

Columbia Basin Collaborative (CBC) Predation Work Group

Meeting Summary

Thursday, November 3, 2022, 9:00 – 11:00am PT/ 10:00am – 12:00pm MT

Attendees

Work Group Members in Attendance: Bob Lessard (Columbia River Inter-Tribal Fish Commission), Tim Copeland (Idaho Department of Fish and Game), Aaron Lieberman (Idaho Outfitters and Guides Association), Joe Maroney (Kalispel Tribe of Indians), Jay Hesse (Nez Perce Tribe Department of Fisheries Resources Management), Lynne Krasnow (National Oceanic and Atmospheric Administration), Michelle Rub (National Oceanic and Atmospheric Administration), Tucker Jones (Oregon Department of Fish and Wildlife), Bryan Wright (Oregon Department of Fish and Wildlife), Grant Waltz (Oregon Department of Fish and Wildlife), James Lawonn (Oregon Department of Fish and Wildlife), Michael Brown (Oregon Department of Fish and Wildlife), Gary Marston (Trout Unlimited), Sean Tackley (US Army Corps of Engineers), Stephen Waste (US Geological Survey), Chris Donley (Washington Department of Fish and Wildlife), Tom Iverson (Yakama Nation Fisheries)

Observers in Attendance: Doug Hatch (Columbia River Inter-Tribal Fish Commission), Tom Lorz (Columbia River Inter-Tribal Fish Commission), Tom Skiles (Columbia River Inter-Tribal Fish Commission), Bret Nine (Confederated Tribes of the Colville Reservation), Shay Wolvert (Confederated Tribes of the Colville Reservation), Mark Martin (Idaho Outfitters and Guides Association), Glen Spain (Pacific Coast Federation of Fishermen's Associations), Shane Scott (Public Power Council), Jerry Rigby (Rigby, Andrus & Rigby Law, PLLC), Jennifer Urmston (US Fish and Wildlife Service), Mitch Silvers (US Sen. Mike Crapo), Stuart Crane (Yakama Nation), Joe Zendt (Yakama Nation Fisheries), Keely Murdoch (Yakama Nation Fisheries)

Facilitation Team: Amira Streeeter (Kearns & West), Angela Hassenius (Kearns & West)

Welcome, Agenda Review, Updates, and Introductions

Amira Streeeter, Kearns & West, provided an overview of the agenda and meeting guidelines. The topics included: 1) Work Plan Review, 2) Recap of Predation Discussion Resources and Gaps, 3) Defining Success at the Programmatic Level, 4) Replicating Success, and 5) Confirm Next Steps, Upcoming Meeting Topics, and Summary.

Work Plan Review

Amira provided a recap of the CBC Integration/Recommendations Group (I/RG) meeting held on October 19, 2022. During this meeting, the I/RG reviewed the recommended action form developed by the Science Integration Work Group (SIWG) as a tool that all the work groups can use to share proposed actions with the SIWG for cross-cutting analysis and the I/RG. The I/RG approved using this form to provide a standard format for proposing actions across the work groups. They made several edits to the form and clarified that recommendations from the work groups should have a broad programmatic impact rather than be too specific.

The I/RG also reviewed the proposed work plan for the Predation Work Group. The I/RG made minor edits to the Predation Work Plan and approved this as the final work plan for the group moving forward. This work plan will remain a living document that can be adjusted as needed as the work group progresses.

Questions and Discussion:

- What is meant by “programmatic” effects or impact?
 - The I/RG is looking for short-term and long-term recommendations but emphasized that the role of the work groups is not to make yes-or-no decisions on specific projects.
 - The CBC work groups should be looking at a higher-level on how projects in the basin are working together to benefit salmon, as well as to identify gaps and bring recommendations to the I/RG of actions that can fill those gaps.
 - Several work group members agreed with the importance of focusing on big picture, higher level actions. One work group member added that it will be particularly valuable for this group to look at the programs that are funding predation management and review the prioritization of those programs.
 - Another work group member shared that in order to develop actions from this higher-level perspective, the group needs to continue collecting information on the impacts of predation and an inventory of successful and scalable projects. Other work group members agreed that building an understanding of the success of what is currently being implemented is important. Another work group member posed the question of how this group can evaluate or prioritize strategies that have been identified as needs but have not been attempted yet, so the group cannot point to examples that demonstrate success.

[Recap of Predation Discussion Resources and Gaps](#)

Amira shared the list of existing programs and forums that were shared during the previous meeting on screen and facilitated a discussion on the information gathered thus far.

