained that they do have quantitative data on reach survivals in the mainstem but those data do not identify how fish die (i.e., from predation, or from passage effects at the dams, or from other causes). Without direct estimates of losses due to predation, it is not possible to distinguish the cause of death of juveniles in mainstem reaches – we only know the total mortality. He noted that their informed assumption is that 50 percent of the mortality is due to predation, some of which would obviously occur in an un-dammed system as well. He also noted that they have estimates of avian predation in some reaches of the mainstem, so it might be possible to separate avian predation out of this impact category.

Would the predation impact percentages stay the same if abundance doubled?

Ray explained that predators can only eat so many fish, so it is possible that the proportion of fish lost to predation could decrease as abundance increases. However, there could also be an increase in population of the predators. There is uncertainty surrounding how the predation impacts will change with more fish.

Should this analysis consider the life stage in which the predation occurs?

Ray commented that for the purpose of the slider, it does not matter at what stage the deaths occur.

How do Bonneville and other entities measure sea lion predation?

Ray noted that there are many monitoring programs to measure predation. Some of these programs include tagging fish in the estuary and calculating how many of them make it to the dams.

The analysis should consider the impact of gulls and seals and the spread of invasive species

One Task Force member pointed out that gulls and seals have a large impact on juvenile fish and that the slider analysis should take that into account. He also mentioned that the group should consider how invasive species may spread and cause predation to worsen in the future. Ray advised that the slider exercise accounts for impacts that can be quantified. These estimates must be qualified for other factors which are likely important but for which we have no estimates. Future changes from things like invasive species may be addressed with assumption for the future conditions bar of the slider.

Where is mortality related to higher water temperature accounted for in the slider?

Ray explained that this consideration is included in the juvenile and adult reach mortality numbers.

After Ray and Pat finished the presentations, Michael Tehan, NOAA Fisheries, concluded by thanking the group for engaging in discussions about each of these topics and offering insights and ideas for improvement in some of the categories. He encouraged the group to think at coarse level when looking at the slider over the next hour.

6. Use the Slider in Small Groups

Task Force Members

Deb Nudelman, K&W, told the group that they would have the opportunity to use the slider in small groups for the next hour. She explained that there were four projectors situated in each corner of the room and that each corner was associated with a geographic region: Snake River, Lower Columbia River/Willamette, Upper Columbia River, and Middle Columbia River. She noted that Task Force members should use the handout in their packets to help guide them through a discussion about the slider. Deb added that Task Force members choose whichever geographic area is most relevant to them for the small group discussion. The questions that Task Force members discussed in the small groups were:

- For your part of the basin, what slider scenarios would you want to consider in more depth and why? Please list two to four scenarios.
- What observations, questions, or challenges did you identify based on the slider exercise? (These might be biological, social, cultural, economic, or ecological).
- Do you have thoughts on how to establish the potential for improvement in any of the slider categories – for example, are there any particularly notable constraints on any of the dials? (e.g., extensive existing development).

Task Force members split up among the four regions and used the slider tool to explore different strategies and scenarios.

7. Plenary Observations from Small Group Exercise

Task Force members

Deb Nudelman, K&W, asked Task Force members to individually offer their reflections on the small group slider exercise. The discussion included the following ideas and comments:

- Most Task Force members noted that the slider was a useful tool to encourage them to have hard discussions about how to reach the goals. More specifically, they mentioned that the slider tool is a good starting point for discussions about the SCE&E considerations.

- Many group members commented that it would be helpful to see a version of the slider that shows how all the stocks are affected by the same impact. For example, if you adjusted hydro impacts, you would be able to see how all the stocks react.
- Most Task Force members reiterated that there is still work to be done to improve the slider. They specifically mentioned that some of the data needs to be fine-tuned, definitions need to be clarified, and that the hatchery impact category should be reassessed to account for the benefits that hatcheries offer.
- Several Task Force members explained that the slider helped them to realize that making improvements in any single category will not be enough to reach the high goals. The effort must be comprehensive across the impact categories.
- Several Task force members noted that it was challenging to keep the conversation at a coarse-scale and that they wanted to discuss finer-scale details.
- A few Task Force members referenced that the tool would be useful for helping to prioritize resources in the future.
- A couple of group members indicated that it is important to include a set of baseline numbers in the slider so that the Task Force can make sure to acknowledge the work that has already been done.

