STATE OF THE SOUND

REPORT 2023

PUGETSOUND PARTNERSHIP

Table of contents

MAP OF PUGET SOUND 6

EXECUTIVE SUMMARY 7

LETTERS FROM EXECUTIVE DIRECTOR, LEADERSHIP COUNCIL, SCIENCE PANEL 10

CALL TO ACTION 15

STATE OF THE ECOSYSTEM 20

- **Puget Sound Vital Signs help gauge ecosystem health** 20
- **Healthy Human Population** 24
  - » Indicator data 25
  - » Targets 27
  - » Summary and key messages 27
- **Vibrant Human Quality of Life** 28
  - » Indicator data 29
  - » Summary and key messages 31
- **Thriving Species and Food Web** 32
  - » Indicator data 33
  - » Targets 35
  - » Summary and key messages 35
  - » Why aren't salmon populations getting better? 37
- **Functioning Habitat** 38
  - » Indicator data 39
  - » Targets 41
  - » Summary and key messages 41
- **Healthy Water Quality** 42
  - » Indicator data 43
  - » Targets 45
  - » Summary and key messages 45

STATE OF THE RECOVERY EFFORT 46

Overview of recovery activities 47

- » What are ongoing recovery programs? 47
- » How is the Partnership aligning policy and resources toward Action Agenda implementation 57
- » State legislative budget and policy outcomes 61
- » Congressional budget and policy outcomes and federal recovery implementation 67
- » Transboundary/cross-border work 74

» Progress in implementation of the Washington State Healthy Environment for All (HEAL) Act's environmental justice goals ... 75

» Local recovery funding and implementation ... 78

» Funding for the Puget Sound Partnership ... 81

▶ **How do we assess and manage progress toward recovery? ... 83**

» Science to inform recovery efforts ... 83

» Puget Sound Indicators ... 83

» Setting targets for ongoing programs ... 86

» Overcoming barriers to Puget Sound recovery ... 90

» Resident concerns and how those have been addressed ... 94

ACCOMPLISHMENTS ... 98

▶ **Restoration accomplishments ... 100**

» Authorization for Howard Hanson Dam Fish Passage ... 100

» Derelict Vessels Removal ... 102

» Middle Fork Nooksack River Fish Passage ... 104

» Dungeness River Floodplain Restoration ... 106

» Lower Russell Levee Setback & Habitat Restoration ... 108

» Port Susan Bay Restoration for Resiliency ... 110

▶ **Science and Policy accomplishments ... 112**

» Chemical Indicator development for pollutant monitoring ... 112

» Pacific Sand Lance Assessment in Subtidal Habitats ... 114

» Enhancing the Human Wellbeing Vital Signs through inclusive engagement ... 116

» Floating Kelp Indicator Development ... 118

» Shoreline Monitoring Toolbox ... 120

» Stormwater Summits ... 122

» Transformative federal funding for Puget Sound recovery ... 124

» Puget Sound Federal Leadership Task Force ... 126

▶ **Management Practices accomplishments ... 128**

» Quiet Sound Large Vessel Slowdown ... 128

» Hoodsport Shellfish Beds Reopened for Harvest ... 130

» Stormwater Park Retrofits ... 132

» Jefferson County On-site Septic Cost Share Program ... 134

» Sound Horsekeeping Program ... 136

» Regional Forest Pilot Program ... 138

» Green Crab Monitoring ... 140

» Transboundary Sea Duck Management ... 142

» Equity and Environmental Justice Three-Year Workplan ... 144

Acknowledgements

Leadership
Laura Blackmore, Executive Director
Larry Epstein, Deputy Director

Project manager
Jon Bridgman

Lead writers
Mary Ramirez
Alex Mitchell
Kevin Hyde

Graphic design
Chase Nuuhiwa

Maps
Jennifer Burke

Contributing staff
Harriet Booth
Lea Anne Burke
Tristan Contesse
Nathalie Hamel
Todd Hass
Rebecca Hollender
Jenna Judge
Wren McNally
Beihua Page
Katrina Radach
Scott Redman
Jillian Reitz
Laura Rivas
Melissa Schutten
Melissa Speeg
Dan Stonington
Ahren Stroming
Elene Trujillo
Laura Vary
Marlies Wierenga

U.S. Environmental Protection Agency
Lisa Chang
Erik Peterson
Michael Rylko

Puget Sound Ecosystem Monitoring Program
Stacy Polkowske, PSEMP Chair
Diseases Work Group
Forage Fish and Food Webs Work Group
Freshwater Work Group
Marine Birds Work Group
Marine Mammals Work Group
Marine Waters Work Group
Modeling Work Group
Nearshore Work Group
Salmonids Work Group
Spatial Data Work Group
Stormwater Work Group
Toxics Work Group

Vital Sign Indicator reporters:
Rabia Ahmed (Greene Economics, LLC)
Lynne Barre (NOAA)
Scott Berbells (DOH)
Kelly Biedenweg (Oregon State University)
Robert Black (USGS)
Bart Christiaen (DNR)
Danielle Claar (DNR)
Phillip Dionne (WDFW)
Heather Gibbs (Ecology)
Brad Hanson (NOAA)
Sheryl Howe (DOH)
Julie Keister (University of Washington)
Neala Kendall (WDFW)
Kate Macneale (King County)
Valerie Partridge (Ecology)
Scott Pearson (WDFW)
Mary Ramirez (PSP)
Scott Redman (PSP)
Jill Schulte (Ecology)
Jim Shedd (Ecology)
Camille Speck (WDFW)
Don Velasquez (WDFW)
Sandra Weakland (Ecology)
James West (WDFW)

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement CE-01J97401 to Puget Sound Partnership. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

THE REVISED CODE OF WASHINGTON REQUIRES THAT THE PARTNERSHIP MUST PRODUCE A STATE OF THE SOUND REPORT BY NOVEMBER 1 OF EACH ODD-NUMBERED YEAR. THE REPORT MUST, AT A MINIMUM, INCLUDE THE FOLLOWING (RCW 90.71.370, 3A–F):

We note below where the response to the questions posed in statute can be found.

a) An assessment of progress by state and nonstate entities in implementing the action agenda, including accomplishments in the use of state funds for action agenda implementation;	**Section 3, "State of the recovery effort," pp. 61-80, pp. 83-90** **Section 4, "Accomplishments," pp. 98-145**
b) A description of actions by implementing entities that are inconsistent with the action agenda and steps taken to remedy the inconsistency;	**Section 3, "State of the recovery effort," pp. 90-93**
c) The comments by the panel on progress in implementing the plan, as well as findings arising from the assessment and monitoring program;	**Science Panel comments, pp. 13-14**
d) A review of citizen concerns provided to the partnership and the disposition of those concerns;	**Section 3, "State of the recovery effort," pp. 94-97**
e) A review of the expenditures of funds to state agencies for the implementation of programs affecting the protection and recovery of Puget Sound, and an assessment of whether the use of the funds is consistent with the action agenda; and	**Section 3, "State of the recovery effort," pp. 49-56 [A review of the expenditures of funds to state agencies for the implementation of programs affecting the protection and recovery of Puget Sound]** **Section 3, "State of the recovery effort," pp. 57-60, p. 75 [an assessment of whether the use of the funds is consistent with the action agenda]**
f) An identification of all funds provided to the partnership, and recommendations as to how future state expenditures for all entities, including the partnership, could better match the priorities of the action agenda.	**Section 3, "State of the recovery effort," pp. 81-82** **Call to action, pp. 15-19**

Map of Puget Sound

Executive summary

INTRODUCTION

The Puget Sound Partnership, the state agency that leads the region's collective effort to protect and restore Puget Sound, produces the State of the Sound report every two years.

The State of the Sound includes information about:

- the health of Puget Sound;
- the state of the Puget Sound recovery effort;
- recommendations from the Partnership's leadership and boards; and
- other key details related to the recovery community and our work.

The *2023 State of the Sound* conveys a sense of urgency and hope. The Puget Sound ecosystem is not doing well, but with collective effort, we can restore it to health and make sure it can adapt to climate change and other pressures.

Many of the indicators we use to gauge the health of the Puget Sound ecosystem are not making progress toward recovery. Some indicators show local declines, which means we need to devote attention to those areas to prevent the declines from getting worse.

However, we have seen big changes in the last two years that make us optimistic. New funding from the federal government and the state gives our region a chance to accomplish major recovery goals. Policy changes, including the passage of key parts of the PUGET SOS Act, make it easier for partners across the Sound to work together.

We need to take advantage of this moment to set ourselves on the right course for recovery, to restore this beautiful place for ourselves and future generations while we still can.

CALL TO ACTION

The call to action from the Puget Sound Partnership's Leadership Council includes recommendations about recovery actions, funding and policy changes, and collaboration for the State Legislature, state agencies, local governments, Congress, federal agencies, nongovernmental organizations, the Partnership, business, the public, and Tribes.

These recommendations align with the 2022-2026 Action Agenda—our community's shared plan for the protection and restoration of Puget Sound.

STATE OF THE ECOSYSTEM

The Puget Sound Vital Signs and Vital Sign Indicators are measures of ecosystem health. They reflect what people in the Puget Sound recovery community care about and think is most important to measure.

Vital Signs and their indicators may be slow to change, especially at the Puget Sound-wide scale. Still, some patterns emerge and show concerning signals across the region's ecosystems. We report here, using the most recent data available, on the status and trends in these long-term measures of environmental health.

Many indicators are not trending in any direction. For some indicators, like Chinook salmon and Puget Sound steelhead, we need to see more progress toward recovery. Other indicators are in good condition and have stayed stable over time. For example, the 2022 Vital Signs Human Wellbeing Survey detected little change since 2018. People's engagement with the environment has generally been positive and consistent over the last few years.

We see progress in indicators where decision-makers and land managers have direct influence on habitat outcomes, for example, restoring estuaries and floodplains. We are encouraged by improving trends in summer chum salmon and some herring stocks.

We see the least progress or declines in indicators affected by multiple factors (such as Chinook salmon and orca population abundance) and large-scale forces, such as climate change, and where we rely on decisions made nationally or even globally to create positive change.

Many indicators show localized declines even if we don't see a trend at the regional scale. Local declines require attention and work to fix issues before the pattern becomes a regional problem.

PROGRESS OF VITAL SIGN INDICATORS

Figure 1. The number in each progress category tells us how many Vital Sign Indicators have changed over time and how they have changed.

STATE OF THE RECOVERY EFFORT

The State of the Sound includes information about the ways in which we and our partners are working together to make progress on Puget Sound recovery. This progress includes changes in funding, policy, advocacy, research, or other collective work.

Over the last two years, we've seen great improvement in federal and state budget and policy outcomes, local recovery funding and cooperation, and the ways in which state agencies are working with communities affected by pollution and other environmental harms. We've also made progress in the methods we use to report on Puget Sound recovery and how we help our partners solve problems.

ACCOMPLISHMENTS

This section, new for the *2023 State of the Sound*, highlights projects and efforts from our partners that have made a difference in Puget Sound recovery. These accomplishments show the quality and range of work that our partners do—and demonstrate the commitment of the recovery community.

Puget Sound recovery is a long-term effort that will require collective action from organizations and people throughout the entire region. It's important that we celebrate our successes and appreciate the people who work hard every day to preserve and protect this place that we love.

Letter from the executive director

Our *2023 State of the Sound* has clear messages for all of us—about the state of the ecosystem, the urgent need for action, and the ways that we can all help realize the vision of a healthy, thriving Puget Sound.

Our reporting shows that many aspects of Puget Sound's ecosystem are not making enough progress toward recovery. We need to do more, more quickly, to make a difference to the health of the ecosystem.

Although that may seem dispiriting, it only emphasizes the importance of collective action. The areas in which we've seen the most progress are those where we can work together to make direct change—for example, by restoring habitat in estuaries and floodplains, creating the right conditions to help salmon and, in turn, Southern Resident orcas.

While the signals from the Puget Sound ecosystem tell us we need to act with urgency and consideration, the signals we see from the recovery effort give me hope that we can meet the challenges we face.

The landscape of the recovery effort has changed enormously, thanks to the leadership and decisive action of the Washington State Legislature and our congressional delegation.

With the increase in funding from the state and the federal government, we can complete big projects that benefit the whole Puget Sound ecosystem. This begins to approach the level of funding we need to make progress at the speed that's required, and the success of our efforts will depend on all of us working together to put our recovery funding to smart use.

Collaboration is also key to salmon recovery. Our salmon populations remain at very low levels, and we must continue and redouble our efforts to recover them. The good news is that salmon populations are mostly holding steady, and that wouldn't be the case without all the hard work from Tribes, federal agencies, state agencies, local government, and many organizations and people throughout the region. The increase in Hood Canal summer chum salmon shows what's possible. We need to do more for our salmon populations—to uphold Tribal treaty rights, sustain the Southern Resident orcas, and retain the essence of Puget Sound.

The essence of this place comes not only from its beautiful landscape and incredible diversity of wildlife, but also from the people who live here. And it always gives me hope to see the ways in which people keep showing up to support Puget Sound recovery. The accomplishments section of our report highlights the committed and innovative work of our partners. These projects show that, although recovery is a long-term effort, there's a lot of successful work we can celebrate now.

It's a simple and clear message, but one that bears repeating: Puget Sound recovery is up to us. It's up to us to preserve the spirit of this place, for ourselves and those who come after us.

Letter from the Leadership Council

The 2023 *State of the Sound* comes at a pivotal time for Puget Sound recovery.

Over the last few years, we've seen an increase in federal and state funding for recovery efforts. We thank our partners in Congress and the Legislature for investing in the health of Puget Sound.

While this funding drives our efforts, it is key that we use that funding wisely to take immediate action. We must set ourselves on the right path to recovery before the opportunity disappears.

As the Puget Sound Partnership Science Panel states in its letter, there is still time to recover Puget Sound, but with every passing year the task gets more challenging and more expensive.

Climate change will put pressure on the entire ecosystem and make existing pressures more damaging. This type of stress can produce unpredictable changes in the ecosystem that occur more swiftly than we can prevent or manage. If our current population growth continues, that will further exacerbate these problems.

Our aim now must be to work together with resolve and courage.

