

## **SUMMARY MEETING REPORT**

### **MMPA Section §120(f) Pinniped-fishery Interaction Task Force Webinar – May 12-14, 2020**

#### **OVERVIEW**

On June 13, 2019, the Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, the Idaho Department of Fish and Game; the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes and Bands of the Yakama Nation; and the Willamette Committee<sup>1</sup> (hereafter called – “eligible entities”) submitted an application pursuant to section 120(f) of the Marine Mammal Protection Act (MMPA) to the National Marine Fisheries Service (NMFS) requesting authorization to intentionally take, by lethal methods, sea lions that are located in the main stem of the Columbia River between river mile 112 (I-205 Bridge) and river mile 292 (McNary Dam), or in any tributary to the Columbia River that includes spawning habitat of threatened or endangered salmon or steelhead.

As required by the MMPA §120(c)(1), NMFS has convened this Task Force to provide NMFS with a recommendation to either approve or deny the eligible entities June 13, 2019, application. The eligible entities’ application requests authorization for the intentional lethal taking of California sea lions (CSL) and Steller sea lions (SSL) that are having a significant negative impact on at-risk species listed as threatened or endangered under the Endangered Species Act (ESA) in the Columbia River basin. The majority of Task Force members present at the meeting (16 of 22) recommended approving the eligible entity’s application requesting authorization for lethal removal, two (2) Task Force members recommended denying the eligible entity’s application, one (1) Task Force member abstained, and three (3) Task Force members were intermittently absent and did not provide a recommendation.

The Task Force reviewed the application, the factors contained in section §120(d), and public comments and, as required by section §120, recommended to NMFS whether to approve or deny the application. Additionally, the Task Force submitted with its recommendation a description of the specific pinniped individual or individuals; the proposed location, time, and method of such taking; criteria for evaluating the success of the action; the duration of the intentional lethal taking authority; and a suggestion for non-lethal alternatives, including a recommended course of action.

The Pinniped-fishery Interaction Task Force (Task Force) met via webinar on May 12-14, 2020.

Attendance included 22 Task Force members (see *Appendix D* for list) representing subject matter experts, conservation organizations, fishing organizations, Indian Treaty Tribes, Indian Tribes, state agencies, and other stakeholders throughout the basin.

This report summarizes the major meeting discussions, proposed recommendations and actions, and next steps for the Pinniped-fishery Interaction Task Force.

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<sup>1</sup> MMPA section 120(f)(6)(D) Committee.

## DAY 1 – May 12, 2020

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

*Robert Anderson, National Marine Fisheries Service, and Debra Nudelman, Kearns & West*

Robert Anderson, National Marine Fisheries Service (NMFS), welcomed the group and thanked them for volunteering their time to help address this important and difficult conservation issue. He noted those that are on different time zones and thanked for their flexibility. He acknowledged the unique circumstances and inability to meet in person due to the COVID-19 pandemic and thanked the group for their flexibility and virtual attendance.

After Robert's opening remarks, Debra Nudelman, Kearns & West (KW), thanked participants for attending and lead the group through a round of introductions around the "virtual table". She noted the following absences:

- Olney (JP) Patt, Confederated Tribes of the Warm Springs Reservation

Debra reviewed the webinar instructions. She asked that Task Force members be patient with the technology over the next three days and expressed her hope is that people feel like they were in the room with each other.

Debra reviewed the proposed agenda, meeting materials, and ground rules and asked members if they had any clarifying questions. The agenda topics for Day 1 included a series of presentations by experts to inform discussions over the next few days. Day 2 and Day 3 agenda topics consisted of Task Force deliberations on the following questions, and the development of a set of recommendations and actions (including no action) to each question:

1. What, if any, non-lethal measures does the Task Force recommend in areas identified as Category 1<sup>2</sup> and Category 2<sup>2</sup> to displace and-or minimize sea lion predation in salmon/steelhead "hot spots?"
2. What, if any, non-lethal measures does the Task Force recommend in areas identified as Category 3<sup>2</sup> to preclude the establishment of sea lions?
3. What methods and operating procedures does the Task Force recommend regarding the capture, removal, etc., of sea lions in areas identified as Category 2 and Category 3?
4. What criteria does the Task Force recommend regarding the use of wildlife darting techniques, for in-water retrieval, capture and handling of sea lions?
5. What criteria and-or metrics does the Task Force recommend regarding the proposed locations, timing, numbers, limitations, methods, and duration of sea lion takings?

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<sup>2</sup> Category 1 includes areas that currently have high numbers of CSL and/or SSL (e.g., >20) that are often present for the majority of the year. This high occupancy constitutes an immediate and ongoing conservation risk for fish stocks. Category 2 includes areas that currently have low to moderate numbers of CSL and/or SSL (e.g., <10) that are present only periodically. This level of occupancy constitutes a conservation concern for fish stocks if left unmanaged. Category 3 includes areas where sea lions have not been officially documented but contain spawning habitat for salmon and steelhead, or have documented presence that managers are monitoring but do not deem a conservation risk at present.

6. What methods, criteria and-or metrics does the Task Force recommend for evaluating the expected benefits of the taking of sea lions on at-risk fish stocks?
7. What type of pinniped-predation data does the Task Force recommend be collected in areas identified as Category 1 to evaluate the problem interaction?
8. What type of pinniped-predation data does the Task Force recommend be collected in areas identified as Category 2 and Category 3 to evaluate the problem interaction?
9. What criteria and-or metrics does the Task Force recommend be used to assess the effectiveness of the removal program (post-implementation evaluation)?
10. What methods, criteria and-or metrics does the Task Force recommend regarding the development and implementation of a long-term management plan by the eligible entities to preclude naïve sea lions from becoming habituated predators in the 120(f) geographic area?
11. What actions does the Task Force recommend be implemented by the eligible entities to reduce the social transmission between habituated sea lions and naïve sea lions to minimize/eliminate future recruitment of naïve sea lions into the 120(f) geographic area?

Debra explained that Day 3 of the agenda included an opportunity for members of the public to identify information not covered on Day 1 or Day 2, regarding the problem interaction that may be of value to Task Force members.

## **2. MMPA §120 Overview and Context**

### ***Robert Anderson, NMFS***

Robert gave a presentation that provided an overview and context of the MMPA Section §120(f). Key topics of the presentation included:

- An overview of the pinniped removal authority under MMPA section §120 and §120(f), including key 2018 amendments aimed at improving the process and efficiencies of the program. This also included the development of a committee specific to the Willamette Basin which is comprised of the Confederated Tribes of the Grand Ronde Community, and the Confederated Tribes of the Siletz Indians of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation, and the Oregon Department of Fish and Wildlife (ODFW).
- The purpose of convening the Task Force which was to recommend to the Secretary (NMFS) whether to approve or deny the proposed intentional lethal taking of pinnipeds in the MMPA §120(f) geographic area.
- The Task Force's role also includes a description of the specific pinniped individual or individuals to be taken, the proposed location, time, and method of taking, criteria for evaluating the success of the action, the duration of the intentional lethal taking authority, and nonlethal alternatives, if any. In considering whether an application should be approved or denied, the Task Force was required to review and discuss the considerations included within MMPA §120(d).
- NMFS' expectations of the Task Force including development of recommendations that document points of consensus reached by the group, as well as alternate points of view. In

addition, NMFS requested that the Task Force deliberate the 11 questions when preparing its recommendations.

- The MMPA §120 decision-making process places a high value on consensus decisions on recommendations. If consensus could not be reached on an issue, the Task Force report would characterize and describe the various recommendations on the issue. After the Task Force meeting, the group will have 60 days to submit the recommendations to NMFS. Upon receipt of the recommendations, NMFS has 30 days to decide to either approve or deny the application. The ultimate decision to approve or deny the states' application and any terms of conditions applied to any approval, lie solely with NMFS.

Task Force members provided the following questions and comments:

- Joe Dupont: While consensus is the overall goal, how will NMFS decide to move forward if there is not consensus on a topic?
  - Robert Anderson: If there is not consensus, it will be noted who supports and does not support the proposed action or recommendation. When NMFS reviews the final report, they will review each recommendation, the level of support, and weight the merits. Robert noted that if there is a disagreement regarding a recommendation, it will be noted. The goal is not to resolve differences to reach consensus.

### **3. MMPA §120 Application**

#### ***Robert Anderson, NMFS***

Robert presented on the eligible entities' June 13, 2019 application requesting authorization for the intentional lethal taking of CSL and SSL that may be having a significant negative impact on at-risk species listed as threatened or endangered under the ESA in the Columbia River Basin. Key topics of his presentation included:

- The eligible entities requested approval for intentional lethal taking of CSL and SSL in the MMPA section §120 geographic area to: 1) reduce or eliminate sea lion predation on at-risk fish, 2) improve the efficiency of the currently authorized removal programs at Bonneville Dam and Willamette Falls (areas identified as Category 1), and 3) prevent naïve sea lions from becoming habituated predators in the 120(f) geographic area.
- The proposed action includes the following geographic areas:
  - Category 1 includes areas that currently have high numbers of CSL and/or SSL (e.g., >20) that are often present for the majority of the year. This high occupancy constitutes an immediate and ongoing conservation risk for fish stocks.
  - Category 2 includes areas that currently have low to moderate numbers of CSL and/or SSL (e.g., <10) that are present only periodically. This level of occupancy constitutes a conservation concern for fish stocks if left unmanaged.
  - Category 3 includes areas where sea lions have not been officially documented but contain spawning habitat for salmon and steelhead, or have documented presence that managers are monitoring but do not deem a conservation risk at present.
- The eligible entities estimate that there may be currently at least 144-286 CSL and 105-130 SSL within the geographic scope of the application. The proposed management scenario assumed that the program would annually remove 75% of the numbers of CSL, and 50% of the numbers of SSL over a period of five years.