8. Next Steps and Summary

Michael Tehan, NOAA Fisheries, and Deb Nudelman, K&W

Deb Nudelman, K&W, thanked the group and reminded them about logistics and the plan for Day 2 of the meeting. Michael Tehan, NOAA Fisheries, offered a few concluding observations. He noted that the conversation was a proof of concept for the utility of the slider tool, and that the Project Team is aware of its strengths and limitations. He thanked the group for providing their feedback on the parts of the slider that need improvement and he reiterated that the Project Team and Technical Team would work on those refinements over the summer. Michael thanked the group for the great discussion and reminded them that Barry Thom, NOAA Fisheries, would be at Day 2 of the meeting.

DAY 2 – June 27, 2019

9. Welcome and Introductions, Reflection on Day 1 and Review Agenda for Day 2

Barry Thom, NOAA Fisheries, and Deb Nudelman, K&W

Deb Nudelman, K&W, welcomed the group and introduced Barry Thom, NOAA Fisheries. Barry expressed his regret for being unable to attend on Day 1 and he reiterated that the CBP Task Force is his biggest priority. Barry expressed his appreciation for the hard work and effort that the Task Force members have contributed to the partnership, and he explained his excitement about the positive path that the group is on. He stated that he recognized that the beginning of Phase 2 is challenging, but all of the hard discussions are worthwhile to move forward in a constructive way.

Deb noted an observation she had on Day 1. She explained that when the Task Force members gave updates at the beginning of the meeting, there was a sense of support and comradery that demonstrated that this group is a place where people working to help the salmon and steelhead in the basin can support one another. She referenced the importance of the fact that Task Force members are using this group to help educate and inform each other about the important work happening throughout the basin. Deb noted that the group is on a complex path towards their own outcomes and that they have an important value in the recovery ecosystem of the Columbia Basin.

Deb also offered a reflection on the prior day's discussion – she commended the group for being able to discuss uncomfortable truths about the turning the dials on the slider tool. She acknowledged that those discussions can be hard, but that it is a powerful opportunity to discuss the “what if?” questions about recovery efforts in the future.

Michael Tehan, NOAA Fisheries, reiterated Deb's points and thanked the group for their engagement.

Deb reviewed the agenda, which included a summary from the Integration Team's progress since the last meeting, a discussion about the social, cultural, economic, and ecosystem considerations, an opportunity for public input, and a discussion about work to be done over the summer months.

10. Integration Team Report Out and Approach

Katherine Cheney, NOAA Fisheries, and Integration Team members

Katherine Cheney, NOAA Fisheries, provided a brief presentation and update about the Integration Team. She noted that the Integration Team met twice since the April Task Force meeting. During those meetings, they reflected on the results of the April meeting, previewed the biological analysis, discussed approaches for the social, cultural, economic, and ecosystem (SCE&E) analysis, and heard presentations from experts on SCE&E approaches.

Katherine reviewed the discussion at the May and June Integration Team meetings as follows:

May

The group discussed the slider approach, reflected on the conversation about governance from the April Task Force meeting, brainstormed ideas for building scenarios, and reiterated the importance of assessing biological and SCE&E considerations concurrently.

June

The group heard presentations from experts across the basin who might be able to help with the SCE&E analysis and future worlds discussions.

- Bobby Cochran from the Willamette Partnership
- Staff at EcoTrust who work on data visualization
- Tim Smith from Sera Architects
- Economists from the Northwest Fisheries Science Center (NWFSC)

Proposed Experts Going Forward

After these presentations, the Project Team and Integration Team discussed the insights that each presenter could provide to the Task Force. The Project Team proposed the following partnerships:

- Tim Smith, Sera Architects: Tim has developed a method called civic ecology and he has a visual approach for mapping SCE&E considerations. The Project Team proposes working with Tim at the September Task Force meeting to visually map regional interconnections and interdependencies in both the current and future landscapes.
- NWFSC: The Project Team proposed coordinating with the NWFSC as they build a cost-effectiveness model to assess the relative cost-effectiveness of management alternatives. It would work at a finer action level scale and help demonstrate tradeoffs associated with each impact category on the slider. It would not be available for Phase 2, but could be relevant in the future when members are considering implementation of on-the-ground actions.
- Trout Unlimited: Ray Beamesderfer, NOAA Fisheries, met with Trout Unlimited to discuss visually representing the Task Force's goals across the landscape. The Project Team proposes working with their staff to move forward with this plan.

Katherine asked Integration Team and Task Force members to add their perspectives about the proposed experts and the SCE&E considerations approach. They discussed the importance of the following topics:

- Thinking about people's willingness to make the changes that the group has been discussing.
- Educating people to encourage them to value salmon and care for the habitat.
- Considering externalities and frictional costs in economic analyses about salmon, including the costs that previous generations and tribal groups have endured as salmon abundance decreased.
- Reframing the salmon recovery conversation about the benefits of salmon rather than the pain that people will endure in implementing recovery efforts.
- Using the slider to think holistically and provide context to decision-making.
- Including all affected stakeholders in the decision-making processes and conversations about recovery efforts.
- Keeping all options open so that future generations can make their own decisions about the best path towards recovery.
- Recognizing the tribal perspective that it is a moral responsibility to care for the salmon.
- Ensuring that cost-effectiveness models do not lead some groups to be excluded.
- Incorporating all the SCE&E considerations into decision-making processes.