WHAT WE ARE DOING

- Our region is hard at work on Puget Sound restoration. The 2023 *State of the Sound* highlights the work of our partners and the Tribes who restore habitat, educate residents, monitor the environment, and research to fill gaps in our knowledge.
- State and federal governments have made big investments in Puget Sound recovery. The Inflation Reduction Act, the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act), and the Washington State Legislature's full funding for the 2023 Puget Sound Acquisition and Restoration list of projects all provide much-needed funding.
- The hard work of our Hood Canal partners has led to the recovery of Hood Canal summer chum and the prospect of the species being delisted from the Endangered Species Act.
- The recovery community has made progress on finding full funding for long-planned, regionally significant salmon restoration projects at Howard Hanson Dam and at the Duckabush Estuary.
- Last fall, the Puget Sound Partnership, Tribes, and other regional partners hosted a highly attended Day on the Sound gathering at the Nisqually Cultural Center. This event builds on the annual Puget Sound Day on the Hill meetings in Washington, D.C., which demonstrate to our federal elected leaders and agencies the strong commitment to Puget Sound recovery shown by folks across the region, including Tribes, state agencies, local governments, nonprofits, and the business community.

- Congress passed the historically significant PUGET SOS Act, establishing a Puget Sound office at the Environmental Protection Agency. This past spring, the Puget Sound Federal Leadership Task Force established under the act convened its first meeting with state and Tribal leaders at the Suquamish Tribe's community house. Congress also increased annual Puget Sound funding though a $20 million increase for the Puget Sound Geographic Program.
- The Puget Sound Partnership has begun its efforts to carry out the state's environmental justice law, the HEAL Act.
- The Legislature adopted the Climate Commitment Act (CCA), the Washington Clean Fuel Standard (CFS), and the Clean Energy Transformation Act (CETA) to begin the process of addressing climate change in the state. The CCA establishes an important new source of funding to build climate resilience and fund projects that both reduce climate impacts and restore ecosystem functions.
- The region has a new shared recovery plan, the 2022-2026 Action Agenda, which includes six new Vital Sign Indicator targets and the most effective and beneficial outcomes, strategies, and actions for Puget Sound recovery and resilience.

CONTINUING CHALLENGES

Despite these significant and hopeful signs for Puget Sound recovery, we enter 2023 with a clear sense of the continuing challenges to our work.

Climate change and its effects on stream flows and temperatures, sea level rise and disruption of storm patterns, and increased wildfires present an existential threat not only to Puget Sound recovery but to our people, creatures, and way of life.

The State of the Sound details continuing problematic signals in our Vital Sign Indicators. These signals include a lack of change in abundance for Puget Sound Chinook and steelhead, which presents threats to Tribal treaty rights and our iconic Southern Resident orca population.

As the Science Panel says in its letter, current recovery efforts have ensured no major losses of the key attributes of the ecosystem, but that has only resulted in minor improvements in overall ecosystem health. We concur with the Science Panel's call for bold, creative, and collaborative action.

WHAT WE NEED TO DO

- Make the best use of our increased funding. We can't miss this once-in-a-generation opportunity.
- Streamline and enable infrastructure investments to support salmon and ecosystem recovery. This includes providing capacity to support our Local Integrating Organizations and other partners and removing barriers to their access to funding and implementation of projects.
- Work with Congress, the Legislature, Tribal and federal partners, and the Puget Sound recovery community to align our efforts with the Puget Sound Action Agenda.
- Support our science and monitoring endeavors. This will help us understand how our environment is changing and responding to our efforts and will help best inform our decisions.
- Align growth management efforts of state and local governments with Puget Sound recovery efforts and with the challenges presented by climate change and urban growth.
- Deepen our commitment to advance environmental justice and fulfill the requirements and objectives of the HEAL Act.
- Work to fulfill the promise of the PUGET SOS Act by better aligning and coordinating Puget Sound recovery efforts.

We know what's at stake. Many of us have chosen to live near Puget Sound because of the beauty, resources, and recreational and economic opportunities created by these waters. Tribes that have been here since time immemorial have a way of life and spirituality that is interwoven with the health and resources of Puget Sound.

We strongly support the work of the Science Panel and the important messages in their letter. We have a chance to preserve Puget Sound and the qualities that make it special, but we can only do that by making the choices this moment requires of us. We must commit to actions and resources that truly match the extent of the challenge.

Comments from the Science Panel

There is still an opportunity to act to recover the Puget Sound ecosystem, but it will take bold, creative, coordinated, and accelerated recovery strategies and actions. The Science Panel's assessment of the best available science and modeling efforts, combined with their collective expert judgment, suggests that the Puget Sound is at a "watershed moment" in the recovery of the Sound and the entire Salish Sea. Key ecosystem attributes still persist. We have built an extensive, organized community of legislators, resource managers, volunteers, scientists, communicators, and educators working on ecosystem recovery. We have increased funding for restoration and developed powerful, new scientific models and tools to help us in assessing progress and potential future outcomes. We have learned a tremendous amount about the function of the coupled social and ecological system in Puget Sound and what policy actions may be successful, but have yet to act on the scale needed to affect significant positive changes. Current efforts have maintained many opportunities for recovering resilient, functioning ecosystems, with no new major losses of the key attributes. However, indications are that there have been only minor improvements in ecosystem health. The weight of the scientific evidence clearly suggests that only by acting boldly, creatively, and collaboratively will we be able to meet the increasingly complex challenges that affect the success of Puget Sound recovery. The Science Panel believes that innovative new approaches to ecosystem recovery are no longer a luxury; they are a necessity.

Implementing effective ecosystem recovery actions requires imagination, courage, and the resources to act immediately and flexibly. In support of this, the Science Panel is exploring possible future paths for the Puget Sound region under different patterns of growth, governance, magnitudes of climate change, and scales of recovery implementation using a Future Scenarios model. This tool generates scenarios that help frame the policy issues as decision-makers grapple with increasing stresses on ecosystems and increasing complexity. Time is of the essence to do this work. For example, NOAA scientists predict an approximately 90 percent decrease in marine survival of salmon in the next 40 years; potential solutions and viable options need to be evaluated by communities, natural resource managers, and legislators. Historically, such solutions may take decades to implement. Delaying only limits our opportunities and chances for success.

Our current path of Puget Sound recovery has focused on actions that attempt to adapt and react to conditions that generate declines in valuable ecosystem attributes (e.g., restoring estuarine wetlands to adapt to sea level rise; changing tire formulations to remove 6PPD-Q to support salmon survival). Systemic stressors, including climate change and increasing population growth, will compound existing stressors to affect ecosystem function and health in potentially rapid and unexpected ways moving forward.

To be successful, future recovery efforts need to support innovative new science addressing these complexities, include and address the needs of all rightsholders and stakeholders, adopt scalable policies that are flexible to changing conditions, and embrace the reality of shifting ecological or social recovery targets. An example of embracing climate change reality would be shifting priorities to recovering fall-run Chinook salmon rather than spring runs historically supported by a river system.

We envision that managers and policy leaders will act now in the face of shifting targets. But we challenge them to act courageously on our substantial existing knowledge base and incorporate the best-available natural, physical, social science, and traditional ecological knowledge, implement policies that recognize the dynamics and the uncertainties in the system, and embrace emerging technologies to support ecosystem recovery. Aligning the incentives of all rightsholders and stakeholders, crafting policies that flexibly react to shifting goals (as we learn more and observe changing conditions) for recovery, and a willingness to bring resources to the table that match the scale of the challenges are the types of bold actions that are likely our best opportunity to create a resilient and sustainable ecological and social future for the Puget Sound.

We must continue to build on our existing and new opportunities. Paramount is accelerating our efforts to protect recovery opportunities by preventing the conversion of today's well-managed farms and forests to other land uses and making wise investments in improved infrastructure and redevelopment that maintain and improve resilience. We must leverage and continue the good work the Puget Sound recovery community has done to increase capacity, funding, and governance for recovery. We must make the most of recent federal legislation that elevates Puget Sound to the same level of federal concern and support as the Great Lakes and Chesapeake Bay. Scientifically, we have powerful tools to help recovery planners and decision-makers that did not exist a decade ago. These range from comprehensive, spatially explicit models to new ways of monitoring (e.g., remote monitoring of habitat changes, and using genetic techniques for estimating population abundance, to better incorporation of social sciences and expanding knowledge networks). For example, in addition to the Future Scenarios model, a comprehensive hydro-ecological model, VELMA, can be linked to the Salish Sea Model of Puget Sound tidal flows, the Atlantis Model of marine food web dynamics and toxics in marine mammals and fish, and to refined climate models, with the ultimate goal of better understanding the impacts of different potential management strategies. The increased use of social sciences, with associated funding, is necessary to understand how governance, the economy, and different communities interact with, respond to, and participate in recovery efforts. New techniques, e.g., incorporating artificial intelligence, will allow better visualization and communication of these results and the consequences of our decisions.

We have not done enough yet at a scale to significantly improve the ecosystem; at the same time, we are experiencing constant change. Thus, even with the best set of recovery efforts, we likely will never see the Puget Sound that existed a millennium or even a couple of hundred years ago. The challenge is this — Can we work together to see a Puget Sound that is healthy, resilient, and beautiful for the next millennia? The Science Panel reiterates that this is likely possible only by acting boldly, creatively, and collaboratively, and doing so immediately and at the scale necessary to give the ecosystem a fighting chance at recovery.

For more information, read the Science Panel's extended comments here.

Call to action

This call to action is from the Puget Sound Partnership Leadership Council to the recovery community. Each of us can, and must, do more to accelerate recovery, and we are committed to our partnership with you. We must redouble our efforts to combat climate change and the effects of a growing population that threaten ecosystems and disproportionately affect vulnerable communities. Together, as we look to the future, let us be bold in our intent and actions to build a healthy, resilient, and economically prosperous Puget Sound for all.

These recommendations align with the 2022-2026 Action Agenda—our community's shared plan for the protection and restoration of Puget Sound. To learn more about how we can recover Puget Sound, see the 2022-2026 Action Agenda.

FOR THE STATE LEGISLATURE

- Enact changes to our regulatory system as recommended by the Puget Sound Partnership Leadership Council to protect and enhance salmon habitat, ensure human health and safety, provide irreplaceable ecosystem services, sustain Tribal cultures, increase resiliency to climate change, and produce food for orcas.
- Authorize new funding that will provide reliable, dedicated funding in the amounts needed for Puget Sound recovery, as recommended by the Leadership Council.
- Fund a Puget Sound budget that fully supports recovery, as recommended by the Leadership Council.
- Support Puget Sound-friendly Growth Management Act amendments and ensure successful implementation by providing local governments with the necessary tools and resources. To provide affordable housing while ensuring a healthy Puget Sound, we must accommodate development pressure in urban growth areas and avoid conversion of natural areas and working lands. The Legislature should ensure local governments have the tools and resources to incorporate the following into upcoming updates to local Comprehensive Plans in the Puget Sound region:
  - Salmon recovery efforts, including protecting intact salmon habitat and preventing conversion of parcels identified as high priority for restoration.
  - Climate mitigation and adaptation, including transit-oriented development and urban green space.
  - Tools to channel population growth into attractive, walkable communities with easy access to natural spaces.

- Enact policy and budget changes to accelerate Puget Sound recovery by:
  - » Increasing funding available for "Sound-Safe Infrastructure" projects, such as the Duckabush bridge replacement, I-5 through Nisqually, state road stormwater retrofits, and more.
  - » Protect and reopen shellfish beds by controlling bacterial pollution from wastewater systems, stormwater runoff, and boats.
  - » Take action to ensure Washington is competitive for and can manage the increase in federal funds for recovery. Actions could include ensuring that state agencies have sufficient permitting staff, investing in workforce development, and building capacity at the local level to manage projects.

FOR STATE AGENCIES

- Work with the Partnership and the Leadership Council to develop the Puget Sound budget. Submit budget requests to implement the 2022-2026 Action Agenda for Puget Sound.
- Work with the Leadership Council to identify and implement changes to state policies and programs that will accelerate recovery and increase climate resiliency while sustaining vibrant human communities and working lands.
- Enhance collaboration with local governments and landowners to find effective ways to protect and restore habitat and water quality.
- Continue and enhance collaboration with British Columbia to ensure our recovery efforts don't stop at the border and reflect the connectivity of the Salish Sea ecosystem. Accelerate salmon recovery work with Oregon, Idaho, California, and Alaska.
- Collaborate with the Partnership and its boards to address ongoing program barriers, including barriers that may prevent us from achieving Program Targets.
- Work with our state family to collectively advance environmental justice efforts and implement the HEAL Act.
- Work with the Partnership and Salmon Recovery Council to develop and implement the Puget Sound Salmon Recovery Plan Addendum (Regional Chapter Update).
- Implement actions in the 2022-2026 Action Agenda that will achieve biophysical and human wellbeing outcomes. Take action to achieve state agency Program Targets in the 2022-2026 Action Agenda.

FOR LOCAL GOVERNMENTS

- Collaborate with the Leadership Council and other regional partners to identify ways that state agencies and other partners can support local government efforts to accelerate recovery while enhancing human wellbeing.
- Adopt, implement, and enforce land-use policies that protect habitat, prevent stormwater pollution, and lead to the reopening and protection of shellfish beds. Look for ways to achieve environmental net gains while accommodating growth.
- Help constituents understand the connections between these land-use policies, climate resiliency, and Puget Sound recovery.
- Participate in and support watershed-scale recovery planning and implementation efforts, through Local Integrating Organizations and salmon recovery Lead Entities.
- Implement actions in the 2022-2026 Action Agenda that will achieve biophysical and human wellbeing outcomes.

FOR CONGRESS

- Maintain and grow current levels of funding for the Puget Sound Geographic Program.
- Fund science and monitoring to increase our understanding of, and ability to report on, Puget Sound recovery.
- Restore historic funding levels for the Pacific Coastal Salmon Recovery Fund to ensure that salmon recovery actions occur throughout the U.S. range of the Southern Resident orcas.
- Continue to support transportation infrastructure investments that align with Puget Sound recovery.

FOR FEDERAL AGENCIES

- Implement the action plan of the Puget Sound Federal Leadership Task Force with input from state and Tribal entities. Continue to collaborate within the Management Conference to align federal resources toward achieving the desired outcomes in the 2022-2026 Action Agenda.
- Through the Puget Sound Federal Leadership Task Force, identify and implement changes to federal policies and programs that will accelerate recovery while benefiting all communities equitably.
- Continue and enhance transboundary collaboration, including with Canadian First Nation communities, to ensure our recovery efforts reflect the connectivity of the Salish Sea ecosystem.
- Ensure that federal transportation infrastructure investments maximize opportunities to advance Puget Sound recovery.
- Work with the Partnership and Salmon Recovery Council to develop and implement the Puget Sound Salmon Recovery Plan Addendum (Regional Chapter Update).