- During the 60-day public comment period, NMFS received 22,225 public comments. This included 181 letters supporting the proposed action, 21,756 letters opposing the proposed action, and 288 that stated no clear preference.

Task Force members provided the following questions and comments:

- Tim Ragen: Predation is only one of the of the impacts to salmonid stock. Is the application expected to be renewed multiple times, or is there a goal it is working toward? I am curious as to how this discussion will fit into the larger discussion in the basin.
  - Robert Anderson: This Task Force is only addressing one source of mortality – predation. The intent of the amendments to section §120 was to provide greater flexibility to remove the animals from critical areas while achieving a management strategy that will allow sea lions to be in the river. The goal would be that the authorization would provide flexibility such that this program would evolve into an easier maintenance program to prevent animals from becoming habituated. He noted that other sources of mortality will be discussed in the presentations.
- Sharon Young: The map of the action areas includes three categories and the application includes language on shifting the management between the categories. Who will make the decision on where to target the activity?
  - Robert Anderson: According to the application, the greatest emphasis would be in Category 1 because it has the greatest predation problem. The Task Force deliberation questions are set up to help provide a framework for the program that the states and tribes would create.
- Sharon Young: The application states that 144-286 CSL are targeted during the five-year period. Is this the total number to be removed over five years, or taken in a single year?
  - Robert Anderson: It would be over a five-year period, not a per year basis.
- Sharon Young: How will a determination be made to shift efforts from one category to another?
  - Robert Anderson: This is a topic that will be addressed in one of the deliberation questions. He added that the only way the program will work as intended is to be able to address the problem in multiple areas. If it becomes a sequential process, it will lead to inefficiencies. Staff capabilities will need to be increased in order for this to happen.
  - Steve Jeffries: The idea is to concentrate efforts at the Category 1 sites. Once predation is reduced, efforts will shift to other areas where problems have been identified.
- Doug DeMaster: Is the 75% removal rate for CSL and 50% removal rate for SSL, practical for the states and tribes, or is that the required target for achieving a certain reduction?
  - Robert Anderson: It was a practical consideration. He explained the idea behind the removal rates is to identify how many animals are causing a problem, then determine what can be done given staff and equipment availability.
  - Shaun Clements: Removal rates were used in the bioenergetic modeling based on experiences with removing animals at Bonneville Dam and Willamette Falls.

#### **4. Review of the Pinniped Removal Authority under the MMPA**

##### ***Robert Anderson, NMFS***

Robert presented a review of the Pinniped Removal Authority under the MMPA, including a brief overview of past MMPA §120 case studies. Key topics of the presentation included:

- Ballard Locks, Seattle, Washington: Section §120 authorizations were granted in 1995, 1996, 1997, and 2001. Despite lethal removal authority, the Washington Department of Fish and Wildlife did not euthanize any CSL. The Lake Washington winter steelhead run is considered functionally extinct.
- Bonneville Dam, Columbia River, Washington, and Oregon: Section §120 authorizations were granted in 2008, 2011, 2012, and 2016. A total of 238 CSL were removed from 2008-2019.
- Willamette Falls, Oregon: A Section §120 authorization was granted in 2018 that resulted in 33 CSL removals between 2018-2019.

#### **5. Summary of Salmon and Steelhead Recovery Efforts in the Columbia River Basin**

##### ***Robert Anderson, NMFS***

Robert presented a summary of salmon and steelhead recovery efforts in the Columbia River Basin that have taken place over the past three decades. Robert explained that there has been an unprecedented effort by governments and stakeholders to protect and recover salmon and steelhead in the basin. ESA-guided recovery plans have been developed and implemented in every watershed and these efforts equate to hundreds of millions of dollars invested annually and billions over the past decades.

Task Force members provided the following questions and comments:

- Traci Belting: When you attribute increases in salmon and steelhead populations to lethal removal efforts, how do you attribute other environmental factors that may also lead to the population increases, such as restoration efforts?
  - Bryan Wright: Lethal removal of sea lions is not a 1:1 correlation to increase salmon and steelhead run, as there are many other factors that affect fish passage. The expected increases in salmon and steelhead populations are the number of fish that would have been consumed had the euthanized animals remained.
  - Shaun Clements: The increase in Willamette winter steelhead over the past couple of years can be attributed to removals with reasonable certainty. Removing the sea lions at the falls reduced predation from 20-25% to 7% last year, and close to 1% this year.
- Robert Kentta: It is important to note that sea lion predation also impacts other species such as sturgeon and lamprey.
- Sharon Young: There are many other variables involved in run size besides predation. Have those variables been accounted for in determining the impact of lethal removal?
  - Shaun Clements: While there are other factors in terms of impacts to fish stocks, it is straightforward because of the ability to document the number of fish at these locations and also know the history of predation rates. He noted that this will be further explained in the presentations later in the day.

- Liz Hamilton: Are there data on the consumption rates of other stocks?
  - Shaun Clements: There are rough estimates for sturgeon, and there is concern about displacement from spawning grounds at Bonneville (See Tidwell et al 2020)<sup>3</sup>.
  - Brian Fadely: There are lamprey estimates for the base of Willamette falls, but there are not statistical estimates.

## **6. California Sea Lion (CSL) Population Status, Life History, Ecology, Behavior, Distribution, Etc.,**

***Bob Delong, National Marine Mammal Laboratory (MML)***

Bob Delong presented on the status of CSL populations. Key topics of the presentation included:

- The distribution of CSL includes rookeries in Southern California that are home to females and pups. The males migrate north to Northern California, Oregon, Washington, British Columbia, and Alaska during the non-breeding season.
- The population has been within the range of Optimum Sustainable Population (OSP) since 1996, a population goal set within the MMPA. Around 258,000 individuals were estimated in 2014.
- A small proportion (1,000 – 4,000) of the estimated 67,000 total CSL males (four years and older) occur in the Columbia River outside of the breeding season.
- Potential Biological Removals (PBR) is defined in the MMPA as the maximum number of animals that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. In this model, the mortality is assumed to occur over all age and sex groups of the population. He believed the Task Force should consider a male only PBR for section §120 removals as all of the sea lions removed are males. The current PBR is 14,011 individuals and if there was a male only PBR (eight years and older) he believed it would be 1,647 individuals.
- There was a significant change in the age structure of CSL males in the Columbia River during the heat wave of 2013-2014, and it is predicted that climate change will cause further changes in the age structure of males.

Task Force members provided the following questions and comments:

- Joe Dupont: 1) Regarding the PBR based on males, it was stated that 1,647 males could be removed without affecting the status of the population, was the removal based on an annual basis? 2) How much does the carrying capacity of CSL depend on the Columbia River for food? 3) What is limiting the carrying capacity of CSL, food or breeding area?
  - Robert Anderson: Only a small percentage of animals migrate a significant distance up the Columbia River. Many are feeding on an array of fish in the estuary at the mouth of the Columbia River. If going up river was taken out the equation, it would have some impact on the species. Regarding carrying capacity, it is the number of animals the environment can support, and it is driven by environmental factors such as food resources and location of food.

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<sup>3</sup> Tidwell, K.S., D.A. McCanna, R.I. Cates, C.B. Ford and B.K. van der Leeuw. 2020. EVALUATION OF PINNIPED PREDATION ON ADULT SALMONIDS AND OTHER FISH IN THE BONNEVILLE DAM TAILRACE, 2019. U.S. Army Corps of Engineers, Portland District, Fisheries Field Unit. Cascade Locks, OR. 60 pp.

- Jeff Laake: Survival and recruitment are the main factors limiting carrying capacity. With warmer surface temperatures, survival has decreased substantially and there also have been decreases in recruitment.
- Tim Ragen: The PBR model was not developed for just males or females. While CSLs have a large population, it would be controversial to take up to 10% of the PBR. It is more of a humanitarian issue than a conservation issue, as there are more than enough animals for breeding.
  - Bob Delong: An amount equivalent to 10% of PBR of CSL has never been taken out of the population.
- Robert Kentta: How much competition is there for resources between SSL, CSL, and harbor seals?
  - Bob Delong: The feeding niches of the three species are quite different. There would be little overlap, so little competition.

## **7. Steller Sea Lion Population Status, Life History, Ecology, Behavior, Distribution, Etc.,**

***Tom Gelatt, MML, Brian Fadely, MML***

Tom Gelatt and Brian Fadely presented on SSL ecology and status. Key topics of the presentation included:

- Steller Sea Lions (SSL) are the largest of the eared seals, with males weighing up to 1,120 kilograms (kg).
- The rookery structure is similar to that of CSL, but SSL will leave the rookery much sooner than CSL, with females leaving rookeries with two-month-old pups and traveling as far as British Columbia.
- Around 165,000 SSL breed at 76 rookeries across the North Pacific Ocean rim. The western Distinct Population Segment (DPS) consists of 90,000 individuals and is listed as endangered under the ESA, whereas the eastern DPS consists of 75,000 individuals, is listed as recovered under the ESA, and the stock continues to increase.
- Male SSL will take advantage of seasonal, dense prey aggregations. Four males were tagged at Bonneville Dam, and the data showed the range of male SSL as they left and then returned for the seasonal resources near the dam.

Task Force members provided the following questions and comments:

- Bob Rees: Is the SSL presence in the Columbia River a relatively new phenomenon?
  - Steve Jeffries: There is little archaeological evidence of SSL in the Columbia upriver, but there are records in the lower estuary. Historically, there were 40 million salmon, so they did not have to swim upriver.
  - Sharon Young: The 2015 Deward E. Walker paper suggests there is other evidence for seals and sea lions as far upriver as Celilo Falls.
  - Steve Jeffries: Before 1995, CSL and SSL were rarely seen above Astoria.