Katherine provided a clarifying comment that the NWSFC's cost-effectiveness model would include both benefits and costs and that the Task Force would only use the model if the group starts considering implementation measures. She reiterated that the Task Force is currently in the scenario planning phase and considering options, and that they do not plan to make any choices about the right path forward.

Deb referenced the fact that it is very challenging to have these conversations and that she hopes the SCE&E exercise, which is next on the agenda, will help the group continue making progress. She explained that she would like the group to try to move from the winners and losers construct and embody a mindset that will make them willing to work together and do something that has never been done before.

Deb also asked the group to be careful about their word choices and she requested that people speak up when something does not sit right with them. She pointed out that the word “prioritization” has a lot of strings attached to it. She also stated that by no means does the group have to make use of the NWFSC model if members do not deem it as appropriate for the Task Force.

Barry Thom, NOAA Fisheries, concluded by reminding the group that it is crucial to look beyond traditional dollar costs and consider all SCE&E costs and benefits, whether those be cultural, social, ecological, or something else entirely.

Deb thanked the group for the rich and important conversation.

11. Social, Cultural, Economic, and Ecosystem (SCE&E) Considerations

Task Force members

Deb Nudelman, K&W, explained that the group would be discussing SCE&E considerations for the next 45 minutes. She reiterated that each Task Force member’s perspective and stories matter, and she asked them to draw from their experiences during the exercise. She explained that this exercise would help everyone to better understand how the SCE&E considerations relate to the biological analysis and scenario building. Deb referenced a handout in the meeting packet for this exercise and she asked Task Force members to write down their thoughts on it during the exercise. The Project Team will use these notes to help Tim Smith create a useful exercise for the September meeting.

Deb described the handout, which had a separate page for each of the impact categories (also known as “dials”) of the slider. The exercise asked Task Force members to think about the social, economic, ecological, and cultural considerations that are affected by turning each dial. The exercise also asked Task Force members to explain how and why these considerations are affected. Deb requested that Task Force members get into small groups to discuss these topics and she asked that people start with their own perspectives and then try to stand in each other’s shoes.

Task Force members discussed these topics and questions with one another for 45 minutes. Deb then asked for the group to go around the table and give their reflections. Comments about the exercise included:

- It highlighted that there will be a lot of tradeoffs to consider as the group thinks about different scenarios. Many Task Force members noted that there are pros and cons for each strategy and action.
- It reiterated that the hatchery dial needs to be redesigned. Task Force members commented that many stakeholders have derived important benefits from hatcheries, and the slider should reflect that.
- It solidified the relationship between successful recovery efforts and a shifting of cultural norms for some stakeholder groups.

- It opened up the opportunity to begin discussing how the group can create win-win situations.
- It reiterated how complex and interconnected all the components of the Columbia River Basin are.
- It was very challenging, and it illuminated the importance of keeping an open mind and engaging in holistic thinking.
- It was a helpful, constructive, and safe way to think about one another's perspectives.
- It allowed Task Force members to bring certain issues to light that had not been discussed previously.
- It highlighted that cultural considerations are complex, and the group should keep this complexity in mind as it embarks on this analysis.
- It helped illuminate that each region may have a different willingness or perspective for implementing recovery actions.
- It emphasized the importance of thinking about time frames for recovery efforts.

Michael Tehan, NOAA Fisheries, Barry Thom, NOAA Fisheries, and Deb offered concluding comments. Michael referenced the complexity of salmon recovery efforts and the acknowledge the challenge of balancing the considerations. Barry added that he hopes the CBP Task Force will work hard to incorporate these pieces into comprehensive scenarios. Deb noted that considering all the SCE&E impacts is a messy, but crucial component of the process, and she commended the group for talking through these issues together. She asked the group to continue with patience as they moved forward and use this opportunity try to identify solutions where everyone gains something.

12. Public Input

Deb Nudelman, Kearns & West

Deb asked audience members if anyone would like to share public comments. No one opted to comment.

13. Ensuring that Critical Pieces of Work Progress

Task Force members

Deb Nudelman, K&W, explained that the Project Team would like to discuss the next steps for the Technical Team and Integration Team over the summer. She noted that Task Force members should feel welcome to provide feedback as to the best path forward.