FOR NONGOVERNMENTAL ORGANIZATIONS

- Continue and intensify advocacy for policies and funding that support Puget Sound recovery and healthy and resilient human populations.
- Help raise funds for implementation of the 2022-2026 Action Agenda.
- Increase public awareness of the condition of Puget Sound, why it matters, the effects of human activities and climate change on Puget Sound, and how individuals can support Puget Sound recovery.
- Participate in local coalitions to apply for state and federal funding and support implementation of projects in communities.
- Participate in and support watershed-scale recovery planning and implementation efforts, through Local Integrating Organizations and salmon recovery Lead Entities.
- Work with the Partnership and Salmon Recovery Council to develop and implement the Puget Sound Salmon Recovery Plan Addendum (Regional Chapter Update).

FOR THE PUGET SOUND PARTNERSHIP

- Work with the Leadership Council and all partners to identify and implement changes to state, federal, and local policies that will accelerate recovery and increase climate resiliency while sustaining vibrant human communities and working lands.
- Lead development of the Puget Sound budget with the Leadership Council and state agencies.
- Diversify and enhance funding sources to leverage state investments in Puget Sound, including philanthropy, impact investment, private sector commitments, and federal funding.
- Lead collaboration with all partners to implement the 2022-2026 Action Agenda.
- Commit to specific actions to advance strategies in the 2022-2026 Action Agenda.
- Continue to develop and enhance our accountability and ecosystem monitoring programs to ensure investments in Puget Sound recovery are effective and targeted.
- Continue to improve coordination with partners to align efforts with the Action Agenda and amplify resources to advance Puget Sound recovery.
- Deploy cutting-edge science to diagnose pressures on Puget Sound, identify and test potential solutions, and stay abreast of emerging issues.
- Tell the story of Puget Sound recovery.
- Work with our state family to collectively advance environmental justice efforts and implement the HEAL Act. Increase diversity, equity, and inclusion to represent everyone in the recovery effort. Guide and implement ecosystem recovery through an environmental justice lens.
- Lead the development and finalization of the Puget Sound Salmon Recovery Plan Addendum (Regional Chapter Update). Work collaboratively with partners and agencies to implement actions and strategies. Establish the monitoring and adaptive management framework and provide accountability.

FOR BUSINESS

- Participate in programs that support recovery, such as EnviroStars, LEED, and Salmon Safe. Take actions to reduce your business's carbon footprint.
- Invest in solutions with the nongovernmental organization community.
- Participate in Puget Sound Day on the Hill to demonstrate to our federal delegation that Puget Sound recovery helps the economy.
- Support innovation by participating in forums such as Water 100.
- Support recovery efforts in the watershed where you do business. Connect with Local Integrating Organizations or salmon recovery Lead Entities to discover mutually beneficial actions.

FOR THE PUBLIC

- Get involved. Participate in the recovery community within your area. Volunteer on a habitat restoration project or in a community-based science program. See pugetsoundstartshere.org for links to organizations to join. Plant a tree or native plants at home.
- Quiet the waters of Puget Sound to help orcas find food. If you're a boater, give orcas space. Follow the BeWhaleWise guidelines for whale watching. And please use pump-out stations to keep sewage out of Puget Sound.
- Drive less. Support efforts to improve alternative transportation options in the Puget Sound region.
- Keep plastics and toxic chemicals out of our waterways. Reduce single-use waste, reuse what you can, and recycle smartly. Use environmentally friendly products in your home and on your landscape, fix vehicle leaks, use a commercial car wash, and have your vehicle oil changed by a professional.
- Speak up for Puget Sound. Vote. Tell a friend. Make sure your local, state, and federal representatives know how important Puget Sound is to you.

- Learn about the Tribes, Tribal sovereignty, and treaty rights. Support projects and initiatives that advance Tribal treaty rights.
- Learn about environmental justice and underrepresented populations in governance in your home area.

FOR TRIBES

The Puget Sound Partnership recognizes Tribal nations as unique, distinct, sovereign peoples with inherent rights and connections to the Puget Sound. The Partnership acknowledges its government-to-government duties and will prioritize consultation with federally recognized Tribal nations. Ongoing collaboration with Tribal nations and consortia is central to our collective effort of Puget Sound recovery. Tribal nations lead, maintain, and participate in forums that guide and inform salmon and Puget Sound recovery and the development and implementation of the 2022-2026 Puget Sound Action Agenda.

Federally recognized Tribal nations retain their inherent rights and are, as such, sovereign and operate their own Tribal governments to govern their Tribal lands, citizenry and reservation populations through self-governance and self-determination. Tribal nations have a unique trust relationship with the United States federal government based on the U.S. Constitution, treaties, statutes, executive orders, and court decisions. Their status as sovereign nations entitles them to a direct government-to-government relationship with the federal government, independent of the states or local jurisdictions where these Tribal nations may reside.

The Partnership is guided by laws, policies, and agreements related to Tribal consultation. In our engagement with Tribal nations we strive to be consistent with the 1989 Centennial Accord, 1999 Millennium Agreement, The Healthy Environment for All (HEAL) Act, and Chapter 43.376.

The Partnership and the Leadership Council respectfully ask Tribal nations to continue to engage and work with us in regional and watershed-scale salmon and Puget Sound recovery planning, implementation, and science and monitoring efforts.

- Continue working together to protect and uphold Tribal treaty rights.
- Identify changes to federal, state, and local laws, policies, and programs that will accelerate recovery and implement the Tribal habitat strategy while enhancing human wellbeing.
- Participate in regional and watershed-scale recovery planning, implementation, and science and monitoring efforts.
- Work with the Washington State Department of Fish and Wildlife and the Leadership Council to help us integrate habitat, harvest, and hatchery efforts in Puget Sound.
- Work with the Partnership and Salmon Recovery Council to develop and implement the Puget Sound Salmon Recovery Plan Addendum (Regional Chapter Update).

State of the ecosystem

PUGET SOUND VITAL SIGNS HELP GAUGE ECOSYSTEM HEALTH

The Puget Sound Vital Signs are measures of ecosystem health. They help assess progress toward each of the statutory Puget Sound recovery goals for a healthy human population, quality of life, species and food web, habitat, water quality, and water quantity (figure 3). The Vital Signs themselves represent the components of the ecosystem important to the Puget Sound recovery community, like streams and floodplains, forage fish, and cultural wellbeing. Each Vital Sign, in turn, is measured with one or more indicators. The indicators evaluate ecosystem conditions and how conditions are changing throughout Puget Sound. The Partnership also set long-term targets for some Vital Sign Indicators. Targets help to describe the desired future condition the recovery community is working toward through investments or policies.

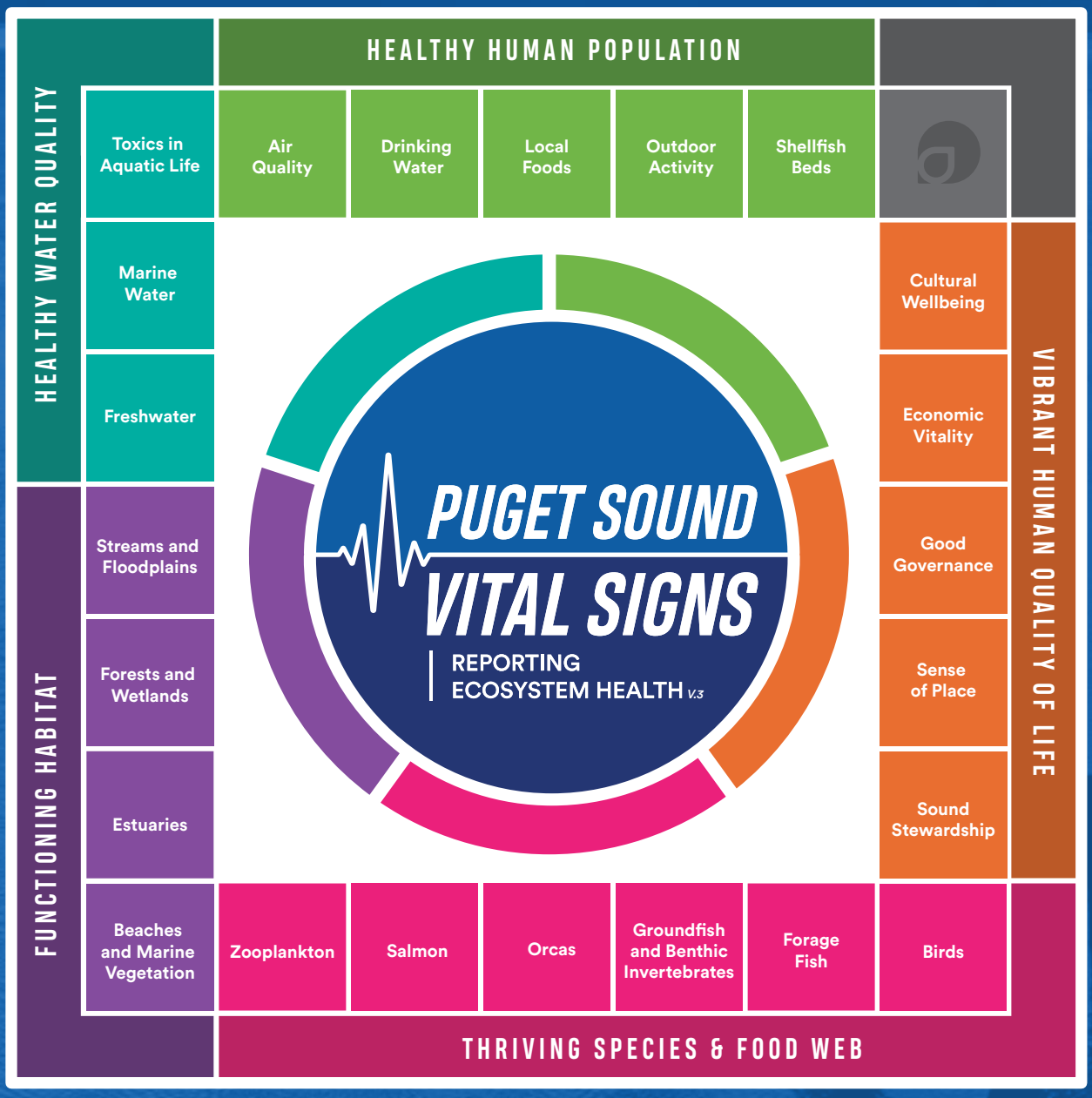


Figure 3. The Puget Sound Vital Signs infographic, which shows the relationship between the Puget Sound recovery goals, in the outer band, and the Vital Signs.

A SECOND GENERATION OF PUGET SOUND VITAL SIGNS AND VITAL SIGN INDICATORS

In 2019, we undertook a collaborative effort to update the suite of Puget Sound Vital Signs and Vital Sign Indicators to reflect the latest science and to incorporate feedback from the monitoring community to help us better track ecosystem trends over time. We revised the water quality and quantity, habitat, and species and food web goals by incorporating scientific and institutional information gained since the indicators were first selected 10 years prior.

The Leadership Council unanimously adopted the second generation of Vital Signs and Vital Sign Indicators in June 2020. We are working with our partners throughout the Puget Sound Ecosystem Monitoring Program (PSEMP) to compile the data needed to report on this new suite of indicators. Using the most recent data available, we report here on the status and trends in many of these long-term measures of environmental health.

OUR PARTNERS HELP US MONITOR THE ECOSYSTEM

The ecosystem is complex. It takes many partners, working side by side, to monitor Puget Sound conditions. No single source of information exists about how the ecosystem is doing. To answer questions about ecosystem conditions, we use different sources of information from across the Puget Sound recovery community. Information gathered through the Puget Sound monitoring community is regularly reported to assess ecosystem health.

PUGET SOUND ECOSYSTEM MONITORING PROGRAM

Monitoring delivers key information to evaluate Puget Sound recovery.
The Puget Sound Ecosystem Monitoring Program, or PSEMP, is a network of experts who organize and communicate scientific information from different parts of the Puget Sound ecosystem.

Scientists and partners serve as the region's eyes and ears to assess:

- ecosystem status and trends;
- progress toward Puget Sound recovery; and
- the success of recovery actions.

The science and monitoring data produced by the PSEMP network help inform policies, investments, and actions to advance recovery.

The Partnership supports PSEMP and its work groups by supplying staff capacity, funding monitoring projects, and promoting connections to ecosystem recovery efforts. We have awarded state and federal funds for PSEMP projects that address priority information needs in support of Puget Sound recovery. All projects are expected to support the objectives of PSEMP's Strategic Plan to increase collaboration, support adaptive management, and improve communication.

In 2021-2023, the Partnership funded seven PSEMP projects to develop first-time reporting of Vital Sign Indicators and two projects to inform and assess progress toward desired outcomes and statutory goals for Puget Sound recovery. In 2023, four projects were selected to develop, evaluate, or report the status and trends of Vital Sign Indicators not yet established. Another two projects were selected to assess progress and evaluate effectiveness of actions and strategies outlined in the 2022-2026 Action Agenda.

Under the 2023 Monitoring to Accelerate Recovery solicitation, projects are encouraged to create environmental benefits for overburdened and vulnerable populations, build collaborations with community scientists, and provide opportunities for Tribes, vulnerable populations, and overburdened communities to participate. For more information about PSEMP projects, please see the Monitoring to Accelerate Recovery page on our website.

TOGETHER WITH PARTNERS THROUGHOUT THE PSEMP NETWORK, WE ARE BUILDING THE DATA NEEDED TO TRACK 70 VITAL SIGN INDICATORS.

In this chapter, we draw from the latest findings reported in the Vital Sign web module of Puget Sound Info, a collaborative platform for publicly sharing information about Puget Sound recovery accomplishments and progress toward recovery goals.

Some Vital Sign Indicators are well established and supported by long-term monitoring programs, with one or more years of findings reported in Puget Sound Info. Other indicators need to be defined, evaluated, and reported. Twenty-six of the 70 Vital Sign Indicators currently await development. For these indicators, we will work with scientists and recovery partners to compile and report data in the future.

Findings in Puget Sound Info represent data and narrative contributed by dozens of people from state and federal agencies, local jurisdictions, Tribes, nonprofit environmental organizations, academia, and consultants. Leads for reporting on indicators contribute data and narrative, while topical work groups in PSEMP review the indicators and synthesize information to produce high-level messaging for each Vital Sign.

