



MARINE MAMMAL COMMISSION

6 May 2016

Mr. William W. Stelle, Jr.
Regional Administrator
National Marine Fisheries Service, West Coast Region
7600 Sand Point Way NE, Building 1
Seattle, Washington 09115-0070

Dear Mr. Stelle:

The Marine Mammal Commission (the Commission) has reviewed the National Marine Fisheries Service's (NMFS) 28 March 2016 notice (81 Fed. Reg. 17141) of the application from Idaho, Oregon, and Washington seeking a renewal of the States' authorization to remove individually identifiable California sea lions at Bonneville Dam to protect endangered and threatened salmonid stocks. The Commission also has reviewed the States' application and selected documents from NMFS's website referenced in the *Federal Register* notice. Based on the information in these documents, the Commission provides the following comments.

The Commission has previously commented on proposals under section 120 of the Marine Mammal Protection Act (MMPA) to authorize the removal of California sea lions at Bonneville Dam to protect certain salmonid stocks. As such, the comments in this letter should be read in conjunction with past comments (see e.g., letters from [18 October 2011](#), [23 November 2007](#), [2 April 2007](#)). As in the past, the Commission remains particularly concerned about (1) the criteria used to identify individual pinnipeds that are having a significant negative impact on the decline or recovery of the specified salmonids stocks and (2) the failure of the States to target the sea lions that are contributing most significantly to the predation problem. The Commission also believes that a critical review is needed to determine whether the removal program has been of any appreciable benefit to the salmonid stocks.

Significance criteria

The pinniped removal authorization issued to the States in March 2012 includes three criteria for identifying individual California sea lions that are having a significant negative impact on endangered or threatened salmonids at Bonneville Dam—that they have been observed (1) eating salmonids in the “observation area” between 1 January and 31 May of any year, (2) at the Dam for a total of any five days and (3) at the Dam after having been subjected to active non-lethal deterrence. We remain concerned that these criteria are not sufficiently strong indicators that the identified sea lion is a significant contributor to the predation problem at the Dam. Under the first criterion, a sea lion observed eating a single salmonid in the vicinity of the Dam would be placed on the removal list if it also met the other two criteria. As the Commission has noted in the past, this criterion appears to be based on the belief that eating a single fish from fairly large runs is significant or that a sea lion observed taking one fish and remaining in the vicinity of the Dam for a total of five days across any number of years is likely to be taking several more. Although such sea lions might be trying to establish themselves as successful predators at the Dam, it is unlikely that all, or perhaps even a

majority, do so. This seems particularly true as more sea lions are traveling to the Dam, but staying for shorter periods. As such, it seems less likely than in the past that all sea lions observed eating a single salmonid are significant contributors to the predation problem.

Although it is well documented that some sea lions become established at the Dam for longer periods or across multiple years and prey on many salmonids, it is not clear that this pattern applies generally to all sea lions that travel to the Dam, remain for less than a week, and are seen eating a single fish. Recent field reports prepared by the States and by the Army Corps of Engineers (COE) do not contain any information concerning the amount of time that individual sea lions are spending in the vicinity of the Dam once they have been sighted in a given year or the numbers of salmonids observed being consumed by individual sea lions, so it is difficult to assess the assumptions that underlie the criteria. Presumably, such information is being collected¹. If so, the Commission recommends that NMFS require that this information be reported. The Commission further recommends that this information be provided to the Pinniped-Fishery Interaction Task Force (Task Force) being formed to consider the States' application and that the Task Force review this information and be asked to provide advice on whether members believe that the significance criteria currently in place are appropriate for judging the significance of predation by individual sea lions.

Targeting specific sea lions

Although field reports are no longer providing information on the numbers of salmonids observed being consumed by individual sea lions, it remains likely that some individuals on the removal list are more significant predators on salmonids than others. Table 10 from the 2014 COE field report provides some insight into this matter. In four different years (2008-2011), presumably different individual sea lions were observed consuming more than 100 salmonids at the Dam. The maximum number of salmonids caught by any individual seems to have dropped off in recent years (2012-2014; COE did not provide similar data for 2015), but so too has the percentage of salmonid catches that are attributed to individual sea lions. The reasons for the reduction in attribution are unclear, but may be a function of reduced observer effort. Whatever the reason, NMFS, in considering the States' application, should seek ways to bolster the reporting of consumption at the individual sea lion level. This is valuable information that provides insights into the nature and magnitude of the predation problem, and such insights might prove useful in designing a more effective approach to selectively removing those sea lions that are the main contributors to the predation problem.