Questions and Discussion:

- Work group members discussed differentiating programs and projects, noting that the brainstormed list includes examples of both.
 - Projects could be listed under the overarching program.
 - Pinniped management can be consolidated under one program (Section 120(f) authority, implemented by three states and tribal partners)
 - It would be beneficial to track the funding sources for each program.
- Work group members also expressed interest in developing the bulleted list into a spreadsheet, noting that a tabulated format would be helpful to include additional information (e.g., target species, funding source(s), etc.)
- Work group members also contributed additional programs and details; the list will be updated to reflect this input.

Defining Success at the Programmatic Level

Amira facilitated a discussion for how the Predation Work Group can define and measure success for programmatic-level actions. Work group members shared the input below in response to two main questions: **1) How do you define what “success” looks like to achieve salmon/steelhead recovery goals in relation to predation? 2) What are the programs that are and have been successful? Why?**

- Work group members discussed the need to define success as changes in life cycle survival for salmon and the challenges with defining and measuring success by this standard.
 - The number of predators removed is a proximate measure.
 - Marine mammal programs have been successful since they have clearly demonstrated that they are addressing predation on adult fish that is a source of additive mortality.
 - There is a need to fund monitoring and evaluation efforts that are implemented separately from the predation actions to gather the necessary data to tie those efforts to life stage survival.
 - One significant challenge is that it will be difficult to get a signal from adult returns before fish get to the ocean. The ocean is a major source of uncertainty due to the variability associated with that part of the life cycle.
- Work group members noted that it may be important to consider success in terms of survival on different scales. While life cycle survival may be the gold standard, a hierarchy of scales is important. It will not always be possible to determine life cycle survival (e.g., life cycle survival, hydrosystem survival, reach-specific survival), so this group can focus on measuring at the highest scale possible depending on the resources available.
 - It is important to consider that these programs work with different life stages of fish (e.g., pinnipeds: adult fish survival, piscine and avian: survival for juvenile salmonids entering the ocean). A lot is unknown and there are opportunities for this group to explore projects and research to better understand the survival of juvenile salmonids and how many adult fish that translates to (adult equivalency) to better understand the success of piscine and avian predation management programs.
 - Survival assessment for adults could be a specific topic to flag for the Science Integration Work Group to take on.
 - Success could also be defined as a decline in overall consumption of salmon at different life stages. This could be done with tools such as bioenergetics modeling.
 - It may not be possible to measure the success of predation management efforts at more granular scales (e.g., hotspots or a particular dam). The group may need to accept uncertainty of the effectiveness of measures at finer scales (e.g., dam-based hazing, avian wire arrays). Predation monitoring goals may need to vary at different scales.
- Work group members discussed the question of whether this group needs to operate with one definition of success, or if it is possible to bring together these various definitions into a ranked hierarchy/prioritization.
 - For predator management, every project has a different definition of success because they operate in different ways and on different scales. It's important to think about predation as one tool or component of a comprehensive strategy to achieve the Columbia Basin Partnership (CBP) goals by reducing the consumption of salmon through different life cycles.

- The CBP goals are specified in units of adults. It is possible to translate other data (e.g., consumption at different life cycles) into an adult equivalent metric.
- Ultimately, success should be considered measured by the number of fish reaching spawning grounds or available to harvest (i.e., survival to adulthood). However, this is not always a viable approach and takes many years of data to understand. As a practical matter, other shorter-term measures of success are needed. This group could develop a weighting system; for example, more juveniles will need to be saved in order to increase the number of adult returns. Modeling can help evaluate whether programs are working by determining success based on survival.
- One work group member raised a concern that using adult survival as the measure of success and to prioritize funding could mean that all resources are for one kind of predator management (e.g., marine mammal management), since funding is not infinite. Work group members agreed that this is not a desirable outcome and that using an adult equivalency metric would not necessarily rule out recommendations for programs that address predation on juveniles.
- There is a need to think about survival at all life stages and in all habitats. The group should consider the package of all proposed actions and evaluate whether the cumulative effect will be enough to recover runs.
- There might be a way to use a juvenile survival metric to understand if predation control measures are working. These finer scale metrics can help filter potential actions by determining whether specific efforts are likely or unlikely to yield benefits in terms of adult survival.
- An adult equivalent survival metric would allow the group to compare actions against each other while still ultimately focusing on adult returns. Management actions need to be evaluated using a common currency.
- The work group discussed measuring predation management success in hotspot zones.
 - Some work group members noted that there is a need for an assessment of survival through predation hotspot zones.
 - Other work group members cautioned that a focus on hotspots could lead to a “whack-a-mole” effect.
 - Hotspots illustrate the importance of monitoring and understanding predation dynamics. There might be a reason why there is more predation in a hotspot.
- Work group members also noted that there should be a hierarchy in terms of native vs. non-native predation. Reducing predation by non-native species in the short-term can be defined as success (e.g., reducing predation by walleye and increasing predation by orcas may not create a net gain for salmon survival but is still a positive outcome).
- Work group members also raised other ideas for ways to define success.
 - Another way to define success is to consider at what point to stop management. For pinnipeds, formal population viability analysis was built into the Section 120(f) management for the Willamette River to ensure that management reduces predation to the point that the most impacted runs remain viable (however, this has not been done for the Columbia River and is not included in the new Section 120(f) authorization for the Willamette River).