PARTNERS LEADING THE WORK TO REPORT ON INDICATORS FOR THE PUGET SOUND VITAL SIGNS:

OTHER REPORTING ON ENVIRONMENTAL CONDITIONS IN THE REGION

State of Our Watersheds | Northwest Indian Fisheries Commission The Northwest Treaty Tribes' State of Our Watersheds report identifies and tracks priority indicators and special topics from the 20 treaty Tribes in western Washington. The information is presented by regions and Tribal areas of interest.

Health of the Salish Sea Report | US EPA The Health of the Salish Sea Ecosystem Report is a collaboration between the U.S. Environmental Protection Agency and Environment and Climate Change Canada to report to the public on the health of our shared ecosystem.

State of the Salish Sea Report | Salish Sea Institute | Western Washington University The State of the Salish Sea Report synthesizes information on past, current, and emerging stressors within the Salish Sea, a complex waterbody shared by Coast Salish Tribes and First Nations, Canada, and the United States.

Healthy Human Population

STATUTORY GOAL

A healthy human population supported by a healthy Puget Sound that is not threatened by changes in the ecosystem.

Humans are part of the Puget Sound ecosystem. From the air we breathe and the water we drink, to the local foods we eat and the parks we enjoy, a healthy Puget Sound supports a healthy human population. However, many communities face disproportional exposure to pollution or access to green, cool spaces. Climate change affects the health of all residents and is particularly harmful to low-income populations, communities of color, and other vulnerable populations.

BY THE NUMBERS

5 VITAL SIGNS

Five Vital Signs tell us about aspects of the environment that are important for human health. The Puget Sound region provides an abundance of locally harvestable foods and outdoor opportunities that benefit people's physical and mental health.

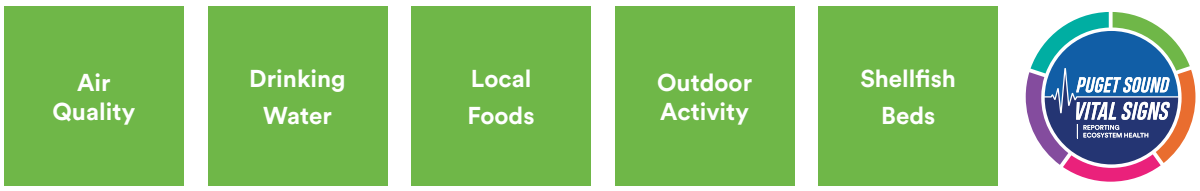


Figure 4. The Healthy Human Population Vital Signs.

10 INDICATORS

Most Healthy Human indicators stayed the same. Some indicators, like the condition of swimming beaches and drinking water, did not improve, but are in good shape overall. Poor air quality in some years and low crab harvest in some regions are concerning. Surveys of Puget Sound residents tell us about people's use of local food resources and what outdoor activities are most popular.

1 INDICATOR IS GETTING BETTER

- **SHELLFISH BEDS:** Area of harvestable shellfish beds
  Since 2007 more acres of shellfish growing areas have been upgraded than downgraded. However, in both 2021 and 2022 more acres were downgraded than upgraded.

1 INDICATOR IS GETTING WORSE

- **LOCAL FOODS:** Dungeness crab catch for personal use
  Over 200,000 people purchase a license to harvest Dungeness crab in Puget Sound each year. However, an increasing number of harvest closures due to low crab populations have been in effect in South and Central Puget Sound since 2015.

NO TREND 7

7 INDICATORS HAVE NOT SIGNIFICANTLY CHANGED OVER TIME

- **AIR QUALITY:** Exposure to impaired air quality
  Particle pollution levels fluctuate year-to-year based on changes in weather, emissions, and the severity of local and regional wildfires. In 2022, 86 percent of Puget Sound's population was exposed to impaired air quality.
- **DRINKING WATER:** Nitrate concentration in source water
  Most groundwater supplying large public water systems in Puget Sound is not contaminated by nitrates. However, Whatcom and Island counties had higher nitrate levels compared to other Puget Sound counties, driven by widespread and decades-long nitrate contamination, primarily from agricultural practices.
- **LOCAL FOODS:** Bivalve harvest for personal use
  Around 100,000 people harvest bivalves for personal use each year in Puget Sound, though the number varies from year to year. In 2022 harvest opportunities on some beaches were reduced because of the heat wave that swept through the Puget Sound region in June 2021.
- **LOCAL FOODS:** Locally harvestable foods
  Survey respondents collect or harvest local foods "rarely," or about one to two times a season. People are most likely to harvest plants, berries, and mushrooms compared to other local foods like fish, shellfish, or game.
- **OUTDOOR ACTIVITY:** Condition of swimming beaches
  Year-to-year fluctuations in marine water quality occur at swimming beaches and at times may be attributed to environmental factors such as weather. 90 percent of the 42 Puget Sound marine beaches monitored in 2022 had good water quality, reliably staying open for recreational use.
- **OUTDOOR ACTIVITY:** Nature-based recreation
  Gardening and yard work and the use of paths or trails for walking, running, and biking are the most popular outdoor activities in both summer and winter months. The activities that survey respondents engage with the least are using motorized trails (all-terrain vehicle or off-highway vehicle riding) and hunting.
- **OUTDOOR ACTIVITY:** Nature-based work
  Nearly 14 percent of Puget Sound residents participate in nature-based work. Of these respondents, half work more than 10 hours per week outdoors. In a separate survey of 180 Latinx residents, about 36 percent said they work outside.

TO BE DEVELOPED 1

1 INDICATOR IS UNDER DEVELOPMENT. WE ARE WORKING WITH SCIENTISTS AND RECOVERY PARTNERS TO COMPILE AND REPORT DATA.

- **DRINKING WATER:** Index of Vulnerability for Elevated Nitrates in Groundwater

2 RECOVERY TARGETS

We have annual recovery targets for swimming beaches and shellfish beds. Neither met their recovery goal in 2022.

BELOW TARGET

- **AREA OF HARVESTABLE SHELLFISH BEDS**
  Achieve a net gain of at least 500 acres approved for shellfish harvesting every year.
  Status: The three-year average net change in harvestable shellfish beds from 2020-2022 for all of Puget Sound was -210 acres.

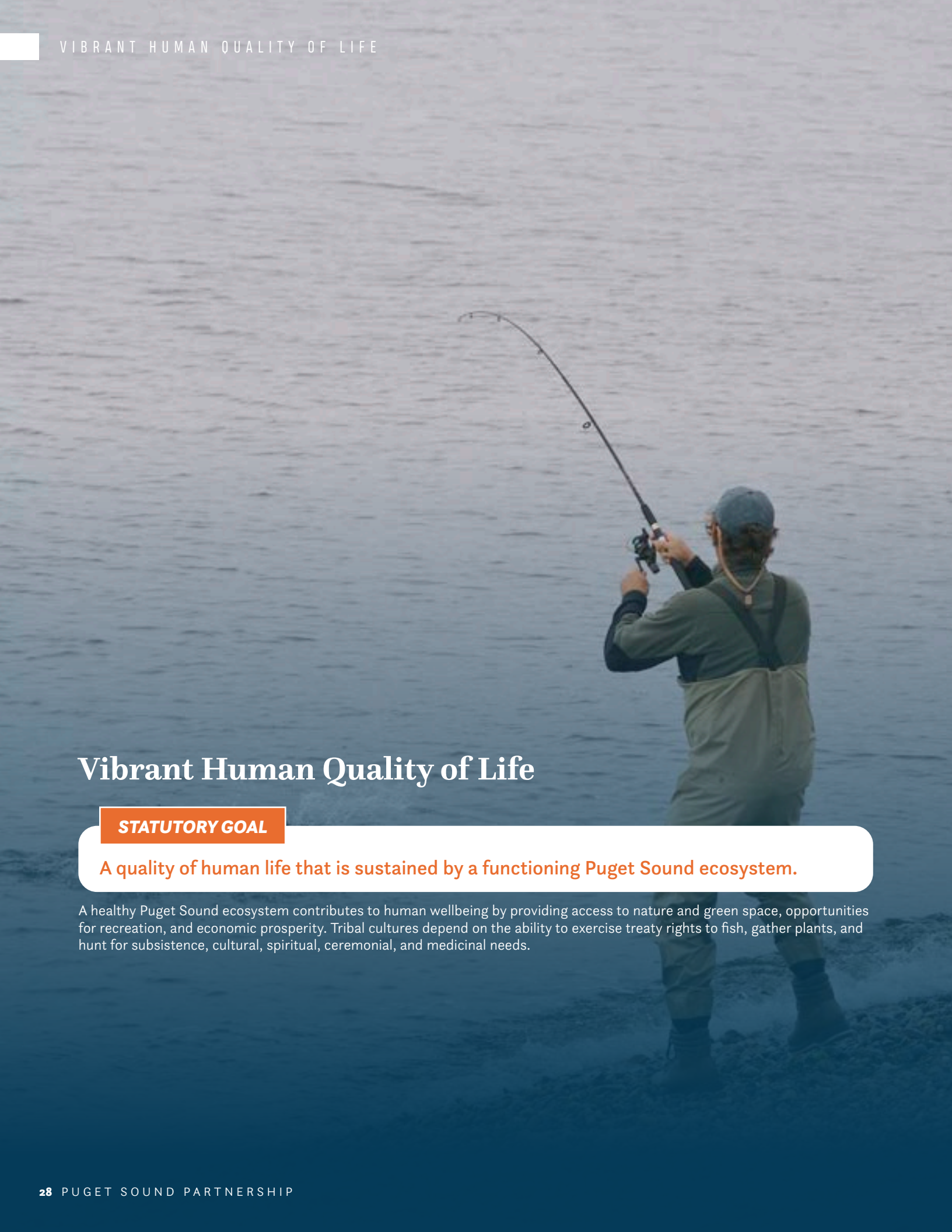
BELOW TARGET

- **CONDITION OF SWIMMING BEACHES**
  Beginning in 2022, 95 percent of core beaches meet safe swimming standards annually.
  Status: 90 percent of the core Puget Sound marine beaches monitored during the 2022 swim season met the recreational water quality criteria.

SUMMARY AND KEY MESSAGES

Spending time in nature and harvesting local foods provide valuable health and cultural benefits. Ensuring water quality for healthy and harvestable shellfish is essential to maintain Tribal cultural practices, local recreation activities, safe swimming beaches, and economic and ecosystem services.

- **Healthy and harvestable shellfish are an important component of a thriving ecosystem and a robust economy in Puget Sound.** Puget Sound beaches offer recreational, ceremonial and subsistence, and commercial harvest of a variety of clams, oysters, and mussels, which are readily available to be gathered and enjoyed. Shellfish are a key resource supported by Tribal treaty rights and provide traditional foods for Tribal communities, and shellfish beds are places for cultural gatherings and knowledge sharing.
- **Pollution, heat waves, and unsustainable crab populations limit people's access to shellfish harvest in some areas.** Closures, while necessary to protect human health and sustain the resource over time, affect people's access to harvest for recreation, food security, cultural and family heritage, and other personal and emotional experiences.
- **Residents enjoy the many marine beaches around Puget Sound, which generally have good water quality conditions.** This is due in part to the work the BEACH program has done to identify and correct many local bacteria problems that would otherwise result in beach closures.
- **The Shellfish Strategic Initiative works to prevent pathogen pollution to keep shellfish safe to harvest and eat across Puget Sound.** Since 2007 more acres of shellfish growing areas have been upgraded than downgraded. The positive trend reflects state, Tribal, and local investments in effective Pollution Identification and Correction (PIC) programs. However, in both 2021 and 2022 more acres were downgraded than upgraded. This recent pattern is concerning and highlights the ongoing challenge to identify and correct nonpoint source pollution that affects water quality in the nearshore.
- **The severity of local and regional wildfires has been the main cause of Puget Sound residents' exposure to unhealthy air quality in recent years.** In 2022, smoke from several fires in Washington's Cascade Range caused intermittent periods of impaired air quality across the state, with an unusually late and severe smoke episode in western Washington in October. That year, 86 percent of Puget Sound's population was exposed to impaired air quality.



Vibrant Human Quality of Life

STATUTORY GOAL

A quality of human life that is sustained by a functioning Puget Sound ecosystem.

A healthy Puget Sound ecosystem contributes to human wellbeing by providing access to nature and green space, opportunities for recreation, and economic prosperity. Tribal cultures depend on the ability to exercise treaty rights to fish, gather plants, and hunt for subsistence, cultural, spiritual, ceremonial, and medicinal needs.

BY THE NUMBERS

5 VITAL SIGNS

Five Vital Signs tell us about the quality of life and connection to the environment for people living in Puget Sound.

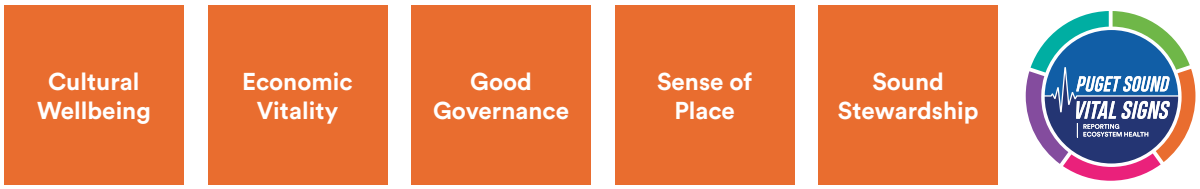


Figure 5. The Vibrant Human Quality of Life Vital Signs.

10 INDICATORS

Thanks to surveys of Puget Sound residents, we now better understand how people perceive the importance of Puget Sound for their quality of life. Survey data were first collected in 2018 and again in 2020 and 2022 from thousands of people in the general population. The economic indicators are derived from other, longer-term data sources for jobs and employment in natural resource industries.

1 INDICATOR IS GETTING BETTER

- **SOUND STEWARDSHIP:** Sound Behavior Index
  Residential behaviors that improve Puget Sound health rose from 2012 to 2019. Individuals report engaging in more environmentally friendly practices over time, like planting native plants on their property and checking vehicles for fluid leaks.

2 INDICATORS SHOW MIXED RESULTS:

- **ECONOMIC VITALITY:** Employment in natural resource industries
  Aquaculture, agriculture, and recreation and tourism sectors all report growth in employment and total wages from 2005–2019. Employment in timber and fishing, however, has flattened or declined.
- **ECONOMIC VITALITY:** Natural resource industry output
  Puget Sound-related tourism and recreation activities have increased consistently each year beginning in 2010. Product values from other natural resource industries (timber, fish, shellfish, and crops and livestock) have fluctuated over the years.

