

**James Yost**  
Chair  
Idaho

**W. Bill Booth**  
Idaho

**Guy Norman**  
Washington

**Tom Karier**  
Washington



## Northwest Power and Conservation Council

**Jennifer Anders**  
Vice Chair  
Montana

**Tim Baker**  
Montana

**Ted Ferrioli**  
Oregon

**Richard Devlin**  
Oregon

October 2, 2018

### DECISION MEMORANDUM

**TO:** Council members

**FROM:** Laura Robinson, Tony Grover, and Erik Merrill

**SUBJECT:** Council decision on scope of science and economic predation review

**PROPOSED ACTION:** Review and approve draft letter and questions to the ISAB and Council-identified economists for a science review of predation throughout the Basin with a particular focus on predatory fish, and an associated economic review of the impact of Northern Pike in the Basin.

**SIGNIFICANCE:** In September, the Fish and Wildlife Committee recommended to move forward with scoping a science and economic review of predation in the Basin. At the October Council meeting, the Committee recommendation for the review and the staff draft questions and letter will be discussed with the members. Staff anticipates that this review will be informative for the Program amendments and requests the ISAB and economists to complete their review by the March 2019 Council meeting.

### BUDGETARY/ECONOMIC IMPACTS

Staff will seek the services of an economist or economists through either a sole source justification or Request for Proposal (RFP) not to exceed \$25,000 USD.

The ISAB operates on an annual budget, independent of the Council's budget, funded by the Bonneville Power Administration through the Fish and Wildlife Program. No additional funds are requested. Depending on the final scope of the review and based

on costs of similar assignments in the past, the ISAB costs should range from \$80,000 to \$150,000.

## **BACKGROUND**

At the September Fish and Wildlife Committee meeting, staff discussed with the Committee members options and a staff recommendation for a predation review. Many Council members had expressed interest in a science review of predation impacts in the Basin and some showed support for a Northern Pike-focused economic review. Additionally, the ISAB's draft 2019 Work Plan includes a potential review of predation management effectiveness to inform the 2014 Fish and Wildlife Program's measure to "determine the effectiveness of predator-management actions." Also, the Pacific Northwest Economic Region (PNWER) [sent a letter of support](#) to Member Norman and the Council for an economic review of the impact of Northern Pike in the Columbia River Basin.

The Fish and Wildlife Committee supported a staff recommendation to request the ISAB to review predation throughout the Basin with a particular focus on predatory fish, and to contract with one or two natural resource economists to partner with the ISAB in producing an economic analysis of the impact of Northern Pike in the Basin. Staff developed a draft letter to the ISAB and proposed review-scoping questions (see attachment 1). State and central staff have jointly developed the questions presented in the letter.

The economics-related questions in attachment 1 will form the economic review task to inform a sole source justification or RFP seeking the services of one or more natural resource economists. Staff is currently working with partners in the region to identify potential candidates to conduct the economic portion of the review.

## **ANALYSIS**

The letter provides context for the need for the science and economics review and builds from the ISAB and ISRP reports and Council documents that have provided insight and direction on predation. There are four groups of questions – three groups specific to the science review and one group specific to the economic analysis. The first set of questions aims to better understand the relation of both predation and predator management actions within the Basin's current hybrid ecosystem. The second set of questions is intended to evaluate into the effectiveness of current predation control actions both within the Basin and those occurring outside of the Basin that could be applied within it. The third set of questions is specific to Northern Pike to support the scientific information needed to inform the economic analysis, which is covered in the fourth set of questions. Footnotes within the questions, guide the reader to specific critical uncertainties within the Council's [2017 Research Plan](#) that informs the questions.

The draft letter and questions were provided to the Fish and Wildlife Committee members on September 27 and input was provided by members via email.

**ALTERNATIVES**

Staff recommends that the letter and questions be finalized, and that the Council submit a formal letter to the ISAB by mid-October to allow for ample review time before the mid-March deadline.

