

APPENDIX TO SCIENCE PANEL COMMENTS – EXAMPLES: MAKING SCIENCE MORE ACCESSIBLE AND COLLABORATIVE

The following are examples of several venues and means for disseminating the science of Puget Sound:

Salish Sea Ecosystem Conference and Puget Sound Institute: The biennial Salish Sea Ecosystem Conference is a leading example of how best to expand the audience and content of Puget Sound science. In May, 2018, the conference celebrated its 30th anniversary with a three-day event held in Seattle. It featured 588 presentations across 17 topic areas. The information presented and discussed at the conference can be browsed [online](#). Science Panel members and others are assisting with the planning of the 2020 conference, which will be held April 20-22 in Vancouver, B.C.

As importantly as the conference itself, the Puget Sound Institute, with support from the Environmental Protection Agency, publishes reports on conference papers and presentations in their Salish Sea Currents magazine. Reports from the 2016 and 2018 conferences are now available on the [Encyclopedia of Puget Sound website](#). To broaden access to information discussed at the conference, the Institute engaged a number of reporters and experts to write stories covering the conference's major themes. The stories highlighted many of the critical questions currently confronting recovery efforts. Examples include the effects of declining food sources on orca health, ocean acidification and its potential impact on Dungeness crab habitat, studies on emerging threats to salmon, the steady decline of kelp beds, digital technologies' future role in recovery, and the effort to develop a computer model to help people make choices about the Puget Sound ecosystem as a whole. These write-ups mostly frame content in a narrative format, try to use common language, and make clear the implications of the science for current policy and management decisions.

Southern Resident Orca Task Force: The Governor's recent convening of a Southern Resident Orca Task Force also provides an important example of how to effectively produce a science-informed ecosystem recovery plan. Throughout its deliberations, the task force focused on three threats to endangered orca: lack of food, disturbance from noise and vessel traffic, and toxic contaminants. This emphasis on the three major threats was derived, in part, from an open access paper by [Lacy et. al. \(2017\)](#) in Nature, an international research journal. Nature is committed to the prompt dissemination of critical work and the Lacy paper was peer-reviewed and made public within six months of its submittal. This availability made a difference in the task force's work and the task force explicitly recommended a continuing role for the scientific community by calling for the conduct of research, science and monitoring to inform decision making, adaptive management and implementation of all future actions to recover southern resident orcas.

The Science Panel recommends continuing to build collaboration to expand the body of knowledge about the Puget Sound ecosystem and ensure that this information is communicated in a manner that guarantees its availability for science-informed recovery. We illustrate examples of these below. The Panel will look for opportunities to work with PSEMP and science programs in the region to improve and expand efforts such as these.

PSEMP Marine Waters Workshop and Report: The [PSEMP Marine Waters Workshop and Report](#) is an excellent example of the scientific community coming together to summarize biological, physical and chemical information obtained from various marine monitoring and observation programs in Puget

Sound. A key value of this collaborative effort is the synthesis of current information that can be useful to policy and decision-makers.

Salish Sea Marine Survival Project: The [Salish Sea Marine Survival Project](#) is a collaborative effort of more than 60 organizations working internationally to investigate how multiple factors may be interacting and contributing to the fate of juvenile salmon and steelhead in the Salish Sea. The project convenes scientists from U.S. and Canada to develop a comprehensive, multi-disciplinary, and highly coordinated research program at the ecologically-relevant scale of the entire Salish Sea. As the Marine Project enters its synthesis phase it is timely for the Partnership to facilitate the transition of the project to testing of management interventions and to implement monitoring and assessment recommendations from the project.

NOAA Northwest Fisheries Science Center's Sound Toxins Program: NOAA Northwest Fisheries Science Center's [Sound Toxins](#) program (a diverse partnership of shellfish farmers, fish farmers, environmental learning centers, volunteers, local health jurisdictions, colleges, and Native American tribes) is another good example of scientists, managers and the shellfish industry coming together to collaborate in a monitoring program that provides a seafood safety early warning system of the risks of toxic algal blooms. Again, the challenge is to effectively transition this effort to a program that can be supported long term. But it also highlights that within Puget Sound there is capacity and willingness to work together to implement collaborative efforts that harness the scientific capacity in the region to meet societal needs.

Puget Sound Federal Task Force Action Plan: The recent release of the Puget Sound Federal Task Force Action Plan, in support of meeting Federal obligations under Tribal treaty trust responsibilities for Puget Sound ecosystem recovery and salmon recovery, is promising. The Action Plan includes a section on increasing coordination in the science and monitoring activities across Federal agencies and between Federal agencies and the broader Puget Sound recovery science community. In particular, the Action Plan describes the need for a formal Science Enterprise that includes planning and budgeting across the many institutions that provide science and monitoring in support of Puget Sound recovery. While a formal Science Enterprise would require new resources and authorizations at both the Federal and State levels, describing what is needed is a positive step forward.

Salmon Recovery Council: The [salmon recovery efforts across the Puget Sound region](#) are truly impressive and again highlight the willingness within the region to collaborate. While we have been effective, we recognize that we must increase our efforts to both conserve and restore habitat across the region. We commend the efforts of the salmon recovery council to work within the recovery community to identify and prioritize recovery actions. There also is value to include in our recovery strategy the concept of 'proactive conservation', an approach that more explicitly includes actions that will reduce the likelihood that new species will become a conservation concern.

Forest and Fish Agreement: The Forest and Fish Agreement resulted in the most ambitious Habitat Conservation Plan in the history of the Endangered Species Act. The 1990 agreement represented a landmark collaboration that included science-based forest practice regulations that guide the conservation of more than 60,000 miles of streams running through 9.3 million acres of state and private forestland. Goals of the agreement include: 1) Compliance with the Endangered Species Act for aquatic and riparian dependent species, 2) Restore and maintain riparian habitat on non-federal forest

lands to support a harvestable supply of salmon, 3) Meet the requirement of the Clean Water Act and 4) To keep the timber industry economically viable in the state. Goal 4 helps to ensure that many of our upland and smaller rivers and streams will remain in forests for the foreseeable future. The agreement supports one of the more successful [adaptive management programs](#) in the history of Habitat Conservation Planning.