LIMITED DATA 7

7 INDICATORS HAVE NOT CHANGED SIGNIFICANTLY OVER TIME

- **CULTURAL WELLBEING:** Participation in cultural practices
  About half of survey respondents participate in cultural activities or traditions related to the natural environment. People reported feeling somewhat satisfied with their level of participation in cultural activities in 2020 and 2022.
- **ECONOMIC VITALITY:** Percent of employment in natural resource industries
  Roughly 3 percent of Puget Sound jobs are in natural resource industries. Natural resource industries account for a higher percentage of wage and employment in rural counties with more recreational opportunities, such as San Juan, Clallam, Jefferson, and Whatcom counties.
- **GOOD GOVERNANCE:** Good Governance Index
  There are mixed results from survey respondents on how the environment is managed and whether they feel heard in decision-making.
- **SENSE OF PLACE:** Overall life satisfaction
  Most survey respondents in 2022 feel "satisfied" with their life, which is consistent with 2020 findings.
- **SENSE OF PLACE:** Psychological Wellbeing Index
  Survey respondents experience inspiration or stress reduction from the outdoors "regularly," or almost once a week.
- **SENSE OF PLACE:** Sense of Place Index
  Survey respondents, on average, "somewhat agree" that they identify with and feel positively attached to Puget Sound. This score is consistent with participants' responses in 2018 and 2020.
- **SOUND STEWARDSHIP:** Engagement in stewardship activities
  Survey respondents engage in stewardship activities that they believe will benefit the environment or their community "occasionally," or at least once a month.

SUMMARY AND KEY MESSAGES

Puget Sound residents' engagement with the environment, as measured by the Vital Signs Human Wellbeing Survey, has generally been positive and consistent over recent years. Though the Partnership has not set targets for indicators under this goal, they ideally should progress or increase over time, although there might be some complexity and trade-offs to achieve sustainability or resilience.

- **Little change was detected in the Human Wellbeing Survey over time.** People who were surveyed on average express feeling "satisfied" with their lives and regularly experience inspiration or stress reduction from the outdoors. However, it is important to note that most respondents were white and middle class. The experiences of underrepresented groups may be different and are a data gap that we should seek to fill by extending participation and assuring representation from all Puget Sound communities. When considering their relationship to nature, many residents emphasize the importance of community and family, access to and safety in nature, and the benefits of tree cover.
- **Residents are split on how our government and other organizations manage the natural environment.** Responses to questions about access to information, opportunities to influence decisions, and trust in policy makers ranged from "strongly disagree" to "strongly agree." Demographic information such as age, race, income, and political idelogy explains very little about opinions about environmental governance.
- **Inclusive engagement and representation matter for decision-making and distribution of equity and justice.** The Human Wellbeing Survey tells us valuable information about Puget Sound residents' personal feelings and experiences with the environment. However, the survey may not adequately capture the perspectives and experiences of minoritized and overburdened populations. A recent project from the Washington State Department of Fish and Wildlife, highlighted in our accomplishments section, explores enhancing the Human Wellbeing Vital Signs through inclusive engagement, with an emphasis on Asian American and Pacific Islander and Black and African American Puget Sound residents. The project offers recommendations for additional measures of human wellbeing that resonate with participating community members, including accessibility, equity, and safety.
- **Economic trends in natural resource industries are mixed.** Overall growth is largely driven by the recreation and tourism sector which represents almost 78 percent of natural resource employment and about 82 percent of natural resource wages. Employment and wages in fishing and timber have declined, while aquaculture, agriculture, and recreation sectors all report growth from 2005 to 2019.

Thriving Species and Food Web

STATUTORY GOAL

Healthy and sustaining populations of native species in Puget Sound, including a robust food web.

A diverse and resilient food web allows for healthy and sustaining populations of native species in Puget Sound. Iconic and economically important species, like orcas and salmon, are still far from recovery goals. Healthy habitats, water quality, and the dynamic relationships between species must be restored and preserved to ensure a thriving food web.

BY THE NUMBERS

6 VITAL SIGNS

Six Vital Signs tell us about the health of native species in Puget Sound that are connected through a complex food chain. These species, from zooplankton to orcas, play unique and at times multiple roles in the food web.

Figure 6. The Thriving Species and Food Web Vital Signs.

16 INDICATORS

Fish, birds, and mammals represented in the Species and Food Web goal are not making enough progress toward recovery. Certain forest and marine bird species, such as golden-crowned kinglets, marbled murrelets, and scoters, and Southern Resident killer whale populations continue to decline. Chinook salmon and Puget Sound steelhead are stable, but population numbers are far too low. We do see recent improvements with summer chum salmon and some herring stocks.

1 INDICATOR IS GETTING BETTER

- **SALMON:** Number of natural-origin summer chum salmon on spawning grounds
  Hood Canal summer chum spawner abundance has increased in both populations since they were listed as Threatened under the Endangered Species Act (ESA) in 1999. The Strait of Juan de Fuca population is at 72 percent of its threshold for low risk of extinction; the Hood Canal population is far above its threshold at 243 percent.

2 INDICATORS SHOW MIXED RESULTS

- **BIRDS:** Abundance of marine bird populations
  Marine bird populations have mixed population size trends, with marbled murrelets—an endangered species—and scoters in decline, while pigeon guillemot and rhinoceros auklets remain stable.
- **FORAGE FISH:** Biomass of spawning Pacific herring
  Spawning biomass for the Other Stocks Complex (all Puget Sound herring stocks other than Cherry Point and Squaxin Pass stocks) has increased in recent years and was above the 25-year baseline in 2021 and 2022. Record high spawning estimates were observed in 2022 at the Dungeness/Sequim Bay and Interior San Juan Islands spawning areas. In comparison, the genetically distinct Cherry Point and Squaxin Pass stocks remain below their baselines.

2 INDICATORS ARE GETTING WORSE:

- **ORCAS:** Number of Southern Resident killer whales
  Over the past several years, the Southern Resident killer whale population has continued to decline from the peak of 98 whales in 1995. With only 75 Southern Resident orcas at last count, they are far from reaching the recovery target of 110 whales by 2050.
- **BIRDS:** Abundance of terrestrial bird populations
  The breeding population abundance of forest interior species has steadily declined since 1968, while human-associated species have remained relatively stable. The declining trend in forest interior species is driven by declines in the golden-crowned kinglet, the most abundant of the three indicator species.

NO TREND 6

6 INDICATORS HAVE NOT SIGNIFICANTLY CHANGED OVER TIME

- **SALMON:** Number of natural-origin Chinook salmon on spawning grounds
  Chinook spawner abundance across Puget Sound has changed little since they were listed as Threatened under the ESA in 1999. While these populations have not decreased significantly in abundance since the time of listing, most remain well below their recovery planning targets adopted by National Oceanic and Atmospheric Administration (NOAA) Fisheries.
- **SALMON:** Number of natural-origin coho salmon on spawning grounds
  Spawner abundance estimates of five management units of Puget Sound coho salmon have not changed significantly since 2000. However, four of five coho management units are at or above 90 percent of their escapement breakpoint values adopted by the Pacific Fishery Management Council to help ensure sustainable harvest.
- **SALMON:** Number of natural-origin Puget Sound steelhead on spawning grounds
  Puget Sound steelhead spawner abundance across Puget Sound has changed little since they were listed as Threatened under the ESA in 2007. While these populations have not decreased significantly in abundance since the time of listing, all Puget Sound steelhead populations remain well below their recovery planning targets adopted by NOAA Fisheries.
- **ZOOPLANKTON:** Zooplankton Index
  During the Pacific marine heatwave of 2015-2016, zooplankton biomass was anomalously high throughout the southern Salish Sea. Conversely, 2020 and 2021 were low biomass years.
- **ZOOPLANKTON:** Average annual zooplankton biomass
  Annual zooplankton biomass varies in response to environmental changes, such as heat waves. Crustaceans (copepods, amphipods, krill, shrimp, crabs, etc.) make up the majority of zooplankton biomass in the Salish Sea.
- **ZOOPLANKTON:** Average seasonal zooplankton biomass
  Zooplankton biomass in northern Washington and Puget Sound typically peaks in spring and summer, respectively, and has been generally consistent over time.

TO BE DEVELOPED 5

5 INDICATORS WILL BE DEVELOPED OVER TIME. WE WILL WORK WITH SCIENTISTS AND RECOVERY PARTNERS TO COMPILE AND REPORT DATA IN THE FUTURE.

- **BIRDS:** Estuarine birds
- **FORAGE FISH:** Regional index of the stock presence and health of forage fish species
- **GROUNDFISH AND BENTHIC INVERTEBRATES:** Abundance and biomass of benthic marine invertebrates
- **GROUNDFISH AND BENTHIC INVERTEBRATES:** Abundance and biomass of groundfish
- **ORCAS:** Occupancy/residency of orcas in Puget Sound

2 RECOVERY TARGETS

We have long-term recovery targets for Southern Resident killer whales and Chinook salmon. Neither are on track to reach their recovery goals.

BELOW TARGET

- **NUMBER OF SOUTHERN RESIDENT KILLER WHALES**
  By 2030, increase the Southern Resident killer whale population from 74 individual whales in 2021 to 86 individuals. By 2050, increase the population to 110 individuals.
  Status: The July 2023 census led by the Center for Whale Research reported 75 whales, which reflects two new calves born in 2023. The number is up from 73 whales last year, but down from the peak of 98 whales in 1995.

BELOW TARGET

- **NUMBER OF NATURAL-ORIGIN CHINOOK SALMON ON SPAWNING GROUNDS**
  By 2050, all Chinook salmon populations increase, and at least 50 percent of the populations reach their recovery goals.
  Status: There is little to no sign of recovery of Puget Sound Chinook populations in each biogeographic region. Estimates of population spawner abundance of the 22 Puget Sound Chinook populations have changed very little since the baseline reference period when the populations were listed in 1999.

SUMMARY AND KEY MESSAGES

Reporting on Thriving Species and Food Web status and trends has grown with new Vital Signs and Vital Sign Indicators for groundfish and benthic invertebrates, zooplankton, and salmon. While trends in this category remain consistent since the last State of the Sound report, we continue to learn about the species critical to the health of Puget Sound and the complex relationships within its food web.

- **Zooplankton, tiny aquatic "drifters," provide critical food for forage fish and juvenile salmon.** Zooplankton communities are seasonally distinct throughout the several basins in the southern Salish Sea, and changes in their communities can be tied to large-scale climate fluctuations like the Pacific marine heatwave of 2015-2016.
- **Some herring spawning areas increased in abundance in 2022, while others continued to decline.** The size and timing of herring spawning varies regionally and can change dramatically from year to year. Scientists continue to observe shifts in the distribution of some stocks and herring spawning in previously undocumented areas.
- **Salmon spawner abundance across Puget Sound has changed very little since the baseline period for three of the four indicator species:** natural-origin Chinook, coho, and Puget Sound steelhead. For Chinook and steelhead, which are federally listed as Threatened, this means we see little to no sign of recovery.
- **Hood Canal summer chum salmon have increased since ESA listing in 1999.** This good news reflects decades of effort and investments in habitat restoration, reduced harvest rates, and revisions in hatchery management, leading to a possible breakthrough for recovery of this Threatened species.
- **The status of the Southern Resident killer whale population remains fragile.** The population peaked in 1995 with 98 whales, declining to 75 whales in 2023. The combination of a precarious food supply and threats from pollution, vessel traffic, and noise jeopardize the survival of Southern Resident killer whales. In contrast, the mammal-eating Bigg's killer whale population continues to steadily increase at what is likely a near-maximum rate.
- **Salmon recovery and orca recovery are closely linked.** Year-round, Southern Resident killer whales depend heavily on Chinook salmon for food. However, Chinook salmon populations show little sign of recovery, and factors such as changing climate and ocean conditions, predation on salmon from other species, harvest in fisheries, habitat degradation, hatchery programs, and hydropower operations are changing salmon densities, timing, and size, reducing prey availability for Southern Resident killer whales.
- **We are challenged to provide native species with the conditions necessary to sustain populations, including sufficient functional habitat, clean water free of contaminants, and robust prey resources.** Bold leadership and innovative changes in how people live on the landscape need to be implemented at a rate that outpaces human population growth impacts.

Why aren't salmon populations getting better?

OBSERVATIONS FROM THE PSEMP SALMONID WORK GROUP AND THE SALMON SCIENCE ADVISORY GROUP.

Restoration is increasing, fishing is decreasing, but most populations are not recovering. There are several potential reasons:

- Productivity (how many offspring can be produced by each salmon) is not improving.
- Land-use impacts are outpacing habitat protection and restoration.
- Not enough restoration has been completed and not enough time has passed for completed projects to become fully functional and produce a fish response.
- Climate change impacts, such as heat domes and flood and drought cycles, are negatively affecting populations faster than they can adapt.
- The food web is changing. Predation on salmon is increasing, and salmon prey are no longer available at the densities, timing, size, and caloric content required for adequate growth and survival.

We need predictable, continuous funding for monitoring and understanding these changes. Factors over which we have little control, such as changing ocean conditions, climate change, heat domes, and atmospheric rivers, put more pressure on factors we can control. Understanding the relationships between global factors and local factors enables us to determine what actions we can take to increase salmon and ecosystem resilience.

Functioning Habitat

STATUTORY GOAL

A healthy Puget Sound where freshwater, estuary, nearshore, marine, and upland habitats are protected, restored, and sustained.

Habitats are our shared natural heritage and create the quality of life that makes Puget Sound an attractive place to live, work, and play. Human activity and development have deeply changed the Puget Sound region, and climate change is more than ever impacting habitat critical for species and human wellbeing.

BY THE NUMBERS

4 VITAL SIGNS

Four Vital Signs tell us about the health of the rivers, forests, shorelines, and estuaries that make up Puget Sound and help us understand if restoration and protection efforts are working. A functioning, resilient Puget Sound must include complex, connected habitats to sustain people, fish, and wildlife.

Figure 7. The Functioning Habitat Vital Signs.

18 INDICATORS

Some of the habitat indicators trended in a positive direction, while others stayed the same or grew worse. Restoration activities in estuaries and floodplains have resulted in habitat gains and improved connectivity between the water and land. However, development and climate change impact habitats throughout Puget Sound and are a clear cause for concern.