**ATTACHMENTS**

See the attachment for the draft letter and questions.

## Attachment 1

**James Yost**  
Chair  
Idaho

**W. Bill Booth**  
Idaho

**Guy Norman**  
Washington

**Tom Karier**  
Washington



# Northwest Power and Conservation Council

**Jennifer Anders**  
Vice Chair  
Montana

**Tim Baker**  
Montana

**Ted Ferrioli**  
Oregon

**Richard Devlin**  
Oregon

[Date]

**DRAFT**

Dear Dr. Alec Maule,

The Council requests the Independent Science Advisory Board's (ISAB) assistance in a review of the biological and economic impacts of predators and non-native species, the effectiveness of predator management control efforts currently implemented, and specifically the potential impacts that the introduction and spread of Northern Pike can have on the Columbia River Basin (Basin).

We request that the ISAB and economists complete this review by the March Council meeting (March 12-13, 2019). We understand that the ISAB's review approach and product will reflect the time available and appreciate the quick turnaround as the Council prepares for the amendments to the Fish and Wildlife Program. The Council is working to obtain the services of one or more natural resource economists, with relevant experience in predation and invasive species. Our hope is the economist(s) will work closely with the ISAB to respond to the economic-focused questions below and produce a related economic analysis on the impact of Northern Pike.

This review should help the Council address the 2014 Fish and Wildlife Program measures to, "determine the effectiveness of predator-management actions," "prevent non-native and invasive species introductions," and monitor and remove them where they have been introduced. The Council, in the 2014 Program, developed a set of priorities, one of which is to, "preserve program effectiveness by supporting expanded management of predators... and aggressively addressing non-native and invasive species." The 2014 Program's [Predator Management Strategy](#) acknowledges the natural, dynamic, and complex process of predation, particularly in the hybrid ecosystem of the current Basin, and the need for best available science to manage predation to improve salmon and steelhead survival. Additionally, the [Non-native and Invasive Species Strategy](#) aims to prevent introduction of non-natives and invasive species as they imperil native species in the Pacific Northwest ecosystems through predation, competition, interbreeding, disease transmission, food web disruption, and physical habitat alteration.

We seek an overall evaluation of predator impacts and predation management effectiveness in the Basin with a particular focus on piscivorous fish. While conducting this review, we ask that the ISAB consider aspects and gaps within all areas of predation, including avian and marine mammal predation, which may need a deeper investigation during follow-up ISAB reports. For this review, we ask the ISAB to consider the following questions:

- How does predation on anadromous and resident fish and predator management fit within the current hybrid ecosystem of the Basin?
  - What is the range of the predators in the Basin, and what aspects of the Basin's current hybrid ecosystem supports predator proliferation?
  - What are the cumulative impacts of predation on the ecosystem and how does that compare to the cumulative impacts of management actions of hydrosystem operations, habitat modifications, etc.?<sup>1</sup>
  - What is the current work related to determining the overall impact of predation on SARs?
  
- What is the overall success level of predation management in the region? What areas need to be improved and what areas are doing well?
  - Are the current efforts to address predation and reduce numbers of predators throughout the Basin effective? Is the region focusing on the right species?<sup>2</sup>
  - Within the Basin's current hybrid ecosystem, what actions could be taken to reduce the overall impact of predation on the Council's Fish and Wildlife Program's focal species and how effective are those actions?<sup>3</sup>
  - Where in the salmonid or predator life cycle would predator management intervention be most effective?
  - Based on the 2016 ISAB Predation Metrics Report, are the current predation metrics adequate to compare the relative biological effectiveness of different predator control actions?
  
- What considerations should be incorporated into current Northern Pike reduction efforts?
  - Considering suppression efforts throughout the US and Canada, what suppression efforts have proven to be most effective and why?
  - What are the ecological impacts of Northern Pike from their current distribution in the Basin?
  - What are the likely ecological impacts of Northern Pike should they enter the Basin's anadromous waters?
  
