June 10, 2013

**PSI’s Study Panel on Ecosystem-based Management**

**of Forage Fish in Puget Sound**

The PSI plans to convene an independent Study Panel to focus on Ecosystem-Based Management of Puget Sound Forage Fish, to be held at the Whiteley Center at UW’s Friday Harbor Labs, August 25-29, 2013.

Participants

Tim Essington (UW): Co-Chair

Marc Mangel (UCSC): Co-Chair

Tessa Francis (PSI): Co-Chair

Doug Hay (DFO Canada)

Paul Hershberger (USGS)

Dayv Lowry (WDFW)

Alec McCall (NOAA - SWFSC)

Ole Shelton (NOAA – NWFSC)

Call

This Study Panel is being proposed in response to two calls for scientific research. First, the 2011-2013 Biennial Science Work Plan identifies as a priority area for research an evaluation of the impacts of all stressors on forage fish populations. It also calls for research to evaluate forage fish population status and trends throughout the BSWP (Appendix C, Inventory of Recommended Research, reference #R0550; and Appendix F, Science needs identified by Scientific, Practitioner and Stakeholder Communities).

Second, the 2012 Forage Fish Research Symposium, convened by the Northwest Straits in collaboration with PSP, WDFW and USGS, identified several Science Priorities, including:

* Information on the role of forage fish in the Puget Sound food web (“Trophic Interaction Information”)
* Vulnerability assessment (“Consideration of all Stressors”)
* Status and trends assessment to support monitoring (“Monitoring”)

Aims

The overall goal of this Study Panel is to provide scientific input related to the ecosystem-based management (EBM) of forage fish in Puget Sound based on a synthesis and review of existing data, including: an assessment of status and trends; an analysis of the role of forage fish in the food web (specifically, ecosystem needs for forage fish, including biomass needed to support top predators); and a vulnerability assessment for Puget Sound forage fish that takes into account limited data and uncertainty. To conduct these analyses, we will convene a study panel comprised of 8 local, regional and outside experts in the ecology and management of forage fish and marine species, as well as the modeling and other analytical approaches fitting to the research aims. These participants will be responsible for assembling existing data, conducting analyses, writing a report to the PSP Science Panel, and authoring manuscripts for peer-reviewed publication. In addition, the Study Panel will seek input from a group of presenter consultants, who will offer information, perspectives, and ideas to guide and shape the analyses, and will also serve as reviewers of the Study Panel products.

Research Questions

1. How well can we presently assess the status and trends of Puget Sound forage fish? What remains unknown? What additional indicators of forage fish abundance could be presently used to describe status and trends? What additional data should be collected to accurately describe forage fish status and trends?
2. What are the key vulnerabilities of Puget Sound forage fish populations?
	1. What can models of disease dynamics tell us about declining herring populations?
	2. How can uncertainty and lack of data be incorporated into a vulnerability analysis?
3. What is the forage fish abundance/biomass needed to sustain ecosystem needs in Puget Sound? How do ecosystem needs for forage fish vary spatially?

Expected Outcomes
We propose to produce a report to the Science Panel and 1-3 peer-reviewed manuscripts answering

1. Monitoring needs for effective management of Puget Sound forage fish, including appropriate indicators of population or biomass status, and the ecosystem and species risks of failing to adequately monitor forage fish.
2. A ranked list of threats to Puget Sound forage fish that takes into account the availability of scientific information.
3. An estimate of population or biomass needed to sustain the ecosystem, including to sustain predator populations.

Study Panel Structure

In August 2013, we will convene a 4-5 day workshop in the Puget Sound area, according to the following general schedule:

Day 1: Participants convene, discuss Study Panel aims and goals

Days 1-2: Presentations by invited expert consultants (primarily local/regional)

Days 3-5: Discussion/Planning/Analysis by participants

Milestones

* February 2014: analyses complete; results shared among participants; remote meeting convened to discuss results and confirm output/products and authorship.
* June 2014: distribute draft report for Science Panel to local forage fish scientists for comments.
* August 2014: final report to Science Panel; draft manuscripts completed.