Puget Sound is a complex place, and habitat conditions vary across the region. Local communities are impacted in different ways and by different stressors. Therefore, local recovery efforts are particularly important to support.

2 INDICATORS ARE GETTING BETTER

- **ESTUARIES:** Estuary area in functional condition
  Over half (61 percent) of delta wetland habitat in Puget Sound's large river estuaries is completely disconnected from tidal inundation. Since 2006, restoration activities have reintroduced or improved tidal connectivity to 3,420 acres in Puget Sound's large river deltas (4 percent of the total wetland area). Most restoration occurred in the Snohomish, Nisqually, Skagit, Stillaguamish, and Skokomish deltas.
- **STREAMS AND FLOODPLAINS:** Floodplain function in large and small river systems
  Thirty-eight percent of Puget Sound's floodplain area is highly functional (connected, natural land cover). Since 2011, restoration activities have reconnected roughly 3,500 floodplain acres. While this is a positive trend, the change affects only a small fraction of the total floodplain area, and approximately 220,000 floodplain acres remain disconnected.

1 INDICATOR SHOWS MIXED RESULTS

- **BEACHES AND MARINE VEGETATION:** Short and long-term change at eelgrass sites
  Eelgrass sites in North Puget Sound and the Saratoga Whidbey Basin region and the Central Puget Sound and Hood Canal region are in stable condition. However, scientists are concerned about declines at sites in the San Juan Islands and Strait of Juan de Fuca.

2 INDICATORS ARE GETTING WORSE:

- **BEACHES AND MARINE VEGETATION:** Floating kelp bed area
  While kelp populations are generally stable along the northern outer coast and Strait of Juan de Fuca, many areas in Puget Sound have documented significant declines or concern of declines based on surveys, Indigenous scientific knowledge, and other reports.
- **STREAMS AND FLOODPLAINS:** Summer low flow in streams and rivers
  The occurrence of below-normal summer flows is increasing in streams and rivers across Puget Sound. In 2021, summer flows were below normal most of the time at three-quarters of the 19 indicator stream gages.

1 INDICATOR HAS NOT CHANGED SIGNIFICANTLY OVER TIME

- **BEACHES AND MARINE VEGETATION:** Eelgrass Area
  Scientists estimate that the total eelgrass area in Puget Sound is approximately 55,000 acres and has not changed significantly over time at the regional scale.

1 INDICATOR HAS LIMITED DATA TO ASSESS CHANGE OVER TIME

- **BEACHES AND MARINE VEGETATION:** Feeder bluffs in functional condition
  Thirty-four percent (224 miles) of the feeder bluff shoreline is armored, which disrupts the natural supply of sediment to nearshore habitats. Data is limited to describe regional changes in feeder bluff armoring over time; however, local studies help inform patterns. In the San Juan Islands, more armor was installed than removed between 2009 and 2019, and people are not getting legal approval before installing armor.

11 INDICATORS WILL BE DEVELOPED OVER TIME. WE WILL WORK WITH SCIENTISTS AND RECOVERY PARTNERS TO COMPILE AND REPORT DATA IN THE FUTURE.

- **BEACHES AND MARINE VEGETATION:** Drift cells in functional condition
- **BEACHES AND MARINE VEGETATION:** Extent of forest cover in nearshore marine riparian areas
- **BEACHES AND MARINE VEGETATION:** Miles of intertidal beach in functional condition
- **BEACHES AND MARINE VEGETATION:** Understory kelp abundance and condition
- **ESTUARIES:** Number of accessible pocket estuaries and embayments
- **FOREST AND WETLANDS:** Extent of forest cover in the upper, middle, and lower areas of watersheds
- **FOREST AND WETLANDS:** Forest condition
- **FOREST AND WETLANDS:** Wetlands extent and condition
- **STREAMS AND FLOODPLAINS:** Changes in hydrologic regime in streams and rivers
- **STREAMS AND FLOODPLAINS:** Extent of forest cover in freshwater riparian zones
- **STREAMS AND FLOODPLAINS:** Frequency of flood events

1 RECOVERY TARGET

We have a long-term recovery target for trends in the number of eelgrass sites. The indicator is not yet meeting the recovery goal.

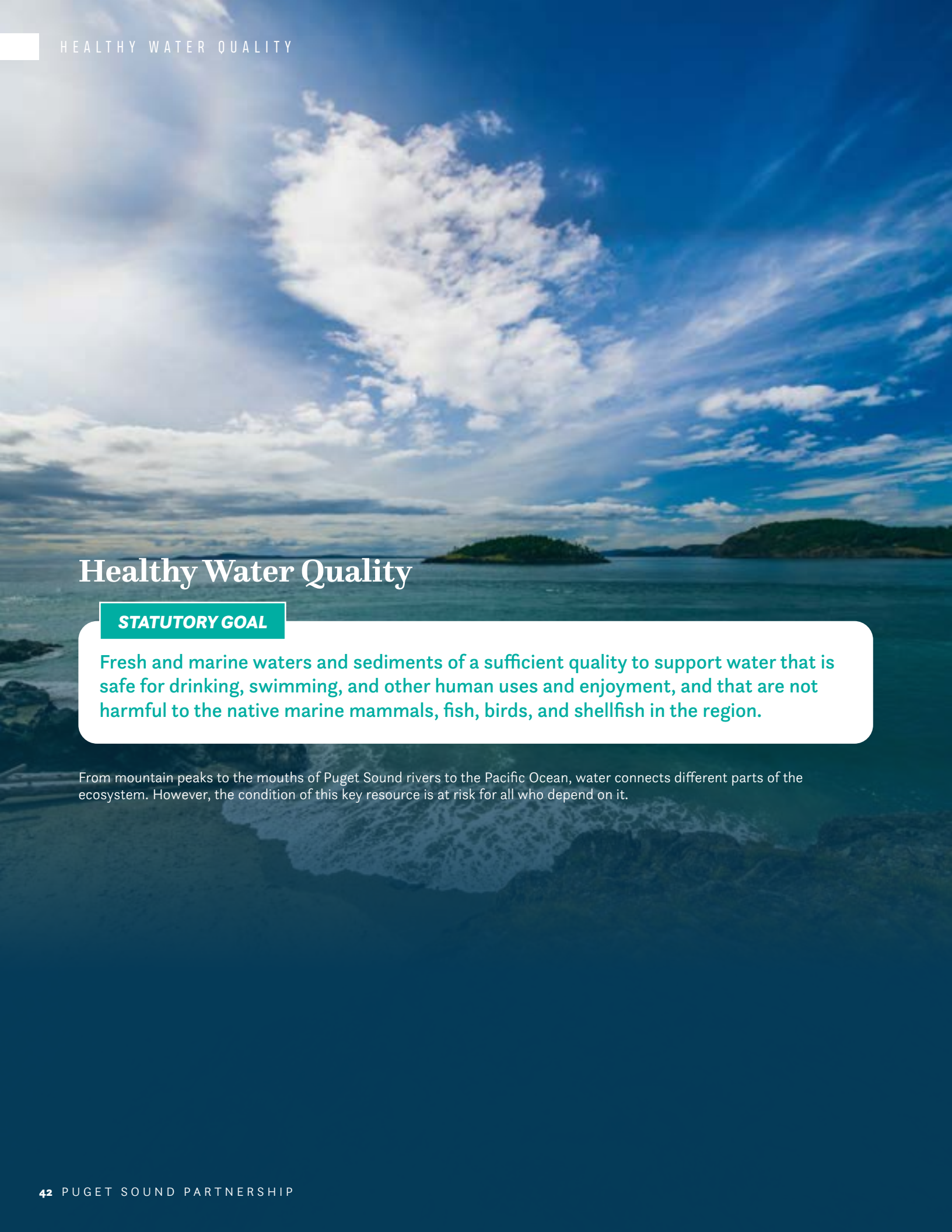
BELOW TARGET

- **SHORT AND LONG-TERM CHANGE AT EELGRASS SITES**
  By 2030, see no significant difference between the number of sites with increases and declines in eelgrass area in each of three sub-regions of Puget Sound (no net loss). By 2050, sites with long-term increases in eelgrass area significantly outnumber sites with declines in each of three sub-regions of Puget Sound (net gain). **Status: In the San Juan Islands and Strait of Juan de Fuca, sites with declines in eelgrass area significantly outnumber sites with increases, both over the long-term and in recent years.**

SUMMARY AND KEY MESSAGES

While recovery efforts are making progress in restoring and reconnecting estuaries and floodplains, habitat protection and restoration remains a priority. Lower river flows in summer, increasing water temperatures, and climate change are major concerns in both freshwater and marine environments.

- **Shoreline armor, like bulkheads and seawalls, affects beach habitat by disrupting erosion processes.** These impacts extend to nearshore and marine habitats beyond the location of the armor and threaten salmon and forage fish spawning habitat. A study by Friends of the San Juans found that new armor continues to be installed on beaches and feeder bluffs, and few people comply with or participate in the permit process.
- **Kelp form extensive living structures similar to forests and provide an array of valuable ecosystem goods and services.** These highly productive habitats support diverse species, ranging from small invertebrates to commercially important fish. Kelp is culturally important to Indigenous peoples of the Pacific Northwest. It supports traditional food sources and plays an important role in art, spirituality, and symbolism.
- **Dramatic losses in kelp canopy predominate in some areas of Washington State while other areas appear stable.** The floating kelp bed Vital Sign Indicator weaves together multiple ways of knowing to report on status and trends over time. Multiple natural and human factors known to impact kelp, such as water temperature and nutrient concentration, could be contributing to observed patterns. Where floating kelp is stable, conservation is a priority. Where substantial declines are documented, stressor abatement and restoration are priorities. In areas with insufficient data, more monitoring is needed.
- **Eelgrass extent has been relatively stable Sound-wide since 2000.** This trend is reassuring and sets Puget Sound apart from many other developed areas, where substantial system-wide declines are ongoing. However, we see mixed results at individual sites, and declines, particularly in the San Juan Islands, are concerning. Environmental conditions, like recent marine heat waves, may have intensified the loss of eelgrass in recent years. Warmer water temperatures can stress eelgrass beds. This may have contributed to eelgrass loss inside embayments and at the end of inlets, which are often warmer than the surrounding waters.
- **Human-caused climate change is exacerbating seasonal anomalies in streamflows.** With rising snow elevations and less snowpack, summer low flows are becoming lower and longer lasting throughout the region. Since 2015, most rivers evaluated for the indicator had below-normal summer flows over 75 percent of the time. Accelerated glacial melt may temporarily offset diminishing low flows in some rivers. Where substantial glaciers are present around basin headwaters, systems have generally maintained stable summer streamflows.
- **The Habitat Strategic Initiative puts in place strategies that improve the health of the rivers, forests, shorelines, and estuaries that make up Puget Sound.** Recovering river and estuary habitat depends on a successful combination of funding, available land, community support, system knowledge, project development, and permitting. Importantly, all of these steps require the capacity and expertise of people working to plan and implement recovery efforts.



Healthy Water Quality

STATUTORY GOAL

Fresh and marine waters and sediments of a sufficient quality to support water that is safe for drinking, swimming, and other human uses and enjoyment, and that are not harmful to the native marine mammals, fish, birds, and shellfish in the region.

From mountain peaks to the mouths of Puget Sound rivers to the Pacific Ocean, water connects different parts of the ecosystem. However, the condition of this key resource is at risk for all who depend on it.

BY THE NUMBERS

3 VITAL SIGNS

Three Vital Signs tell us about fresh and marine water quality and whether efforts to reduce excessive nutrients and chemical pollutants are working.

Freshwater | Marine Water | Toxics in Aquatic Life

Figure 8. Healthy Water Quality Vital Signs.

16 INDICATORS

Some signals for marine and freshwater quality have improved, namely the Benthic Index of Biotic Integrity (B-IBI) and indicators of contaminants in different species. Though many of the Water Quality indicators are new and awaiting development, decades of data exist from ongoing monitoring programs. Work is currently underway to compile data and report on primary productivity and contaminants in the nearshore, with other indicators to follow.

GETTING BETTER 1

1 INDICATOR IS GETTING BETTER

- **FRESHWATER:** Benthic Index of Biotic Integrity
  Stream condition across 718 Puget Sound sites ranged from excellent or good (42 percent) to fair (22 percent) to poor or very poor (37 percent). Analysis of trends at 188 sites with at least 10 years of monitoring data show that B-IBI scores improved at 22 percent of sites and declined at only 2 percent of sites.

MIXED RESULTS 2

2 INDICATORS SHOW MIXED RESULTS

- **TOXICS IN AQUATIC LIFE:** Contaminants in English sole
  Although there has been some improvement in the contaminants in English sole indicator [polycyclic aromatic hydrocarbons (PAHs) and polybrominated diphenyl ethers (PBDEs)], polychlorinated biphenyls (PCB) concentrations remain high in these benthic fish from urban and near-urban bays, and reproductive impairment from endocrine-disrupting chemical-related vitellogenin induction continues in both urban and non-urban areas.
- **TOXICS IN AQUATIC LIFE:** Contaminants in Pacific herring
  PCBs remained high in herring stocks from the more urbanized Central and South Basins of Puget Sound. PBDEs are low in all herring stocks sampled and continue to decline or remain stable throughout Puget Sound.

NO TREND 2

2 INDICATORS HAVE NOT CHANGED SIGNIFICANTLY OVER TIME

- **MARINE WATER:** Marine Benthic Index
  Puget Sound benthic community health improved from 2017 to 2019, but not significantly. Excessive amounts of organic material reaching the sediments account for much of the human disturbance to benthic invertebrate communities, especially in low-energy terminal inlets.
- **MARINE WATER:** Sediment Chemistry Index
  Sediment contamination typically changes slowly over time unless contaminant inputs increase. Five of six urban bays sampled from 2007 through 2021 show sediments in good condition. Sediment Chemistry Index scores in Elliott Bay have improved from baseline sampling in 1998, but still do not reach the threshold level of "minimum exposure."

LIMITED DATA 2

2 INDICATORS HAVE LIMITED DATA TO ASSESS CHANGE OVER TIME

- **TOXICS IN AQUATIC LIFE:** Contaminants in adult salmon
  PCBs in resident Chinook salmon throughout Puget Sound exceeded the human health threshold and the Washington State Department of Health advises people to limit their consumption of resident Chinook salmon. In contrast, PBDE concentrations were below the human health thresholds. While data are limited, time trends should mimic those observed for the contaminants in Pacific herring indicator.