- Another measure of success for pinniped management is that recruitment of new animals to the system has been very low. When habituated animals are removed, they are not able to teach new animals where to go.
- The level of persistence of the reduction in predation should be considered as well. For sea lions, the removals appear to be relatively persistent since the animals are not being replaced.
- Perhaps a more unified definition of success is increased ecosystem function. Actions that may not result in increased adult returns but that may increase forage for other native species could be considered successful.
- Another aspect of success is not adversely impacting other species we care about or creating new problems.
 - In the case of California sea lions, they have been moved from a localized area, but the overall population has not been negatively impacted. In contrast, Caspian tern management in the Columbia River has resulted in a more than 50% decline in the regional population, and terns are on track to be extirpated in Oregon due to management in the basin.
 - Northern pikeminnow are a native fish; predation management shouldn't drive those populations down to a problematic level.
 - Eastern stock Steller sea lions were listed as threatened under the Endangered Species Act until they were delisted in 2013. Management of this species has been conservative to avoid any actions that would lead to this species being re-listed.

Replicating Success

Next, Amira led an activity to guide the group to start building an inventory of successful programs.

Work group members shared the following input in response to these two questions: **1) Are there programs that are "shovel-ready" that would build upon success? 2) What are successful efforts by regional and local groups that need more funding?**

- Work group members shared several avian predation programs that are ready to be implemented if funding becomes available.
 - Additional funding could support monitoring work that is needed, such as placing PIT tags on colonies.
 - Management of double-crested cormorants on the Astoria-Megler Bridge.
 - Additional bird hazing at dams with hotspots, such as McNary and The Dalles Dam, as well as management of double crested cormorants at Troutdale towers and the Miller Island Gull colony
 - Coordination across entities is needed. Funding sources should be aligned so that avian predation can be treated as one overarching program.
 - There needs to be more certainty about the ability to fund programs in the future.
 - Work group members also shared concerns that avian predation control efforts to date demonstrate little to no evidence of benefits in terms of life-cycle survival for listed fish. Hotspot plans will only work in a context of continually adapting management since birds can easily disperse to new sites. However, efforts can be effective by moving birds to a location where they have lower impacts. For avian predation, a fundamental

challenge is that actions that can be taken are generally at the hotspot level; improved coordination across agencies is needed to implement actions at a regional scale.

- Monitoring survival through the estuary. For example, Michelle Rub's work on monitoring adult salmonid survival from the mouth to Bonneville Dam has been successful but perhaps underfunded.
- There is a need for an overarching strategy. Developing an inventory of existing successful programs will help the group prioritize successful actions and identify gaps. This group can continue the work of defining success, evaluating existing programs, and prioritizing actions that are effective (i.e., what will have the most impact on the most depleted stocks).
- Ensure continued funding for sea lion removal.
- Work group members discussed whether the success achieved through implementing pinniped management programs may be reaching a limit.
 - On the Willamette River, California sea lion management is winding down since the program has been successful. More animals will be removed in the spring, but the program is starting to see diminishing returns.
- This group should also consider low-cost efforts. For example, reducing light pollution at structures (dams/bridges) in the basin has been shown to reduce the ability of predators to feed at night.
- Work group members added that it is important to discuss more long-term actions in addition to actions that are shovel-ready.

Confirm Next Steps, Upcoming Meeting Topics, and Summary

Amira reviewed the next steps for this work group based on the group's discussion and confirmed upcoming meeting topics.

For the next steps, Kearns & West will develop a draft spreadsheet that can serve as the basis for developing an inventory/database of existing predation management programs. This draft will be shared with the Predation Work Group for their review and to add information. The work group will also continue to refine their definition of success for predation management programs.

Upcoming meeting topics include identifying successful programs for each predator type, discussing challenges in funding, assessing new techniques in predation management, differentiating long-term solutions from "whack-a-mole" approaches to management, and planning for regional coordination of actions between agencies and entities.

Amira thanked everyone for participating and adjourned the meeting.