## **8. Pinniped-Sea Lion-Salmonid Interactions at Bonneville Dam and Willamette Falls**

***Steve Jeffries, Washington Department of Fish and Wildlife (WDFW); Shea Steingass, Oregon Department of Fish and Wildlife (ODFW)***

Steve Jeffries, WDFW, presented on pinniped-sea lion-salmonid interactions at Bonneville Dam. Key topics of the presentation included:

- The Bonneville Dam was constructed in 1933 and went online in 1937.
- Letter of Authorization (LOA) for lethal removal of CSLs began in 2005 at Bonneville Dam, and was applied for the first time in 2007. CSLs are caught using 16-ft by 16-ft floating traps. Support is provided by the Corps to help move the traps with boats.
- CSLs have been located above Bonneville Dam and they get there by passing through the locks but have also been documented hitching a ride on barges.
- In 2019, the floating traps were set up in early March, but CSLs did not enter the traps until the third week in April.
- Stomach contents of the animals euthanized in this program included adult Chinook salmon.

Shea Steingass presented on pinniped-sea lion-salmonid interactions at Willamette Falls. Key topics of the presentation included:

- Willamette Falls is a natural waterfall and an important traditional fishing location.
- ODFW began a sea lion predation monitoring program in the 1990's due to an increased CSL presence at Willamette Falls. Active hazing was used from 2010 – 2013 with minimal effect and was concluded in 2013. Other nonlethal management efforts were implemented through 2017, but the population at Willamette Falls continued to grow annually.
- Ten CSL were relocated to Newport, Oregon in 2018 to determine if relocation could be used as management tool. All marked sea lions returned to Willamette Falls, some swimming more than 100 miles a day to return within three days.
- Section §120 management authority at Willamette Falls was granted in November 2018 and began in December 2018. Thirty-three animals were humanely euthanized through May 2019.
- Management protocols for trapping sea lions include individually identifying animals as being present in the trap, closing the trap door using a remote mechanism within line of sight, immediately lowering tarps on all sides of the trap to reduce stress, and confirming with NMFS the identity of animals authorized for lethal removal. After an animal is humanely euthanized, a full necropsy is conducted, and a report is written within 72 hours to submit to NMFS and the Task Force.

Task Force members provided the following questions and comments on the presentations:

- Tim Ragen: Are stomach contents collected during the necropsies?
  - Shea Steingass: The entire gastrointestinal (GI) tract is collected and analyzed.

## **9. MMPA §120(b)(2) Expected Benefits of Taking - Benefits Analysis**

### ***Bryan Wright, ODFW***

Bryan Wright, ODFW, presented on the expected benefits of the proposed taking, including an estimate of how many at-risk fish might be saved by removing sea lions from the lower Columbia River Basin. Key topics of the presentation included:

- Expected benefits are estimated by bioenergetic modeling of daily per capita prey/caloric requirements. This model is then scaled to the local population level using three management scenarios based on different removal rates and two sea lion population sizes. An important note is that these models estimate food requirements which are not proof of consumption.
- Models used for bioenergetic modeling are based on Winship et al. 2002 and Winship and Trites 2003, and almost all of the equations draw from probability distributions.
- For example, at Bonneville Dam, the projected savings under the proposed management plan is 35,613 fish, which is the difference between what is projected to be lost under the current management (61,426 fish) and what is projected to be lost under the proposed management (25,812).

Task Force members provided the following questions and comments:

- Tim Ragen: Are there other methods of estimating the overall effect of predation?
  - Bryan Wright: Comparisons have been done with formal, probability-based sampling work at Willamette Falls. Estimates at the falls are for six hectares below the falls, even though it is known that predation also occurs down the river.
- Tim Ragen: Would it be possible to take this model further and look at the total impact on a specific run, rather than just having a general number of fish saved?
  - Bryan Wright: At Willamette Falls, there are specific runs where it is possible to partition predation. This could be done at Bonneville Dam for spring/summer Chinook salmon.
- Bob Delong: Do these models account for the excessive weight gain of the animals that leave the Columbia River?
  - Bryan Wright: They do not account for weight gain. Once the calculations are broken down to a daily basis, the papers suggest that it is not that significant. The estimates are treated as conservative.

## **10. Changes in Adult Chinook Salmon Survival Within the Lower Columbia River Amid Increasing Pinniped Abundance**

### ***Michelle Rub, Northwest Fisheries Science Center (NWFSC)***

Michelle Rub presented on a study of the survival of adult spring/summer Chinook salmon through the estuary and lower Columbia River amid a rapidly changing predator population. Key topics of the presentation included:

- The study was motivated by concern that pinniped predation within the lower Columbia River and estuary may be significant for salmon returning in the spring. The primary goal was to provide estimates of survival and run timing through the estuary and lower Columbia

River for spring/summer Chinook salmon returning to the Snake, Middle, and Upper Columbia Rivers.

- When the study began in 2010, the haul out counts of CSL, in Astoria in the East Mooring basin, had been steady and similar to the decade prior. In 2013, the number increased and continued to increase, peaking in 2016. This was due to the changing forage conditions in the ocean and robust eulachon smelt runs. The dataset was discontinued in 2018.
- Over 3,200 adult salmon have been Passive Integrated Transponder (PIT)-tagged for this study since 2010. Commercial fishermen on the Columbia River helped to capture fish to be tagged. NOAA Fisheries research biologists then tagged, took a fin clip to assess the population, and released the fish.
- One of the first trends observed was that when fish are tagged earlier, they consistently have lower survival. This indicates that some populations are more at risk through their behavior than others. Sea lion abundance tends to be higher earlier because Chinook runs, and harvest levels tend to peak earlier as well.
- Findings from the linear effects model include:
  - CSL abundance is negatively correlated with salmon survival.
  - Eulachon smelt abundance is negatively correlated with salmon survival, but this is likely through the indirect effect of their attracting sea lions into the river.
  - Annual eulachon abundance is highly correlated with annual CSL abundance within the Columbia River.
- Overall, the study has identified significant mortality that is unexplained by harvest and handling for upriver spring/summer Chinook salmon. This mortality appeared to peak during 2015 at approximately 200,000 fish. Pinniped predation is likely the primary source of mortality but not all animals are equal with respect to the impact they are having on returning fish.

Task Force members provided the following questions and comments:

- Jeff Laake: How was the 100% detection probability assumption tested?
  - Michelle Rub: It is not assumed to be 100% every year, and a detection location above Bonneville Dam is used as well. The efficiency has not been below 98%, and the study is adding one to two fish per year that are missed at Bonneville but detected above. 100% is used because of the additional protections.
  - Jeff Laake: How many detection sites are there?
    - Michelle Rub: There are around four to six detection sites.
  - Jeff Laake: If the model is only using the number of fish that survived, and are seen past Bonneville Dam, then it is going to overestimate detection probability. Are the native fish that are not fin clipped still caught and handled?
    - Michelle Rub: Some of those native fish are caught and released, and some are caught and recorded. There is likely some delayed mortality due to handling, but not significant.
- Joe Dupont: How many pinnipeds were radio tagged in 2017, and how do those compare to counts at the dam?
  - Michelle Rub: Two animals were tagged in 2016, and one animal was tagged in 2017. Less than 10% of tagged individuals end up foraging at Bonneville.
  - Joe Dupont: Do you estimate a 10% catch mortality in your model?
    - Michelle Rub: The clip status was used as a surrogate for harvest. The goal is to obtain a ballpark figure to try and quantify.

- Sharon Young: It appears that the losses are greater in the lower estuary, but the management efforts are being targeted to the upper parts of the river.
  - Michelle Rub: Yes, predation is greater in the estuary as that is where 90% or more of the predators are located. 20-50% of predation occurs below Willamette Falls and at Bonneville Dam. Eliminating 10% of the predators in these areas can yield a potential benefit of 50% survival. There is a concentration of management efforts in those areas because so few animals are taking many fish.

## **11. Pinniped Predation in the Columbia River Estuary**

### ***Mark Sorel, Northwest Fisheries Science Center (NWFSC)***

Mark Sorel, NWFSC, presented on pinniped predation in the Columbia River Estuary. Key topics of the presentation included:

- There is up to 25% mortality for the earliest-migrating populations associated with 2013-2015 pinniped abundance increases.
- In simulations, sustained mortality of this magnitude has substantially reduced mean spawner abundance and increased the probability of quasi-extinction for at risk populations.
- Creative data analysis is valuable for estimating management-relevant quantities.
- Projections of future pinniped abundance are needed to predict future mortality and effects on salmon population viability. Simulations have shown that the assumed 2013-2015 average abundance of pinnipeds will continue.
- Future management applications will need to have a framework that explicitly grapples with competing objectives and accounts for uncertainty. This will require continued monitoring of the predator and prey populations (i.e., abundance, demographic rates, mortality, and species interactions).

Task Force members provided the following questions and comments:

- Sharon Young: Much of the data presented is from 2016. There has been variability within the last four years, so it might not accurately reflect the current situation.
- Shaun Clements: Regarding the quasi-extinction thresholds (QET) for Catherine Creek, it looked like (QET) went down relative to the baseline for predation. What was that predation scenario and why did it show a reduction in extinction under predation?
  - Mark Sorel: In the results, the abundance in in the first column went down and quasi-extinction went up. In this model, adding mortality decreases the number of spawners that return.
- Joe Dupont: Regarding the conclusion that 25% mortality is associated with 2013-2015 pinniped abundance increases, was there additional mortality compared to later fish runs?
  - Mark Sorel: There is additional mortality. If the survival rates at average conditions with pinniped abundance at 2010-2012 average levels, and compare it with 2013 levels, there is an additional mortality of 25% for the earliest migrating population.