- **TOXICS IN AQUATIC LIFE:** Contaminants in juvenile salmon
  Contaminant-related health risks for juvenile Chinook salmon were widespread in developed watersheds in Central and South Puget Sound, where contaminant levels were high enough to potentially affect salmon health and reduce their survival. Trends data is pending for selected sites.

TO BE DEVELOPED 8

8 INDICATORS WILL BE DEVELOPED OVER TIME. WE WILL WORK WITH SCIENTISTS AND RECOVERY PARTNERS TO COMPILE AND REPORT DATA IN THE FUTURE.

- **FRESHWATER:** Nutrient concentration in streams and rivers
- **FRESHWATER:** Water temperature in streams and rivers
- **MARINE WATER:** Dissolved oxygen in marine water
- **MARINE WATER:** Marine water temperature
- **MARINE WATER:** Noise in marine water
- **MARINE WATER:** Nutrient balance in marine water
- **MARINE WATER:** Ocean acidification
- **MARINE WATER:** Primary production in marine water
- **TOXICS IN AQUATIC LIFE:** Contaminants in the nearshore

1 RECOVERY TARGET

We have long-term recovery targets for Toxics in Aquatic Life. Targets are assessed from periodic sampling of the four indicator species or groups. None of the indicators are currently meeting their target.

BELOW TARGET

TOXICS IN AQUATIC LIFE

By 2030, 95 percent of the samples gathered across Puget Sound habitats exhibit a declining trend of contaminant levels or are below thresholds of concern for species or human health. By 2050, 95 percent of the samples gathered across Puget Sound habitats exhibit contaminant levels below thresholds of concern for species or human health and show no increasing trends. **Status: PCB levels remain high in aquatic life in the different habitat types monitored in Puget Sound (river-estuary, benthic, and open waters). Monitoring over the last 20 years indicates that PCB levels are not decreasing and are actually increasing in some urban benthic habitats.**

SUMMARY AND KEY MESSAGES

We see some positive signals in stream health and certain contaminant levels. However, other contaminants, like PCBs and Contaminants of Emerging Concern, remain a high concern, and climate change is impacting the water cycle and water quality throughout Puget Sound.

- **Freshwater quality and stream habitat health are mixed across Puget Sound; however, over time B-IBI scores have either improved or remained stable.** Overall, these trends are encouraging. While development has increased in the region, stream health (as measured by the diversity and abundance of insects and other invertebrates) appears to have improved in more than 1 in 5 streams and declined in only 1 in 50 streams.
- **Marine water quality continues to change throughout Puget Sound, as shown by measurements of oxygen, temperature, pH, and nutrient balances documented in the Marine Waters 2021 Overview.** The conditions of marine waters in Puget Sound vary by region, depending on where basins are located.
- **As the climate changes, so does marine water temperature and salinity.** Since 2014 Puget Sound waters have been seasonally warmer and saltier than average. Higher salinity is driven by decreased precipitation and low river flow into Puget Sound, while water temperature is driven by deep Pacific Ocean inflow and regional climate events. An unprecedented extreme heat event occurred in early July 2021, when air temperatures persisted above 100°F for several days, causing mass intertidal mortalities and very warm surface water. If extreme heat events become more common with climate change, impacts to communities will intensify with less time for slow-growing organisms to recover.
- **Excess nitrogen from human sources can fuel macroalgae blooms that decompose and deplete oxygen from the water.** Low-oxygen waters may stress or kill fish and shellfish, reducing food availability for other animals such as birds and marine mammals. In 2021, hypoxia persisted from May to November in South Hood Canal, where low-oxygen areas are common at certain times of the year.
- **Aquatic animals in Puget Sound are exposed to complex mixtures of thousands of chemicals that may have cumulative impacts on their health and survival and limit the amount of seafood we can safely eat.** PCBs remain a problem because they are harming the health of aquatic life, like Chinook salmon and Pacific herring, and creating health risks to people consuming seafood from Puget Sound. However, PBDEs, a type of flame retardant, declined in many areas, suggesting remediation actions have been effective at mitigating this contaminant.
- **Exposure to chemicals in sediments has generally been minimal throughout Puget Sound, however, the small animals that live in the sediment have nonetheless been affected, though perhaps by other factors.** The health of benthic communities is especially degraded in areas that are high in organic matter and low in oxygen and that have poor circulation and slow water exchange.

State of the recovery effort

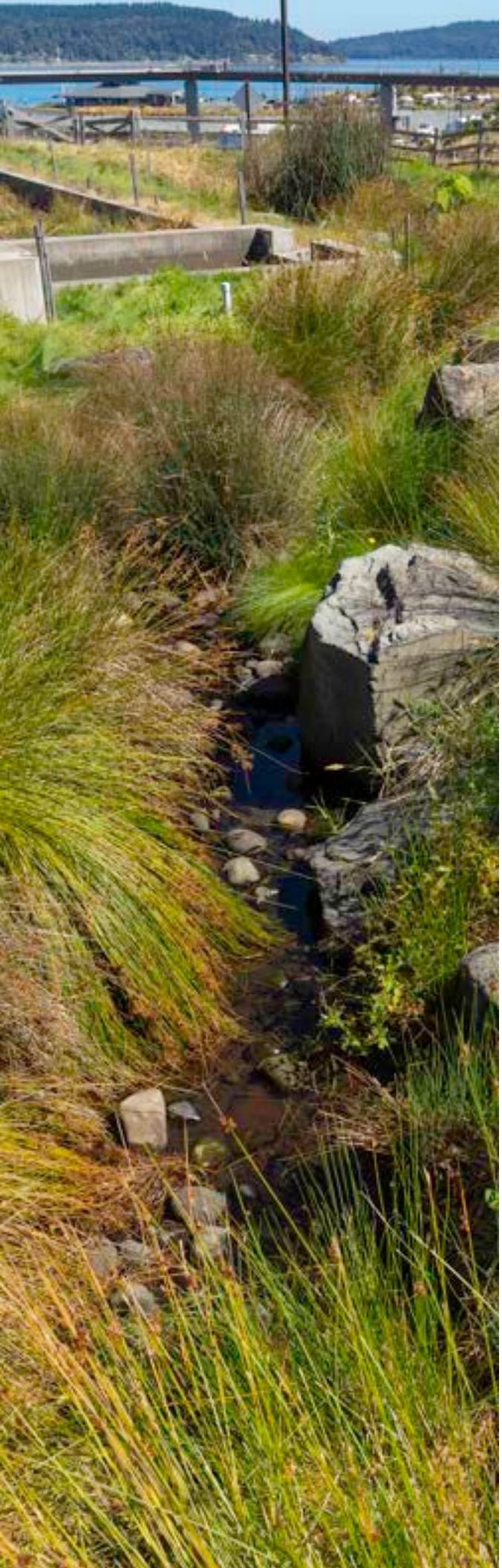
In addition to reporting on the state of the ecosystem, the Partnership also reports in the State of the Sound on the status of the recovery effort. This section includes information about the ways in which we and our partners are working together to make progress on Puget Sound recovery efforts—whether through changes in funding, policy, advocacy, research, or other cooperative work.

Our reporting on the state of the recovery effort includes information about the work that's being done to recover Puget Sound; how the Partnership helps align policy and resources with the Action Agenda; state and federal budget and policy outcomes; local recovery funding and implementation; the implementation of the Healthy Environment for All (HEAL) Act; our methods for assessing and managing progress toward recovery; our boards' work to help remove barriers to Puget Sound recovery progress; and resident concerns regarding the recovery effort.

In this section, our reporting not only responds to the statutory requirements for the State of the Sound, but also includes additional data and analysis regarding our work and the work of our partners.

WHAT IS BEING DONE TO RECOVER PUGET SOUND?

The work to recover Puget Sound is guided by the 2022-2026 Action Agenda, our collective ecosystem recovery plan, which aligns the recovery community behind a set of highly strategic targets, desired outcomes, strategies, and actions. The Action Agenda provides clear guidance for funding and policy proposals to protect Puget Sound and it presents an adaptive management framework that is responsive to ongoing scientific discovery, partner collaboration, and the magnitude of challenges facing Puget Sound. Action Agenda implementation is multifaceted and consists of a broad suite of activities where partners around the region are directing their resources toward addressing the strategies and actions outlined in the Action Agenda. We support implementation by developing processes and systems to direct resources and support partners. This is done through developing the planning and measurement frameworks, coordinating board forums, advancing Puget Sound legislative priorities, and mobilizing funding.



Overview of recovery activities

WHAT ARE ONGOING RECOVERY PROGRAMS?

Ongoing programs are continuing efforts that provide regulatory oversight, technical support, implementation resources, financial resources, or other guidance.[1] State, federal, local, Tribal, and nongovernmental ongoing programs are the critical foundation for Action Agenda implementation. The Partnership maintains an inventory of state and federal ongoing programs[2] related to Puget Sound recovery. This list was most recently updated in 2022, as part of the 2022-2026 Action Agenda update. The inventory is found in our Puget Sound Info (PS Info) data system, a collaborative platform for sharing information about Puget Sound recovery. To view the inventory, see the Ongoing Programs Portal for the most recently published information about programs, including budget information for state agency programs.

ONGOING PROGRAMS AND THE 2022-2026 ACTION AGENDA

The 2022-2026 Action Agenda Implementation Plan made an intentional shift away from passively soliciting a list of short-term projects that could be implemented by specific named sponsors if they received funding: Near Term Actions or NTAs. NTAs were a prominent feature of all previous iterations of the Action Agenda, but our Action Agenda adaptive management approach found that the recovery community would see better results by engaging in collaborative discussion to identify and implement important actions and intervention points to achieve our goals and Vital Sign Indicator targets.

The 2022-2026 Action Agenda uses a planning framework that articulates what we must achieve, how we will achieve it, and how we will hold ourselves accountable to ensure that progress is made. It leverages and amplifies the work of ongoing programs, and it emphasizes multi-benefit approaches that will help the recovery community effectively make progress towards multiple goals. The Implementation Plan—the action component of the Action Agenda—reorients the focus of recovery efforts away from the NTA project list to instead articulate clear strategies and actions for a broader suite of partners in the recovery community to address. Many of the partners who play a pivotal role in funding and implementing the Action Agenda strategies and actions come from our state and federal ongoing programs. These programs are critical to Puget Sound recovery and continued investment in them is a priority of the Partnership. At the same time, we rely on our ongoing program partners to actively align their work with the Action Agenda strategies and actions and tell us what they need to advance those strategies and actions.

---

[1] *Examples include programs related to implementation of the Growth Management Act, salmon recovery programs, and Washington State Department of Ecology clean water programs.*

[2] *Though the state and federal inventory should not be considered comprehensive, we are committed to continuing to improve it, ensuring it is reviewed and updated at least every four years when the Action Agenda is revised. While we recognize the importance of local, Tribal, and nongovernmental ongoing programs, we do not currently maintain an inventory of those programs due to the feasibility constraints involved in inventorying such a large number of activities.*

STATE AND FEDERAL AGENCY ONGOING PROGRAMS AND ACTION AGENDA STRATEGIES

State and federal agency ongoing programs are tagged by associated 2022-2026 Action Agenda strategies in the Ongoing Programs Portal. The Action Agenda has 31 strategies, and many programs are associated with multiple strategies, reflecting the breadth of activities that programs perform. Action Agenda strategies can be rolled up into six higher level strategy topic groupings (see the Action Agenda Explorer for more information on the strategies nested under these groupings). Figure 9, below, shows the number of programs associated with each Action Agenda strategy grouping. Programs focused on protection and restoration of habitat are the most common, followed by programs that protect and improve water quality. It is important to note that many programs are associated with more than one strategy, so the number of programs by each strategy grouping should not be added together, to avoid double-counting across the strategy groups. Nonetheless, looking at the number of programs by strategy group provides a high-level indication of where Puget Sound recovery ongoing program efforts are focused.

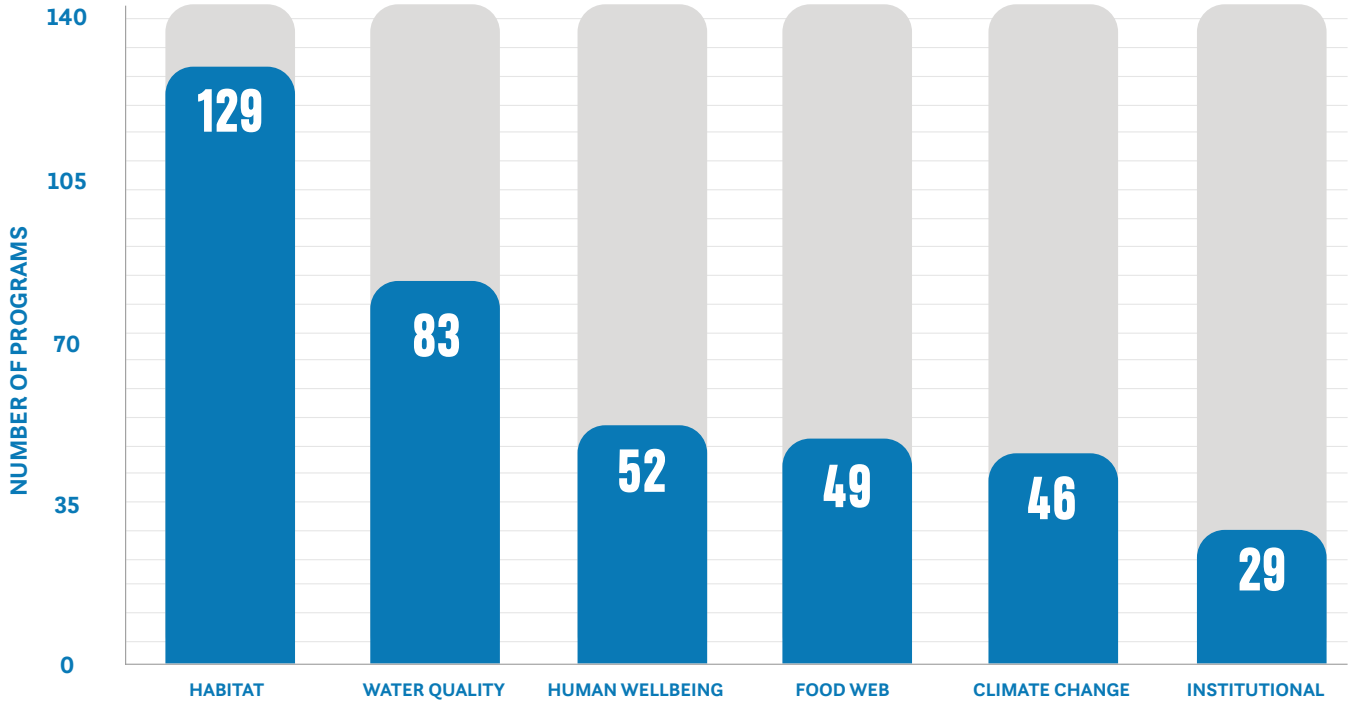


Figure 9. Number of Puget Sound ongoing programs by Action Agenda strategy group.