As it has in the past, the Commission again recommends that NMFS structure any removal authorization to require that the States give priority to targeting the individual sea lions that are determined to be the greatest contributors to the predation problem. This would likely provide the largest potential reduction in salmonid predation while minimizing the number of sea lions that need to be removed. It also would give NMFS and the States the opportunity to gain better insights into

¹ If such data are not being collected, it is unclear how the States and/or the COE are determining the average number of days California sea lions are staying at the Dam or the maximum number of salmonids being eaten by particular individuals. If, however, this information is not being collected, NMFS should take steps to see that it is, to the maximum extent practicable.

whether targeting the biggest consumers markedly reduces overall consumption or whether other sea lions quickly fill the void and increase their consumption, resulting in little net gain to the salmonid stocks. This is a key issue for which, several years into the program, we still do not have an answer.

Rather than adopting a strategy that targets the most significant contributors to the predation problem, the States have been trapping animals in a somewhat random fashion that targets whatever animals on the removal list happen to haul out in the traps regardless of whether they have been observed eating a single fish or more than 100. This process could be selecting for the most significant salmonid predators—e.g., if the animals spending the most time at the Dam are consuming the most fish and are the most likely to be trapped. Conversely, the animals most likely to haul out around the Dam might be the least successful predators, with the more successful ones spending more time in the water eating fish. If so, the trapping program might not be targeting the primary salmonid predators. The information provided in the application and the field reports is insufficient to shed much light on this issue. It would be helpful if the States and the COE were asked to compile information that links the animals that have been removed with their observed predation rates to get a better sense of their contribution to the problem. This information should be presented to the Task Force, which should be asked to provide advice on how the removal program could be changed to increase its effectiveness.

Effectiveness of the removal program

Section 120(c)(5) of the MMPA requires the Task Force to evaluate the effectiveness of any permitted removal program. The Task Force conducted such a review and evaluation in 2010, after the initial program had been in place for three years. No similar evaluation has been conducted since the current authorization was issued in 2012. The Commission recommends that the Task Force be asked to conduct such an evaluation as part of its review of the pending application.

The 2014 COE field report stated that recent results “provide some evidence that the impact of the CSL [California sea lion] removal program conducted since 2008 may be at least partially responsible for reducing the CSL abundance and predation on salmonids by CSL at Bonneville Dam.” However, that report notes several confounding factors, including increased predation on salmonids by Steller sea lions, which make evaluation difficult.

Data from 2015 paint a very different picture. A record high number of individually identifiable California sea lions (195) was observed at the Dam between 1 January and 31 May. Correspondingly, observed levels/rates of predation on salmonids in 2015 by California sea lions was also the highest for any year since monitoring began in 2002. There also was a huge influx of new individual California sea lions appearing at the Dam. Of the 195 identifiable sea lions observed at the Dam, 166 had not been observed in previous years. Also, the sea lions stayed for shorter periods at the Dam—the mean duration of observed California sea lion presence at the Dam was only 5.9 days in 2015, as compared to a mean of 10.8 days for 2002-2014. Despite a record high number of removals in 2015 (32), the number of California sea lions present at the Dam and the number of salmonids they were seen to consume both reached record highs. More “new” sea lions made their way to the Dam and spent significantly less time there than in previous years. Although there again are confounding factors—El Niño conditions in the Pacific may have encouraged more

sea lions to seek food at the Dam—the data from 2015 suggest a very open system where more sea lions, particularly first-time visitors, are making their way to the Dam, spending less time there, but collectively consuming more salmonids. It could well be that new sea lions are replacing ones targeted for removal as quickly as they are being removed. If so, the removal program, despite all of the effort that is going into it, might be having little net benefit for the affected salmonid stocks.