## **12. MMPA §120(d) Considerations**

***Shea Steingass, ODFW; Kessina Lee, WDFW; Bryan Wright, Mike Brown, ODFW; Doug Hatch, Columbia River Inter-Tribal Fish Commission; Steve Jeffries, WDFW; Kyle Tidwell, U.S. Army Corps of Engineers; Shaun Clements, ODFW***

Kessina Lee, WDFW, presented a description of the problem interaction including population trends and feeding habits. Key topics of the presentation included:

- The abundance of CSL has increased since the 1990's, both in the Columbia River basin and at specific upriver locations where fish are vulnerable to predation. Recruitment at each location follows a similar pattern where a small number of animals habituate to a location and the recruitment of animals is initially low but then increases. Habituated animals generally arrive earlier and remain at sites longer and will return year after year.
- The abundance of SSL has increased at Bonneville Dam since 2010 and at Willamette Falls since 2017. The recruitment at each location has followed the same pattern as for CSL.
- The interaction between SSL and/or CSL and ESA-listed salmon and other at-risk species is currently occurring over an 11-month period.
- Minimum estimates of CSL abundance have ranged from 67-195 at Bonneville Dam and 27-41 at Willamette Falls during the past five years.
- Minimum estimates of SSL abundance have ranged from 54-69 at Bonneville Dam and 1-11 at Willamette Falls during the last five years.
- The minimum number of animals within the geographic scope of the application is estimated to be 144-286 CSL and 105-130 SSL.
- The data indicate that the majority of the diet of CSL and SSL consists of adult salmonids, lamprey, and/or white sturgeon. The proportion of each of these fish species in the diet varies depending on the location and sea lion species.

Steve Jeffries, Doug Hatch, Kyle Tidwell, and Kessina Lee, then presented on past efforts to non-lethally deter pinnipeds. Key topics of the presentation included:

- Non-lethal hazing has occurred at Bonneville Dam since 2005. The first six years involved implementation at maximum effort. SSL became habituated at Bonneville Dam during the period of intense hazing. Non-lethal tactics were then modified with the help of behavioral trainers in 2011.
- It has been found that hazing generally has an immediate effect of moving animals, but these animals move back to their pre-haze locations within hours of the action.
- The goal of doing removals quickly will lead to less recruitment and habituation, leading to fewer removals over time.

Lastly, Shaun Clements, ODFW, presented on whether or not CSL and SSL are causing undue injury to fish stocks. Key topics of the presentation included:

- Section §120(f)'s most significant change included the criteria that "any sea lion located in the mainstem of the Columbia River upstream of river mile 112 and downstream of McNary Dam, or in any tributary to the Columbia River that includes spawning habitat of threatened or endangered salmon or steelhead is deemed to be having a significant negative impact".
- At Bonneville Dam, the estimated percentage of adult salmon and steelhead consumed by CSL has ranged from a low of 0.4% in 2002 to a high of 4.7% in 2007. The estimated

percentage of adult salmon and steelhead consumed by both CSL and SSL has ranged from a low of 0.4% in 2002 to a high of 5.8% in 2016.

- At Willamette Falls, the estimated percentage of ESA-listed salmon and steelhead predation by CSL (2014-2019) has ranged from a low of 5% in 2019 to a high of 25% in 2017.
- The overall impact of CSL and SSL extends beyond Bonneville Dam and Willamette Falls. The impact basin-wide has been grossly underestimated because the counting is occurring at limited locations and only during daylight hours.

Task Force members had the following questions and comments:

- Kelly Dirksen: Do the hazing methods have any effect on fish?
  - Doug Hatch: When implementing boat-based hazing at Bonneville Dam, the staff is always watching for issues with the fish and no negative effects have been observed in the past 15 years. In other areas, such as in shallower streams, it is important to be cautious with seal-bombs.
- Robert Kentta: How effective is the monitoring for fish kill? Is there a difference between smolts, salmonids, lamprey, and sturgeon?
  - Kyle Tidwell: All of the hazing has been conducted at Bonneville Dam and the methods had to be vetted through interagency and constituent processes to assess negative interactions on salmonids. It is also important to evaluate the benefits verses the cost. In this scenario, the benefits of ensuring some salmonid passage outweigh the costs.

### **13. Reflection, Wrap up, and Preparation for Day 2**

Debra thanked the presenters for their work and detailed presentations. She thanked the Task Force members for their participation and engagement during the presentations. She reminded the group that Day 2 of the meeting begins at 8:30 am and confirmed the meeting topics and schedule. She explained that Day 2 will focus on discussing the 11 questions for Task Force consideration.

The meeting was adjourned at approximately 4:15 pm.

## DAY 2 – May 13, 2020

### **1. Welcome, Opening Remarks, Review Agenda, Task Force Business**

*Debra Nudelman, KW*

Robert welcomed the group and thanked them for participating in the meeting.

Debra thanked everyone for their hard work and efforts on Day 1. She reviewed the agenda, which included Task Force discussions on the 11 questions for Task Force consideration.

### **2. Task Force Business**

*Debra Nudelman, KW, and Task Force Members*

Debra introduced the approach for Task Force consideration of the key questions. The questions are a way for the Task Force to provide feedback to NMFS regarding the specifics of their recommendation. She explained that in order to get through all of the questions and develop recommended actions, Task Force discussions will be limited to no more than one hour for each question.

She noted that KW will capture high-level notes on ideas, recommendations, decision-points, outcomes, and action items on a document and share it on the webinar to confirm its accuracy and completeness with Task Force members. The intent of the discussion is to capture and discuss the substance of a question, rather than wordsmith.

Before the deliberations began, Task Force members provided the following questions and comments:

- Amy Cutting: Most of the discussion on Day 1 was focused on salmon and sturgeon, are there any data on the impacts to lamprey? There is a lot of cultural importance.
  - Shaun Clements responded that at Willamette Falls, 85% of the CSL diet is comprised of salmon, and 12% is lamprey. Those data have not been expanded to look at the total predation rate.
  - Kyle Tidwell, Corps: Lamprey are most active during the night when it is hard to observe. Subsurface predation likely occurs but cannot be monitored.
  - Carl Sheeler noted that lamprey are an important secondary prey base for other species. In the absence of lamprey, there will be an increase in predation on salmonids.

Task Force members discussed the eleven questions. Key discussion points, recommendations, and proposed actions are summarized below.

**Question 1: What, if any, non-lethal measures does the Task Force recommend in areas identified as Category 1 and Category 2 to displace and-or minimize sea lion predation in salmon/steelhead “hot spots?”**

Task Force members discussed Question 1 and provided the following comments and suggestions:

- A majority of Task Force members generally agreed to a direct approach of the immediate removal of animals, initially focusing on hot spot areas without non-lethal requirements. They explained that lethal take seems to be the only solution for highly habituated animals having taken all reasonable steps and trying non-lethal measures without success. It is important that the eligible entities have non-lethal tools at their disposal as it allows them to be proactive and efficient as possible with the goal of reducing predation so fewer animals need to be removed over time.
- Task Force members discussed the effectiveness of nonlethal hazing efforts. A few members noted that it is difficult to effectively haze sea lions in the spillways due to the high flow of water near the dam and number of individuals. They also noted that it would be difficult to haze in the lower river as it is a large area to monitor for individual pinnipeds swimming upriver.
  - Sean Tackley: While this recommendation pertains to the applicants, the Army Corps of Engineers (Corps) will be doing parallel hazing at Bonneville Dam and it is important that there is close coordination. It will be important to discuss how that hazing can support whatever action is recommended.
  - Steve Jeffries: Regarding expanding refugia, it is important to note the physical nature of Bonneville Dam and the high flow of water. Securing physical devices in those areas is challenging and can be dangerous.
  - Traci Belting: A recommendation could be a two-pronged approach: 1) lethal removal of the sea lions to recover fish stocks, and 2) a more organized approach to the application of hazing techniques to try and minimize new recruitment.
- The Task Force considered whether to recommend a stepwise, time-sensitive approach, recognizing there are short-term issues that would need to be addressed.
  - Shaun Clements: A stepwise approach seems to imply there will be a requirement to try nonlethal methods before removal. It would be more efficient to look at options as they become available.
- A few Task Force members suggested that NOAA Fisheries convene a geographically specific workshop to discuss future nonlethal behavioral applications. Task Force members recognized this would not be the applicant’s responsibility, but it is an important action to consider.
  - Sharon Young: NMFS held a marine mammal deterrent workshop where it reviewed all available methods and the workshop report was recently released to the public. Another workshop may not be beneficial and instead would reinvent the wheel.
- Task Force members discussed the elimination of high-density haul-out sites within the geographic scope of section §120(f).
  - Kessina Lee: It is important to note that man-made haul-out sites are vital to public access and there is a variety of ownership and jurisdictional challenges such as state, local, public utilities, etc.

- Tim Ragen: The removal of haul-outs can be viewed as contributing to a longer-term solution.
- Task Force members discussed approaches for dealing with naïve animals. A few members noted that, once these animals are detected, they have already become somewhat habituated and are aware of the food source. It is a large area, so it is difficult to detect animals before they become habituated

**Question 2: What, if any, non-lethal measures does the Task Force recommend in areas identified as Category 3 to preclude the establishment of sea lions?**

Task Force members discussed Question 2 and provided the following comments and suggestions:

- Task Force members discussed the definition of a Category 3 site and the pinniped interactions among the three categories' sites. Category 3 sites are areas where CSL and SSL have not been officially documented or are not deemed a current conservation risk. These areas contain spawning habitat for ESA listed salmonids, so if movements of CSL or SSL that enter these areas are not managed, there could be predation issues in the future. Pinniped populations in Category 2 areas tend to be fed by pinnipeds in Category 1 areas, so it was noted that initial resources would be focused on removals at Category 1 sites.
- Robert Anderson clarified that the goal of this question is to determine if there are any recommendations for non-lethal hazing methods that would preclude the establishment or habituation of sea lions in Category 3 areas. He noted that any recommended actions would need to fit within the jurisdiction and capabilities of the eligible entities.
- Some Task Force members noted that non-lethal methods can be an inefficient use of resources in Category 3 areas.
  - Traci Belting: All non-lethal methods require human activation, and this is a large geographic area. These adult male sea lions know how to hunt salmon and where to find them, the only non-lethal way to stop them is to trap and remove them. Potential hazing techniques seem unrealistic given the resources available.
  - Doug Hatch: A part of the impracticality is the impacts to the fish when you use hazing techniques in small streams.
- Task Force members generally agreed to seek to reduce man-made haul outs in Category 3 areas when practical.
  - Kessina Lee: It is important that lethal removals not be contingent upon removing man-made haul outs. There are a variety of public and private land owners, and access to waters for boating and fishing is of high social value in the region. Reducing boat ramps is not practical.
  - Robert Anderson noted that any recommendations will need to take into account the geographic area of the authorization.