- What economic impacts should the region consider in monitoring and suppressing Northern Pike populations?
  - Are current levels of prevention and suppression expenditures cost-effective? Are higher levels of work and funding necessary?

---

<sup>1</sup> Paraphrased from the Council's 2017 Research Plan – critical uncertainty 1.4 and 2

<sup>2</sup> Paraphrased from the Council's 2017 Research Plan – critical uncertainty 1 and 1.3

<sup>3</sup> Paraphrased from the Council's 2017 Research Plan – critical uncertainty 1.1 and 1.2

- What economic impacts to natural resources will the Basin face should Northern Pike spread throughout the Basin?
- What is the cost-benefit analysis of potentially eradicating introduced Northern Pike from the Basin? Alternatively, what is the cost-benefit analysis of focusing efforts to prevent expansion of Northern Pike in the Basin?
- What monetary impact will the spread of Northern Pike have on commercial, tribal, and recreational harvest activities for native salmon, steelhead, and resident fish in the Basin?

To address these questions, we ask the ISAB and Council-selected economists to review current monitoring and suppression projects, information, management plans, and analysis to provide their expertise regarding the following questions as they relate to predation impacts and predator management effectiveness in the Basin.

Currently, the Bonneville Power Administration, through the Council's Fish and Wildlife Program, is providing funds for predator monitoring, suppression, and management efforts throughout the Basin. Avian predation on juvenile salmonids is monitored and suppressed in the ocean, estuary, and lower river (see project [1997-024-00](#)). Non-lethal hazing of sea lions is conducted in the estuary and lower river (see project [2008-004-00](#)). Northern pikeminnow, a native predatory species, are suppressed via a rewards fishery in the lower and mid-Columbia River (see project [1990-077-00](#)). And in the upper Columbia, a variety of predator management efforts are underway concerning, for example, Northern Pike (see project [1994-043-00](#) and proposed project [2017-004-00](#)) and non-native trout (see projects [199700400](#), [199404700](#), [199101903](#), and [199101901](#)). Additionally, many other entities are conducting management actions on predatory species, monitoring the effects of those actions, and researching the impacts of introduced predators on the ecosystem.

We encourage the ISAB to work with its ex-officio members to identify the most relevant documents to review. We also encourage the ISAB to seek information from project sponsors, researchers, and predation management experts (particularly those working on Northern Pike) throughout the Basin and throughout North America including the Confederated Tribes of the Colville Reservation; the Spokane Tribe of Indians; the Kalispel Tribe of Indians; the Coeur d'Alene Tribe; the Okanagan Nation Alliance; Washington Department of Fish and Wildlife; National Park Service; Chelan, Douglas, and Grant County Public Utility Districts; US Forest Service; Alaska Department of Fish and Game; British Columbia Ministry of Environment and Climate Change Strategy; the Washington Invasive Species Council; and the Great Lakes Fishery Commission.

Several recent and upcoming ISRP and ISAB reviews are related to this request. The ISAB's 2016 [Predation Metrics Report](#) reviewed and recommended alternative metrics to evaluate the consequences of predation on the Basin's salmonid populations. Many of the questions posed in this letter are from the ISRP/ISAB's 2016 [Critical Uncertainties Report](#) and the Council's [2017 Research Plan](#). The ISAB recently [reviewed the 2014 Fish and Wildlife Program](#), and the ISRP is currently reviewing the Program's [research projects](#) and will soon review the mainstem projects, both of which cover predation projects in the Basin.

*[Note: we are currently communicating with the Oversight Panel on this and awaiting their approval.]* The ISAB Administrative Oversight Panel and Ex Officio representatives provided input on the request letter and approved the ISAB assignment.

Sincerely,

Jim Yost, Chair

Cc: Jaime Pinkham, Columbia River Inter-Tribal Fish Commission  
Kevin Werner, NOAA Fisheries