Ray Beamesderfer, NOAA Fisheries, stated that there is substantive work to be done on the slider to document the underlying data and assumptions and to collaborate with the Technical Team to refine the estimates. Ray thanked the group for providing suggestions for how to refine the slider, and he noted that he and Pat would work together to determine a workplan and schedule for Technical Team meetings over the summer. He also explained that the Project Team, Technical Team, and Integration Team would identify example scenarios over the next few months to bring back to the full group. He reiterated that the Project Team would like the slider to be a tool with which everyone is comfortable, and he thanked the group for their efforts to engage in a coarse-level discussion during the meeting.

Task Force members agreed with the importance of documenting the current state of the slider and noted that the Project Team has significant changes to make to some of the impacts (e.g., hatchery and hydrosystem). Ray agreed with the comments and explained that the Project Team plans to think about example scenarios while simultaneously fixing some of the slider's technical issues based

on the input of the Technical Team. He referenced the tight timeline for Phase 2 and highlighted the need to keep the analyzing moving forward.

Several Task Force members requested that the Project Team inform the Task Force about upcoming Technical Team meetings so that they can participate and observe if interested. They also requested that the Project Team send the Task Force the Integration Team and Technical Team rosters. Katherine Cheney, NOAA Fisheries, replied that the Project Team would make sure to do so for both requests. Deb told Task Force members that they should let the Project Team know if they have other suggestions for people who should be included on the Integration Team or Technical Team.

Many Task Force members also asked for access to the slider tool. Some people were concerned that the tool could be misused if it ended up in the wrong hands or that someone could change the underlying data. Ray noted that the Project Team would send out the tool, and Deb asked that Task Force members do not share it beyond their technical support members.

A few Task Force members also expressed concern about people leaving the meeting with conclusions derived from the slider exercise that are inaccurate. Deb acknowledged that there is a lot to process from the meeting's exercises, and she encouraged Task Force members to keep open minds and be aware that there will be refinements to the slider.

Many Task Force members sought clarification on who would be defining and creating scenarios. Barry stated that the Project Team will work with the Technical Team and Integration Team over the summer to create a rough cut of some scenario options. Task Force members would then have the opportunity to provide their input at the September and December meetings.

One Task Force member commented on the importance of acknowledging the work that has already been done through recovery planning efforts to improve salmon and steelhead abundance. Barry agreed and noted that the scenario planning effort is still at a coarse level and the finer-scale analysis will require a closer look at recovery plans. Another Task Force member expressed concern about relying upon recovery plans because the recovery planning processes excluded some groups. Ray and Michael acknowledged the point and stated that recovery plans would just be one component of the larger analysis.

Deb explained that this Task Force meeting was important to help the Project Team, Technical Team, and Integration team start to consider the building blocks for scenarios and that they will bring a rough cut to the September Task Force meeting. She stated that the Project Team will continue to be transparent about the process.

Katherine summarized the next steps for the Integration Team. She reminded the Task Force that Tim Smith would be working with the group at the September meeting and that the Integration Team will have an opportunity to meet with him in August and discuss his ideas for an SCE&E exercise as well as a discussion about how to approach the future worlds topic. She noted that the group's input from the SCE&E considerations discussion would be the basis for the design of Tim's exercise.

One Task Force member asked if the Technical Team and Integration Team could have a joint meeting and Deb replied that the Project Team would consider it.

14. Next Steps and Wrap Up

Deb Nudelman, K&W, Katherine Cheney and Barry Thom, NOAA Fisheries

Katherine Cheney, NOAA Fisheries, reminded the group that she would send them talking points and PowerPoint slides ahead of the MAFAC Recommendations Report release. Deb Nudelman, K&W, announced that the next Task Force meeting would be on September 25 and 26, 2019 in Portland.

One Task Force member returned to the conversation about scenarios and expressed discomfort that the Integration Team and Technical Team are developing the scenarios without the full Task Force. Katherine explained that the development process would be iterative, and that the Integration Team, Technical Team, and Project Team will only come up with initial ideas on which they will seek feedback from the whole group.

Barry told the group to enjoy the summer, and he thanked them for taking the time to attend the meeting. The meeting was adjourned around 2:30pm.

Upcoming Meeting Dates	Location
September 25 and 26, 2019	Portland, OR
December 3 and 4, 2019	Spokane, WA
February 25 and 26, 2020	Boise, ID
June 2 and 3, 2020	Portland, OR

Meeting Materials
The meeting materials can be found on the NOAA Fisheries CBP Task Force website here: https://www.fisheries.noaa.gov/west-coast/partners/columbia-basin-partnership-task-force