**Question Three: What methods and operating procedures does the Task Force recommend regarding the capture, removal, etc., of sea lions in areas identified as Category 2 and Category 3?**

Task Force members discussed Question 3 and provided the following comments and suggestions:

- Task Force members discussed techniques for capturing animals including trapping, darting, and shooting by marksmen. It was noted that the states have used darting techniques in the past with a variety of outcomes. The application states that if trapping is not feasible, then darting may be used. It is important to note that the recommendation is not intended to limit options to one or the other but instead determine if there are other alternatives. Task Force members generally agreed that it is important to have different capture techniques available as situations differ from tributary to tributary. This will allow the eligible entities to utilize the tools that are most efficient while acting in a humane and safe manner.
  - Doug Hatch: There are Category 2 areas above Bonneville Dam and there has been a lot of effort spent putting traps in those areas. They do not work so it would be helpful to have additional techniques in the authorization besides traps.
  - Shaun Clements: Shooting by marksmen is prohibited under section §120(f).
- Task Force members reviewed current methods for capturing and handling sea lions. They discussed a recommendation to consider and explore other methods besides trapping and darting as those options are not always feasible. Many Task Force members also expressed concern regarding the risk of the animal escaping and swimming off sedated before it dies or is euthanized.
- Task Force members discussed the risks and limitations to the darting method. A few Task Force members suggested that darting methods should be further developed to reduce the time spent waiting for an animal to go into a trap. They noted that it is important to control the animal before it is darted to avoid risk of escape.
  - Sharon Young: Would the darting technique overdose the animal with anesthetic until they died, or would it provide a sedative that would then require capture?
    - Steve Jeffries: We dart the animals to immobilize them, then capture and lethally inject.
  - Sharon Young: If an animal is darted in a tributary, how will it be done so that the animal does not escape and drown?
    - Steve Jeffries: In the smaller tributaries, jet boats will be utilized. The animal would be darted, and controlled, and brought to the edge of the beach, then euthanized. It is a very complicated process that is controlled by using a trap. There is some associated risk that the animal may escape. If the situation becomes too dangerous, this technique will be stopped.
  - Shea Steingass: Some agency staff have taken training on immobilization procedures; however, it has never been successfully used in a controlled setting.
  - Doug DeMaster: It would be worth the effort to develop or expand darting techniques to be able to better control the animal so it cannot swim away.
- Task Force members discussed the risks and limitations to trapping methods.
  - Tim Ragen: Since darting has not been successfully implemented, it seems that the only method available is trapping. Are traps sufficiently reliable or is another approach needed?

- Shaun Clements: Category 2 and 3 areas are not uniform, so trapping is a challenge. It is important to have other methods available for when traps are not practical.
- Doug Hatch: Traps work well in Category 1 areas, however, in Category 2 and 3 areas, such as the area above Bonneville Dam, traps do not work, and the animals tend to haul out on marine docks. There needs to be another technique besides trapping.
- Task Force applicants expressed the need to have a process that allows for flexibility and a variety of tools in the toolkit to provide options to ensure methods are humane, efficient, and safe for staff implementation.
  - Kessina Lee: It is important that the applicants have tools in the tool kit and be able to select the tool that is appropriate for the specific situation and location, as each tributary is different. This will allow them to utilize the tool(s) that are the most efficient while being humane and safe for staff.
- A few members noted the importance of the review of any trapping and darting techniques by an Institutional Animal Care and Use Committee (IACUC).

**Question Four: What criteria does the Task Force recommend regarding the use of wildlife darting techniques, for in-water retrieval, capture and handling of sea lions?**

Task Force members discussed Question 4 and provided the following comments and suggestions:

- Task Force members discussed the specifics of darting techniques and the use of tracking devices associated with the darting.
  - Bob DeLong: Mexico utilizes a darting technique that includes transmitters in the darts to allow tracking of the animal in case it escapes. This is something the Task Force could consider.
  - Sharon Young: The application mentions gaffing animals. What type of gaff will be used and under what circumstances? If the animal is alive it is not humane to use a sharp hooked gaff.
    - Steve Jeffries: IACUC determines if gaffing techniques are humane.
    - Bob DeLong: Animals can feel pain during sedation, so it is important that some level of chemical anesthesia is used. A sedative would need to be followed by an injectable anesthetic before a gaff can be used.
- Task Force members discussed the importance of whoever is implementing the capture and handling techniques to have proper training and qualifications to avoid unintended consequences.
  - Tim Ragen: There seem to be many complications and risks associated with darting. Because of this, it is important that whoever is doing it have adequate training to avoid unintended consequences if it goes wrong.
- Task Force members discussed geographic limitations to darting.
  - Sean Tackley: Is darting only proposed for Category 2 and 3 locations?
    - Robert Anderson: Yes, darting would be dangerous to administer in Category 1 locations.

- Task Force members discussed how NMFS and the applicants should message and frame the lethal techniques and methods. It is important for them to communicate the larger issue to the public, the complexity of the management situation, and the challenges in relation to fish runs and limiting predation.

**Question Five: What criteria and-or metrics does the Task Force recommend regarding the proposed locations, timing, numbers, limitations, methods, and duration of sea lion takings?**

Task Force members discussed Question 5 and provided the following comments and suggestions:

- Some Task Force members thought it was important to monitor population size and reproduction rates to evaluate the impact of removals of SSL. It was recommended that there should be a commitment to the monitoring of SSL pup production, the number of breeding males, the size of the males, and the pup to non-pup ratio in Oregon and Washington while the removal is ongoing.
  - Doug DeMaster: Because the applicants are only considering the removal of adult males, it is important to monitor any limits to breeding success. For example, monitoring for trends in population size and reproductive rates is needed. The PBR management regime is based on managing removals of animals from all of the rookeries that constitute a stock. However, in this situation, removals do not occur evenly across all rookeries. Therefore, there is a potential to adversely impact a rookery or subpopulation without proper monitoring.
    - Jeff Laake: PBR was designed for incidental take, not directed take that is proposed in the application.
    - Bob DeLong: The effects of lethal removal on CSL populations is not as concerning because there is a very high number of adult males in the population. Regarding SSL, most of the individuals in the Columbia River are from the Oregon and northern California populations, which consists of about 10,000 adults total. There is concern that taking out a large number of adult males from the California or Washington breeding groups could change the trajectory of the population and send it back into decline. If this species is relisted under the ESA, then the option for removal under section §120 would no longer be an option.
    - Bryan Wright: ODFW usually conducts annual coastal breeding surveys for SSL. The surveys show that there may be 100 large males in the Columbia River System, but there are five to ten times that many in the regional U.S. summer counts.
  - Jeff Laake: Would data be collected from the removed animals so there is an idea of what demographics are being removed from the population?
    - Steve Jeffries: Full necropsies are done on removed animals as part of the protocol which includes pulling teeth. Ages have not been reported yet.
- Task Force members discussed establishing a limit on the number of removals that is smaller than the limit in the application of 10% of PBR. This included considering a different limit for CSL and SSL populations, and having a strategy for limiting the number of take in a year and providing authorization over a longer period of time, such as five years.
  - Doug DeMaster: Would a limit of 300 SSL over a five-year period be adequate?
    - A majority of Task Force members agreed this was an adequate limit and decided against imposing a limit per year.

- A Task Force member suggested that an evaluation be done of the number of males in the California, Oregon, and Washington area to understand if 300 is reasonable limit.
- A few Task Force members expressed concern about putting a limit on lethal take.
- Task Force members discussed the timing of removals. Most members generally agreed that removals should not be limited by season, or time of year but geared toward pinniped presence.
  - Robert Kentta: The timing and duration of threatened or endangered runs is not predictable, so there is potential to “tie hands” and create challenges by establishing seasons for removal. The timing of take should be established around feeding activities or by the presence of pinnipeds rather than assumptions on when runs will occur.
  - Robert Anderson: The overlap of stocks with regard to timing is mixed. Being able to tease out when there are at-risk stocks in the system would be difficult as there are potentially always at-risk stocks running through the system.
  - Kyle Tidwell: A majority of the animals are present at the end of September and in the middle of May. Endangered stocks are moving through the system almost all year long.
  - Kessina Lee: Run timings will vary depending on many factors, such as ocean conditions and flow. If removals are constrained to certain months, it will not allow flexibility depending on when natural fluctuations might occur that affect run timing.
- A few Task Force members suggested that because there have not been SSL removals previously, the Task Force should consider using a shorter timeframe for the authorization of two or three years with a pause to assess impacts.
  - Robert Anderson: There will be a program evaluation at the three-year mark where the process will be analyzed. This will be an opportunity to adjust before reaching five years of implementation.