Data from 2016 might shed additional light on the removal program's effectiveness. According to the most recent report for 2016 (26 April), 21 new sea lions have been added to the removal list this year. This compares with only 7 having been added at this point last year and 2 in 2014. We recognize that there is considerable inter-annual variation, not only in how many new sea lions are marked and identified at the Dam, but in when they show up. More than 60 sea lions were added to the removal list in May 2015.

Unraveling the questions surrounding the program's effectiveness likely will be difficult, but it is a key responsibility that the Task Force should address. Although additional analyses of the available information could help the Task Force address this issue, the available data may simply be insufficient to draw any reliable conclusions. If that is the case, the Commission recommends that the Task Force be asked to identify the data collection needs to resolve questions about the program's effectiveness in the future. The Commission further recommends that collection and reporting of such information be included as a condition of any future authorizations. Among other things, it would be useful if reports included information on observed predation rates broken down by identifiable individuals and the amount of time that each individual spent at the Dam. For those animals that have been lethally or otherwise removed, this information could also be presented in the periodic reports of removals.

On a related point, the Commission notes that recent field reports prepared by the States and the COE provide less information than in the past and in a format that makes meaningful analyses more difficult. Not only are some data no longer being provided (e.g., the maximum number of salmonids seen to have been consumed by an individual sea lion in a given year) but other data are being reported collectively for California and Steller sea lions. The authorization currently in place and the requested renewal is specific to California sea lions. Although predation by Steller sea lions cannot be ignored and provides additional context for evaluating predation by California sea lions, the authorizations being sought are specific to California sea lions and the data need to be presented in a way that facilitates evaluation of the species-specific authorization request. The Commission recommends that NMFS ask the Task Force to review recent field reports and make recommendations not only on the information that should be included but on how that information can be most effectively presented to enable reviewers to assess the strengths and weaknesses of the removal program.

Besides requiring the Task Force to evaluate the effectiveness of the removal program, Section 120(c)(5) of the MMPA directs the Task Force to recommend additional actions to make the program more effective. Although the States have limited their removal activities to trapping and euthanizing identified predatory sea lions, they are authorized to use other means (e.g., shooting by a qualified marksman). The authorization allows up to 92 California sea lions (one percent of the stock's potential biological removal level) to be removed per year. The States seem to be operating on the basis that they would like to remove as many sea lions as possible in a given year using their

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trapping protocol. It remains unclear whether this strategy is the most effective at reducing salmonid predation to an insignificant level.

At the 2015 meeting of the Society for Marine Mammalogy, Zachary Schakner and Michael Buhnerkempe gave a presentation entitled "Social transmission drives California sea lion foraging of endangered salmon at the Bonneville Dam: assessing the impact of lethal removal using epidemiological models." In that presentation, the authors assessed current and potential lethal removal strategies, and stressed the benefits derived from early intervention. The Commission believes that consulting with the authors would be informative to the Task Force in its deliberations and in formulating its recommendations concerning any lethal removal strategy. The Commission therefore recommends that NMFS contact the authors and arrange to have them provide a presentation and scientific documentation as part of the planned Task Force meeting.

Task Force meeting

As indicated in its *Federal Register* notice, NMFS has determined that reconvening the Task Force is warranted. Although the notice is silent on when and how the Task Force will meet, the Commission has been advised that NMFS intends to convene the Task Force via a facilitated teleconference/webinar. The Commission hopes that, as with past Task Force meetings, this one will be open to observation by the Commission and others interested in the issue. Also, the Commission hopes that the agenda for the meeting provides sufficient time for Task Force members to be provided with additional analyses and information as recommended in this letter, and to formulate recommendations not only on whether the current authorization should be renewed but, if so, under what conditions and subject to what data collection and reporting requirements. If the authorization is renewed for an additional five years as requested, it should be done with a common understanding that a concerted effort will be made over that period to try to determine whether the removal program, which has now been in place for eight years, is effective in reducing salmonid predation at Bonneville Dam and, if not, what changes to the program are needed.

Thank you for considering the Commission's comments. Please let me know if you or your staff have questions or would like to discuss them.

Sincerely,



Rebecca J. Lent, Ph.D.
Executive Director

cc: Nicole R. LeBoeuf
Robert C. Anderson