**Question Six: What methods, criteria and-or metrics does the Task Force recommend for evaluating the expected benefits of the taking of sea lions on at-risk fish stocks?**

Task Force members discussed Question 6 and provided the following comments and suggestions:

- Task Force members discussed how to coordinate ongoing monitoring efforts.
  - Sean Tackley: Task Force members should consider how to coordinate the Corps ongoing monitoring program and develop a clear understanding of roles and responsibilities.
  - Robert Anderson: Monitoring by the Corps at Bonneville is under a different authority; however, the data are useful for the section §120 program. For this specific question, it is important to identify other data sets to assess the benefits, in case that becomes unavailable.
  - Shaun Clements: There is a NOAA Fisheries procedures document that outlines monitoring requirements, and the applicants considered operating under that framework. Some elements of it are already being implemented and were included as conditions in the Willamette permit. It is a good framework for evaluating expected benefits.
  - Tim Ragen: Monitoring efforts are important in understanding how many individuals are in the system, how many are being removed, and how the monitoring is affecting

fish runs. It is important to look at the larger picture to understand if the results meet the anticipated outcomes.

- Joe Dupont: Much of the monitoring work is ongoing and should not be the responsibility of the applicants to conduct. A recommendation could be to encourage all agencies and groups that are currently conducting monitoring work to continue and potentially expand their efforts.
- Task Force members discussed longitudinal tracking of fish populations.
  - Sharon Young: It is important to conduct longitudinal tracking of salmon runs for two reasons: 1) to determine if removal is having a positive effect on run size, and 2) to track the replacement rate of sea lions to determine if new sea lions are simply replacing removed individuals such that salmonid recovery does not improve even with lethal removals.
  - Joe Dupont: Applicants should utilize Michelle Rub's work on capturing spring Chinook and evaluating survival, which has narrowed down mortality to two sources. That approach should be applied to steelhead populations. Additionally, there is radio tag data that provides insight to where fish are dying and what is causing it.
  - Doug DeMaster: It is difficult to tease out other environmental factors and other sources of mortality. Increased sampling, along with scenario testing or experimental design, could better determine the level of monitoring that is required to conclude the effects of removal.
  - Kelly Dirksen: The authorization should recognize that other factors that are impacting fish runs such as dams, hydropower systems, and chemical compounds that can impact smolt development need to be addressed.
  - Kyle Tidwell: It should be noted that there will be a detection efficiency issue when the number of animals is low. The current monitoring program at Bonneville Dam might become problematic once the goal is achieved of removing the animals. There will be a need to re-design for the data to effectively estimate how many fish are being consumed.
  - Amy Cutting: Would it be possible to use Mark Sorel's model to make predictions on the impacts of removing animals? Additionally, there is great work being done around the basin and the Task Force might recommend that the applicants to convene a workshop with those that are doing work in the region to share information with stakeholders. One option would be to compile of the available information into a report.
  - Tim Ragen: Regarding detection efficiency, would it be possible to go over existing data to see if there is a single variable that is a sufficient predictor of impact rather than looking at the number of fish that have been consumed every year?
    - Shaun Clements: The data collection outlined in NOAA Fisheries' document would allow us to populate some of those models.
    - Robert Anderson: The group could consider using seal days to supplement the data as well as do additional analysis to link fish run increases or decreases. This could potentially help with the detection deficiency issue.

## **Question Seven: What type of pinniped-predation data does the Task Force recommend be collected in areas identified as Category 1 to evaluate the problem interaction?**

Task Force members discussed Question 7 and provided the following comments and suggestions:

- A few Task Force members suggested continuing the current monitoring programs to make year-to-year comparisons more robust.
  - Bob DeLong: The current programs in place at Willamette Falls and Bonneville Dam have been used to evaluate the success of monitoring efforts to date and are a sufficient data set.
  - Liz Hamilton: This is one of the most studied extinction events on the planet, and there is so much data. We need to contemplate how COVID-19 will affect budgets and need to ensure the current monitoring efforts are continued.
  
- A few Task Force members discussed expanding current monitoring methods.
  - Sharon Young: If the season for lethal removal is going to expand, then there needs to be a temporal expansion of the monitoring effort. If taking will occur year-round, then monitoring needs to be year-round as well.
  
- Task Force members discussed modifying monitoring efforts based on what is being observed at the dam.
  - Shaun Clements: If the program becomes successful, then there will be fewer observations. The monitoring needs to be practical, reasonable, and an efficient use of resources. If there are no sea lions to be observed, monitoring might need to shift to another method such as sampling on a less frequent schedule, using sea lion days, or other approaches.
  - Sean Tackley: In the context of our current ESA consultation with NMFS, we have discussed the possibility of the Corps working with NMFS and others on the monitoring program every three years and right size-it based on what our staff is seeing at the dam. There are many costs associated with the operation and maintenance (O&M) of our fish passage facilities and the monitoring is costly. These funds could be used on other important O&M tasks. We will need to right size monitoring periodically.

### **3. Reflection, Wrap up, and Preparation for Day 3**

***Debra Nudelman, K&W; Robert Anderson, NMFS***

Debra thanked the group for their discussions and focus on Day 2. She reminded the group that Day 3 of the meeting begins at 8:30 am and confirmed the meeting topics and schedule. She explained that Day 3 will continue discussions on the 11 questions for Task Force consideration and will focus on developing recommendations for NMFS consideration.

Robert thanked Task Force members for their participation and effort. He reiterated how complex the issue is and expressed his appreciation for Task Force members' willingness to have challenging conversations.

The meeting was adjourned at approximately 4:45 pm.

## DAY 3 – May 14, 2020

### 1. Welcome, Opening Remarks, Review Agenda, Task Force Business

*Debra Nudelman, KW*

Robert welcomed the group and thanked them for participating in the meeting.

Debra thanked everyone for their hard work and efforts on Day 2. She reviewed the agenda, which included continuing Task Force discussions on the 11 questions for Task Force consideration, finalizing the discussions and actions to questions 1-11, and developing recommendations for NMFS consideration.

### 2. Public Input

Debra explained that public comment was solicited to identify information of potential relevance to the Task Force but not covered in Day 1 or Day 2. She noted that it is not a time for discussion with the Task Force. She explained that members of the public who wish to provide public input should do so by providing their name and organization in the chat box.

Three members of the public provided public input. Their input is summarized below:

- Colleen Weiler, Whale and Dolphin Conservation: Salmon are very important to orca recovery, especially in the Columbia River. However, killing pinnipeds is not the way to manage salmon. Scientific information shows it can further exacerbate ecosystem destruction. Pinnipeds are generalist species and consume many different species. The discussions on impacts of removal have been based on assumptions and unconfirmed data. The Task Force should clearly describe how the program will be measured to clearly identify, the benefits to salmon and the impact on pinnipeds. The Task Force should support monitoring efforts, incorporate nonlethal hazing and deterrent methods, remove haul out areas near hot spots, and limit lethal removal to areas with the highest lethal input. The process should move forward with transparency so the costs and benefits can be fully evaluated.
- Robin Brown, ODFW Retired Marine Mammal Program Leader: Following the discussions throughout the meeting and reviewing the application, the Task Force should consider the following comments and recommendations: 1) Focus efforts and funds to key areas that are problematic and provide the best return. Funding and staff time are limited and by focusing on those areas, efforts are likely to reduce the effects of predation. Any similar work done in other tributaries will require years of assessment of problems and careful determination of best approaches. 2) Trust the experienced and dedicated staff to work in a manner that is safe for humans and humane for the animals. It is important to note that no one asked for this job; the work is challenging and can be stressful. The staff has the best interest of the resources at heart and will do everything they can to implement safe and effective capture. 3) Implementing the program is going to take time, especially with SSL. They are larger, different animals. It is important to support staff safety. 4) The authorization should require as few specific conditions on the work as possible. Too many conditions will make the work

more difficult, dangerous, and more ineffective at achieving the goal of reducing predation. The applicants have decades of experience and will do a good job given the tools they need.

- John Marsh, Cowlitz Indian Tribe: The Cowlitz tribe is not an eligible entity under the law but is very interested in this program. There have been discussions with Robert Anderson and Kessina Lee regarding the tribe's involvement. It is important that when these programs go forward, there is some sort of notice and involvement of local governments, tribes, and sovereigns. The Task Force should put together a program that details a humane and effective way of controlling the problem at hand.

### **3. Task Force Business**

#### ***Debra Nudelman, KW, and Task Force Members***

Debra introduced the approach for Task Force consideration of the key questions. She thanked everyone for their focus and effort in the deliberations on Day 2. She noted that the group still needs to discuss questions eight through eleven, then they will need to finalize the proposed actions and recommendations for each question.

She explained that KW will capture high-level notes on ideas, recommendations, decision-points, outcomes, and action items in a document and share it with Task Force members to confirm its accuracy and completeness.. The intent of the discussion is to capture and discuss the substance of a question, rather than wordsmith.

Task Force member discussions, recommendations, and proposed actions are summarized below:

#### **Question Eight: What type of pinniped-predation data does the Task Force recommend be collected in areas identified as Category 2 and Category 3 to evaluate the problem interaction?**

Task Force members discussed Question 8 and provided the following comments and suggestions:

- Overall, Task Force members agreed that monitoring efforts should be consistent with NOAA Fisheries' procedures document.
- Task Force members discussed methods for obtaining public observation data.
  - Kessina Lee: WDFW utilizes an observation form to document pinniped observations and to collect information. It is important to note that the presence of an animal is an indicator of a problem interaction, and it needs to be addressed proactively.
  - Bob Delong: A centralized website could be used to solicit and record public input on problem interactions for Category 2 and 3 areas. If the agencies are required to survey those entire areas, they will be stretched thin. Utilizing the power of crowdsourcing could help focus the efforts of the agencies.
  - Tim Ragen: Requiring extensive data collection would reduce efficiencies of removing problem species and would allow for habituation.
  - Bob Rees: The Task Force could consider utilizing angler observation by integrating a reporting system into ODFW's electronic reporting program that is used for tagging fish.

- Shaun Clements: Bryan Wright has put together a web-based application for reporting observations and it could be rolled out to the public in the future. However, it is important to consider the quality of the information provided by the public, as it can be difficult to know the difference between CSL and SSL and whether there are repeat observations. It is important that the applicants are able to be proactive in removing problem individuals.

**Question Nine: What criteria and-or metrics does the Task Force recommend be used to assess the effectiveness of the removal program (post-implementation evaluation)?**

Task Force members discussed Question 9 and provided the following comments and suggestions:

- Task Force members noted that while the specific goal of this program is to reduce predation at the identified site, there is a broader goal of recovering salmonid stocks.
  - Tim Ragen: There are multiple levels to this issue that need to be addressed to determine if the program is working. The overall goal is to recover salmonid stocks, and the objective is to reduce predation at the identified sites. It will be important to look at the long-term trends to determine if progress is being made.
  - Sharon Young: It will be important to monitor how and when the replacement and the recruitment of new sea lions are occurring. Evaluating success is complicated because there are multiple variables affecting fish stocks. These include environmental variables, impacts on spawning habitat, impacts from other predators, and spawning site competitors.
  - Doug DeMaster: A management strategy evaluation protocol or a rigorous experimental design approach could be used to look at how well the monitoring program would be able to provide information needed to assess the performance of the fish stocks with and without the removal of pinnipeds. This could include scenario testing to address what level of uncertainty in key parameters is needed to provide for statistically significant results.
  - Carl Sheeler: It is important the recommendations do not create redundancy in monitoring efforts or try to use out-of-basin data to support activities within the basin.
  - Shaun Clements: The criteria and/or metrics will need to focus on what the applicants are responsible for which includes monitoring sea lions and the problematic interaction. If the number of animals at these sites have been reduced, then the program has been effective.
  - Sharon Young: While the goal of section §120 is to permit a program that allows states to reduce the number of pinnipeds at specific sites; success should be evaluated by two criteria: 1) reduction of actual pinniped predation, and 2) the increase in fish runs and spawning success. These are at least two different metrics that should be considered.
  - Tim Ragen: Being able to provide information to inform the higher-level discussion is useful, such as hatchery practices, habitat restoration, the impact of reducing predation, etc.
  - Doug DeMaster: It is important to know the number of pinnipeds that remain as well as how many are removed. A primary tool could be a mark-recapture effort for estimating animals that remain in the area of interest after each removal. The evaluation of program effectiveness would then be based on 1) how many pinnipeds were removed, 2) how many remain in the area of interest, and 3) estimates of what would have occurred in terms of predation, if pinnipeds had not been removed.

- Task Force members also discussed the information that has led to the current management decisions and some suggested continuing the current approach to monitor predation, including approaches described in the NOAA procedures document.

**Question Ten: What methods, criteria and-or metrics does the Task Force recommend regarding the development and implementation of a long-term management plan by the eligible entities to preclude naïve sea lions from becoming habituated predators in the 120(f) geographic area?**

Task Force members discussed Question 10 and provided the following comments and suggestions:

- Task Force members discussed methods of precluding habituation.
  - Bob Delong: The only way to affect the behavior that leads to habituation is to prevent the pinnipeds from hauling out. Pinnipeds will establish territories close to each other and haul out for social interaction. This leads to foraging in the area, which is the concerning behavior.
  - Tim Ragen: Regarding recruitment, it seems difficult to manage the recruitment and socialization process. The key will be to compare the number of current recruits to how many recruits there are after removals. This could also include studying how many animals are seen foraging and reviewing gut contents to provide an approximation or reasonable index of what is being taken.
  - Jeff Laake: How are new recruits versus returning animals identified?
    - Kyle Tidwell: There is a running index of known SSL that contains unique markers like scars or deformations that allows observers to identify individuals.
- Task Force members discussed methods and criteria for monitoring the success of the program.
  - Tim Ragen: The data showing how many salmon were saved due to the removal of pinnipeds is an acceptable measure of success.
  - Shaun Clements: The Bioenergetics model contains published data and is an approach that is consistent across all of the threat categories. Metrics should be consistent and remain at a higher level of detail.
- Along with methods and criteria, a few Task Force members suggested that an approach to public messaging should be included in any long-term management plan. The public messaging should explain the complexity of the issue and the various challenges, as well as communicate the work that is being done to tackle this issue.
  - Amy Cutting: It is important to understand the optics of any long-term management plan as members of the public may not understand the complexity and the history of this issue. This could include convening a specific group consisting of NOAA Fisheries, state agencies, and behavioral scientist looking at the Columbia River Basin. It will help demonstrate the multiple methods being used to control the problem interactions as well as encourage collaboration and new ideas.
  - Sharon Young: If there is going to be a workshop, it should be several years down the road so that the participants can review evaluation data and discuss the effectiveness of the program. Additionally, the workshop should use the expertise of outside experts that could provide fresh eyes on the situation.

- Tim Ragen: This information could be fed into the larger decision-making framework for managing the Columbia River Basin.
- Task Force members discussed the funding aspects of a long-term program.
  - Doug DeMaster: Monitoring is critical for evaluating the effectiveness of a program. Federal budgets may decrease over the next five years, so the applicants should consider setting up a program or another vehicle that would support/help secure the funds needed for monitoring to evaluate the success of the program.
  - CT Harry: Applicants could consider utilizing industry relationships with the hydropower system to fund and support the future program.
    - Robert Anderson: Public utilities have expressed concerns regarding impacts of predation. There is interest in the topic and a potential opportunity for additional funding.

**Question Eleven: What actions does the Task Force recommend be implemented by the eligible entities to reduce the social transmission between habituated sea lions and naïve sea lions to minimize/eliminate future recruitment of naïve sea lions into the 120(f) geographic area?**

Task Force members discussed Question 11 and provided the following comments and suggestions:

- Some Task Force members generally agreed that the most effective method is being proactive with lethal removal to disrupt recruitment and habituation.
- Some Task Force members discussed the use of branding to study methods of reducing social transmission between habituated and naïve sea lions and to reduce recruitment.
  - Doug DeMaster: Pup branding of SSL should be increased as it would provide an opportunity to better understand socialization. If there is not a significant branded population, monitoring efforts will be unable to identify individuals to determine turnover or social exchange.
    - Bryan Wright: ODFW has branded close to 1,600 pups from 2001-2015. Around half of the individuals were males, and a third would have reached adulthood. Only five have been documented at Bonneville.
  - Doug DeMaster: Suggestion to brand some animals that have been captured at Willamette Falls or Bonneville Dam and follow these animals over time to understand socialization. There may be benefits to maintaining a branded population.
- It was clarified that observations show if one animal gets upriver, it increases the probability of additional animals moving upriver.
  - Traci Belting: Regarding adult, male pinnipeds that have been hunting salmon their whole life, is it really social interaction that is leading them to the hot spots, or are they are individually learning by following fish up the river?
  - Shea Steingass: From observations at Willamette Falls, they are social animals. Once individuals are observed repeatedly at a site, there is an increasing number of animals joining them. If one animal makes it up the river, it increases the probability of other animals heading up the river. Reducing the number of animals at a site does reduce residency and predation.

- Task Force members considered preventing haul out sites from being used as this is where most of the socialization occurs. The challenges associated with reducing haul out sites was noted by many Task Force members, and many suggested that haul out sites be addressed as much as possible, especially sites that are near hot spots.
  - Bryan Wright: This is a challenge because there are hundreds of docks, and there are several sites that cannot be accessed or are not practical (boat ramps, private docks, etc.)
  - Kessina Lee: This should be included as a tool in the toolbox, but not a requirement.
  - Shea Steingass: It is important to note that as a state agency, ODFW does not have the jurisdiction or responsibility for dealing with private property destruction due to pinniped presence. If reducing man-made haul outs is included as a recommendation, then there is concern that the public will think the agency is responsible for dealing with this issue on private property.
    - Robert Anderson: A private citizen does have the right to protect their property/infrastructure if a pinniped is causing damage under section 109(h). However, this does not include lethal removal.
  
- Sean Tackley: Under the proposed plan, dam-based hazing would be continued by the Corps.

#### **4. Recommendations**

##### ***Debra Nudelman, KW, Task Force Members***

Task Force members revisited the 11 questions and deliberations and worked to develop recommendations for NMFS consideration. Task Force members reviewed the key points of discussion, the suggestions, and proposed actions for the various considerations, collaboratively discussed the suggested recommendations, and developed and refined the language of the recommendations.

For each recommendation, the Task Force was asked to provide their level of support for each of the proposed recommendations. This process was used to gauge the Task Force's level of alignment for the various recommendations and allow NMFS to understand where there was greater buy-in or support for a recommendation. Additionally, the voting process allowed Task Force members to see other members' comfort level with the recommendations and provided an opportunity for additional collaboration and joint development of the recommendations to allow for greater Task Force alignment.

The Task Force arrived at the following recommendations for each consideration. The recommendations and voting results indicating the Task Force's level of alignment are indicated below.

**Recommendations for Question 1:** What, if any, non-lethal measures does the Task Force recommend in areas identified as Category 1 and Category 2 to displace and-or minimize sea lion predation in salmon/steelhead "hot spots?"

- 1a. Allow the authorized lethal removal of CSL and SSL without requiring non-lethal measures in Category 1 and 2 areas.
  - Level of support: 16 yes, 2 no, 1 abstain.

1b. Encourage staff to consider using non-lethal measures that may be appropriate for application at these sites.

- Level of support: 17 yes, 0 no, 2 abstain.

**Recommendations on Question 2:** What, if any, non-lethal measures does the Task Force recommend in areas identified as Category 3<sup>4</sup> to preclude the establishment of sea lions?

2a. Maintain the flexibility of the applicants to consider the use of non-lethal methods including reducing the use of man-made haul outs in Category 3 where practical.

- Level of support: 18 yes, 1 no, 0 abstain.

2b. Allow authorized lethal removal of CSL and SSL without non-lethal requirements in Category 3 areas.

- Level of support: 17 yes, 2 no, 0 abstain.

**Recommendations on Question 3:** What methods and operating procedures does the Task Force recommend regarding the capture, removal, etc., of sea lions in areas identified as Category 2 and Category 3?

3a. Support current or proposed methods and criteria in the application for capture and removal of sea lions

- Level of support: 17 yes, 2 no, 0 abstain.

3b. Consider maintaining flexibility for applicants to apply other methods for capture and removal that have been approved by IACUC and NMFS

- Level of support: 17 yes, 2 no, 0 abstain.

**Recommendations on Question 4:** What criteria does the Task Force recommend regarding the use of wildlife darting techniques, for in-water retrieval, capture and handling of sea lions?

4a. Applicants to consider improving proposed methods in the application regarding the use of wildlife darting techniques and methods for in water retrieval, capture, and handling of sea lions in consideration of the Task Force discussion below.

- Level of support: 17 yes, 2 no, 0 abstain.

**Recommendations on Question 5:** What criteria and-or metrics does the Task Force recommend regarding the proposed locations, timing, numbers, limitations, methods, and duration of sea lion takings?

5a. Limit the number of SSL removal to 300 over a five-year period.

- Level of support: 17 yes, 2 no, 0 abstain.

5b. Limit the number of CSL removal to 540 over a five-year period.

- Level of support: 16 yes, 3 no, 0 abstain.

5c. No restriction on the timing of take.

- Level of support: 17 yes, 2 no, 0 abstain.

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<sup>4</sup> Category 3 includes areas where sea lions have not been officially documented but contain spawning habitat for salmon and steelhead, or have documented presence that managers are monitoring but do not deem a conservation risk at present.

**Recommendations on Question 6:** What methods, criteria and-or metrics does the Task Force recommend for evaluating the expected benefits of the taking of sea lions on at-risk fish stocks?

- 6a. The monitoring requirements in the NOAA Fisheries procedures document, including, in addition to any recommendations from the Task Force that are adopted, an eligible entity that is authorized to remove sea lions under section 120(f) shall develop and implement a monitoring plan to evaluate: (1) the impacts of sea lion predation on at-risk fish stocks, and (2) the effectiveness of permanent removal of predatory sea lions as a method to reduce mortality on at-risk fish stocks. Furthermore, an eligible entity shall: a) monitor and report on the number of sea lions observed in the action area; b) report the number of sea lions removed in the action area; c) monitor and report on the number of prey observed (see footnote<sup>5</sup>) to have been taken by sea lions in the action area; d) monitor and report on key population parameters for at-risk fish stocks so that the effectiveness of permanent removal of predatory sea lions as a method to reduce or eliminate mortality on at-risk fish stocks can be evaluated as required in section 120(c)(5).
- Level of support: 19 yes, 0 no, 0 abstain.
- 6b. In addition, necropsies should be included as they are not incorporated in the document but are standard operating procedures to collect biological data.
- Level of support: 15 yes, 4 no, 0 abstain.
- 6c. In addition, applicants should consider maintaining a minimum population of temporarily marked animals to understand turn over, replacement, etc.
- Level of support: 3 yes, 16 no, 0 abstain.

**Recommendations on Question 7:** What type of pinniped-predation data does the Task Force recommend be collected in areas identified as Category 1 to evaluate the problem interaction?

- 7a. Support NMFS efforts to monitor California, Oregon, and Washington SSL population size and trends to evaluate whether male removals are impacting population status
- Level of support: 6 yes, 12 no, 1 abstain.
- 7b. The monitoring requirements in the NOAA Fisheries procedures document, including, in addition to any recommendations from the Task Force that are adopted, an eligible entity that is authorized to remove sea lions under section 120(f) shall develop and implement a monitoring plan to evaluate: (1) the impacts of sea lion predation on at-risk fish stocks, and (2) the effectiveness of permanent removal of predatory sea lions as a method to reduce mortality on at-risk fish stocks. Furthermore, an eligible entity shall: a) monitor and report on the number of sea lions observed in the action area; b) report the number of sea lions removed in the action area; c) monitor and report on the number of prey observed (see footnote<sup>4</sup>) to have been taken by sea lions in the action area; d) monitor and report on key population parameters for at-risk fish stocks so that the effectiveness of permanent removal of predatory sea lions as a method to reduce or eliminate mortality on at-risk fish stocks can be evaluated as required in section 120(c)(5).
- Level of support: 19 yes, 0 no, 0 abstain.

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<sup>5</sup> When predation impacts cannot be observed, an eligible entity shall use a bioenergetic model or equivalent method.

**Recommendations on Question 8:** What type of pinniped-predation data does the Task Force recommend be collected in areas identified as Category 2 and Category 3 to evaluate the problem interaction?

8a. The monitoring requirements in the NOAA Fisheries procedures document, including, in addition to any recommendations from the Task Force that are adopted, an eligible entity that is authorized to remove sea lions under section 120(f) shall develop and implement a monitoring plan to evaluate: (1) the impacts of sea lion predation on at-risk fish stocks, and (2) the effectiveness of permanent removal of predatory sea lions as a method to reduce mortality on at-risk fish stocks. Furthermore, an eligible entity shall: a) monitor and report on the number of sea lions observed in the action area; b) report the number of sea lions removed in the action area; c) monitor and report on the number of prey observed (see footnote<sup>4</sup>) to have been taken by sea lions in the action area; d) monitor and report on key population parameters for at-risk fish stocks so that the effectiveness of permanent removal of predatory sea lions as a method to reduce or eliminate mortality on at-risk fish stocks can be evaluated as required in section 120(c)(5).

- Level of support: 19 yes, 0 no, 0 abstain.

8b. Suggestion to create a platform or a way to collect public input and observations on the problem interactions in Categories 2 and 3.

- Level of support: 17 yes, 0 no, 2 abstain.

**Recommendations on Question 9:** What criteria and-or metrics does the Task Force recommend be used to assess the effectiveness of the removal program (post-implementation evaluation)?

9a. Conduct management strategy evaluation on performance of bioenergetic model.

- Level of support: 7 yes, 4 no, 8 abstain.

9b. Conduct annual reporting of the run sizes and predation to assess whether the program has resulted in improvements in extinction probability or run sizes.

- Level of support: 5 yes, 13 no, 1 abstain.

9c. The monitoring requirements in the NOAA Fisheries procedures document, including, in addition to any recommendations from the Task Force that are adopted, an eligible entity that is authorized to remove sea lions under section 120(f) shall develop and implement a monitoring plan to evaluate: (1) the impacts of sea lion predation on at-risk fish stocks, and (2) the effectiveness of permanent removal of predatory sea lions as a method to reduce mortality on at-risk fish stocks. Furthermore, an eligible entity shall: a) monitor and report on the number of sea lions observed in the action area; b) report the number of sea lions removed in the action area; c) monitor and report on the number of prey observed (see footnote<sup>4</sup>) to have been taken by sea lions in the action area; d) monitor and report on key population parameters for at-risk fish stocks so that the effectiveness of permanent removal of predatory sea lions as a method to reduce or eliminate mortality on at-risk fish stocks can be evaluated as required in section 120(c)(5). Level of support: 19 yes, 0 no, 0 abstain.

**Recommendations on Question 10:** What methods, criteria and-or metrics does the Task Force recommend regarding the development and implementation of a long-term management plan by the eligible entities to preclude naïve sea lions from becoming habituated predators in the 120(f) geographic area?

10a. Consider setting up a program or another vehicle in coordination with NMFS that would support/help secure the funds needed for monitoring to evaluate success of the program.

- Level of support: 9 yes, 5 no, 5 abstain.
- 10b. Recommend looking at how many recruits we have after habituated animals are removed to understand effectiveness.
  - Level of support: 6 yes, 10 no, 3 abstain.
- 10c. Recommend that haul outs in the Categories 1, 2, and 3 areas are limited to the extent possible.
  - Level of support: 7 yes, 11 no, 1 abstain.

**Recommendations on Question 11:** What actions does the Task Force recommend be implemented by the eligible entities to reduce the social transmission between habituated sea lions and naïve sea lions to minimize/eliminate future recruitment of naïve sea lions into the 120(f) geographic area?

- 11a. It seems the most effective method is to get in early and be proactive with lethal removal to disrupt recruitment and habituation.
  - Level of support: 16 yes, 2 no, 1 abstain.
- 11b. Recommend that haul outs in the Categories 1, 2, and 3 areas are limited to the extent possible.
  - Level of support: 6 yes, 12 no, 1 abstain.

## **5. Next Steps and Wrap Up**

### ***Debra Nudelman, K&W, and Robert Anderson, NMFS***

Debra thanked the Task Force for their participation in a three-day virtual meeting and expressed appreciation for their discussions and focus on Day 3. Debra noted that the Task Force members remained dedicated, engaged, and professional in their discussions. The conversations were complex and challenging, full alignment was reached on a few of the recommendations and the diversity of opinion was reflected on all of the recommendations and outcomes.

Robert thanked Task Force members for their participation and effort. He reiterated how complex the issue is and expressed his appreciation for Task Force members' willingness to have tough conversations.

The meeting was adjourned around 5:00 pm.

*Facilitator Note: This summary was written by the facilitation team at Kearns & West. NMFS and Task Force members were given the opportunity to review and provide any comments on the initial draft of the summary. Any edits from NMFS and the Task Force will be incorporated into the next draft and sent again for final review. NMFS and the Task Force will be provided the opportunity to approve the final draft of the report.*