**Note: ongoing programs may be associated with multiple strategies, so strategy group totals should not be added together.*

STATE AND FEDERAL AGENCY ONGOING PROGRAMS BY ACTIVITY TYPE

Each ongoing program in the Partnership's inventory is assigned one or more activity types. These categorizations allow us to indicate broadly how Puget Sound recovery efforts are distributed by the primary type of work that programs perform. Currently, we can see that just under half of programs are primarily engaged in enabling conditions, which describes activities like planning, science, coordination, and technical assistance. Just over a third of programs are primarily focused on ecological restoration of habitat and species. The remainder of ongoing programs are mainly targeted at changing residents' behaviors in a way that benefits recovery, including education, incentives, and compliance activities. See figure 10, below.

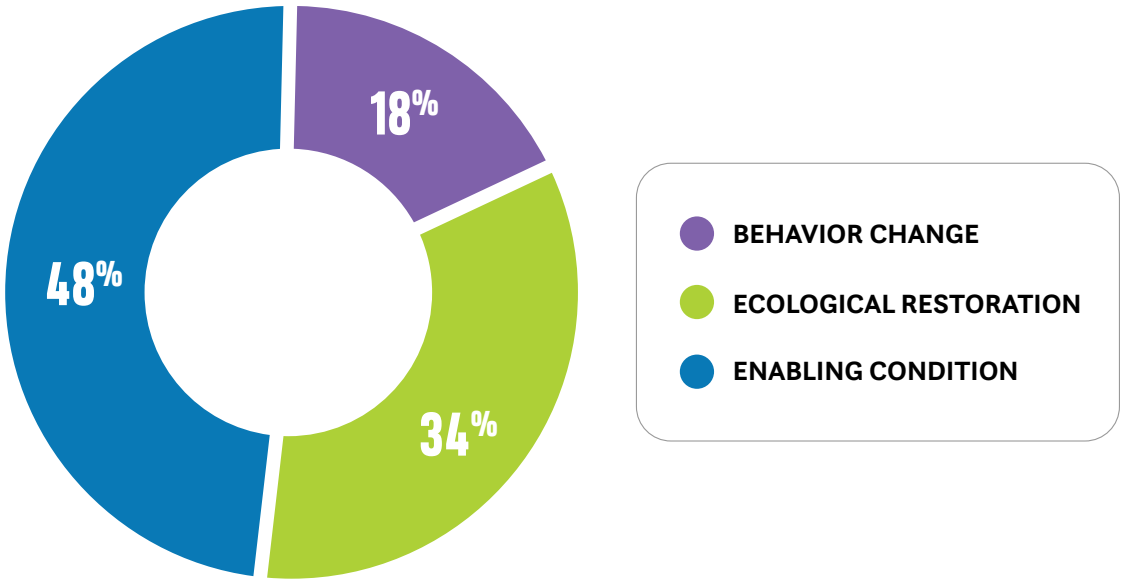


Figure 10. Puget Sound ongoing programs by activity type.

WHERE CAN I EXPLORE ACTION AGENDA STRATEGIES, ACTIONS, AND RELATED ONGOING PROGRAMS?

The Puget Sound Info Action Agenda Explorer is an online tool that profiles each of the 31 collaboratively developed, scientifically informed strategies in the 2022-2026 Action Agenda Implementation Plan. Each strategy profile includes a table of state and federal ongoing programs that help implement the strategy. We also recognize that many more local, Tribal, and nongovernmental programs exist that support the strategy. The Action Agenda Explorer also enables people to search which ongoing programs and National Estuary Program-funded activities advance implementation of Action Agenda strategies.

SEE THE ONGOING PROGRAM PORTAL FOR MORE INFORMATION ABOUT PUGET SOUND RECOVERY ONGOING PROGRAMS, INCLUDING BUDGET INFORMATION.

HOW ARE STATE AGENCIES' ONGOING RECOVERY PROGRAMS FUNDED?

In May 2019, the Partnership and several Washington state agencies collaborated for the first time to gather and report financial information about Puget Sound recovery ongoing programs administered by state agencies. This resulted in the assembly of budget information for the 2015-17 and 2017-19 state fiscal biennia on most of the inventoried state agency programs in the Action Agenda. Agencies agreed to update this information every two years and to report ongoing program budgets prior to the end of each biennium. As a result, agencies reported ongoing program budget information for the 2019-21 and 2021-23 state biennia in May 2021 and 2023.

Now with four biennia of budget information, these ongoing program reports allow the Partnership and partners to better identify and understand investment needs and trends for Puget Sound recovery. The following narrative and figures contain information on the allocation of state budgets to Puget Sound recovery as compared to other activities and geographies; the kinds of programs with the largest budgets; short-term trends in budgets;[3] and more. The narrative does not assess or support conclusions about the effectiveness of any individual investment or program.

[3] *Due to the short time series of data available, long-term trends are not included.*

ESTIMATED PUGET SOUND RECOVERY STATE ONGOING PROGRAM BUDGETS (2015-17, 2017-19, 2019-21, AND 2021-23 BIENNIA)

The total estimated budgeted amounts for all state agency programs that provided information is provided in table 1, below. In addition to state funding, these amounts also include funds from federal and private or local sources that are appropriated to agencies through the Washington state budget process.

Table 1. Estimated state agency budgets for Puget Sound recovery programs (operating, capital, and transportation), 2015-17, 2017-19, 2019-21, and 2021-23.

BIENNIA	TOTAL OF INVENTORIED PROGRAM BUDGETS ($000S)	ESTIMATED AMOUNT BUDGETED FOR PUGET SOUND RECOVERY ($000S)
2015-17	$1,246,420	$788,479
2017-19	$1,549,691	$933,928
2019-21	$1,736,006	$1,088,473
2021-23	$2,768,393	$1,847,058
TOTAL 2015-23	**$7,300,510**	**$4,657,938**

The estimated Puget Sound budget for inventoried state agency programs in the 2021-23 biennium of around $1.8 billion was only 1.2 percent (up from 0.9 percent in the 2019-21 biennium) of the entire 2021-23 state biennial budget of $151 billion (operating, transportation, and new capital appropriations). Specifically, for new capital appropriations, the estimated Puget Sound ongoing program budget represented around 11 percent of the total state capital budget in the 2021-23 biennium. The total estimated ongoing program budget for the inventoried programs represented 36 percent of the total statewide natural resources budget[4] in the same biennium (up from 29 percent in the 2019-21 biennium).

ONGOING PROGRAM BUDGETS BY ACTIVITY TYPE

Each ongoing program in the Partnership's inventory is assigned one or more activity types. These categorizations allow us to indicate how the funding for Puget Sound recovery ongoing programs is distributed by the primary type of work that programs perform. For the 2021-23 biennium we can see that roughly three-quarters of Puget Sound recovery ongoing programs funding is primarily directed towards ecological restoration of habitat and species, and around 20 percent is focused on enabling conditions, including planning, science, coordination, and technical assistance. The remainder of the funding is mainly targeted at changing residents' behaviors in a way that benefits recovery, including education, incentives, and compliance activities. However, it is notable that the latest data from the 2021-23 biennium, when compared to prior biennia, does suggest a trend toward a higher proportion of the Puget Sound ongoing program budget directed toward ecological restoration.

[4]The statewide natural resources budget includes the Washington State Departments of Ecology, Natural Resources, Fish and Wildlife, Agriculture, as well as the State Parks and Recreation Commission, State Conservation Commission, Recreation and Conservation Office, and a few smaller agencies. This amount does not include certain important Puget Sound recovery-related activities undertaken by the Washington State Departments of Health, Commerce, and Transportation that are included in the Partnership's inventory of ongoing programs.

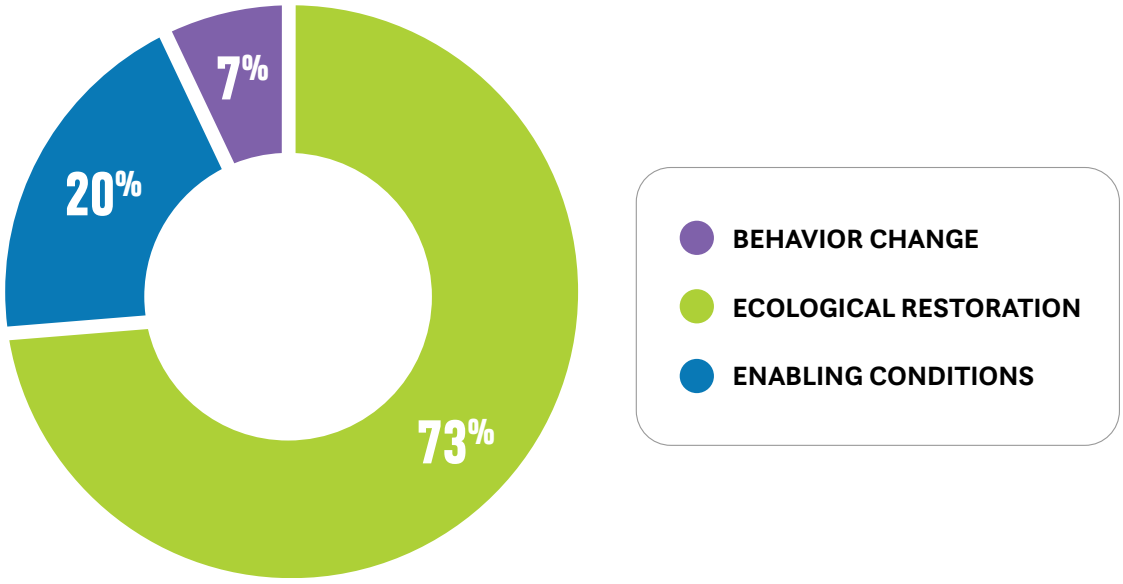


Figure 11. Puget Sound ongoing program budget by activity type, 2021-23 biennium.

ONGOING PROGRAM BUDGETS AND ACTION AGENDA STRATEGIES

In addition to categorizing ongoing programs by activity type, we have tagged programs by associated 2022-2026 Action Agenda strategies. The Action Agenda has 31 strategies, and many programs are associated with multiple strategies, reflecting the breadth of activities that programs perform. Action Agenda strategies can be rolled up into six higher level strategy topic groupings, which may be used to view the Puget Sound ongoing program budget.

As programs are often associated with multiple strategies, budget amounts viewed by each strategy grouping may not be added together, as there is significant double counting of budgets across the strategy groups. Nonetheless, the budget amounts by each individual strategy group provide an indication of the level of investment directed towards specific groups of Action Agenda strategies. See figure 12.

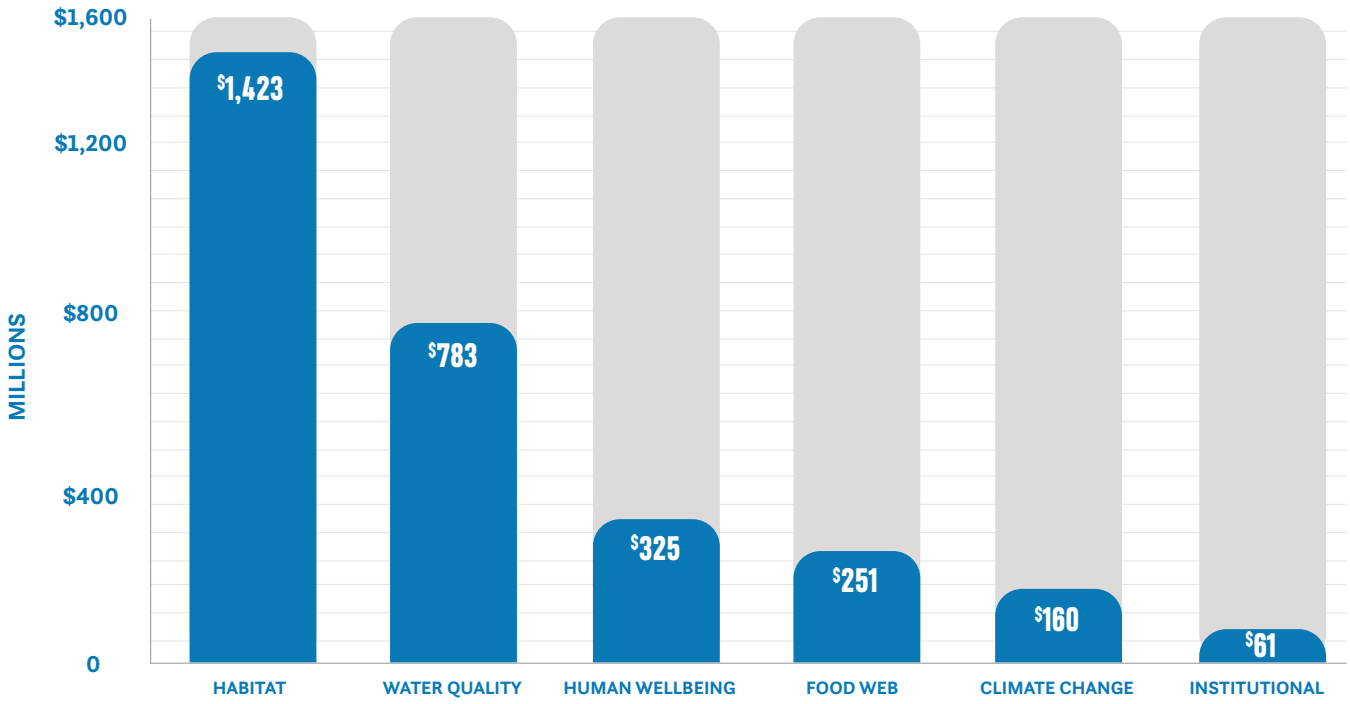


Figure 12. Puget Sound ongoing program budget by Action Agenda strategy groups, 2021-23 biennium.

**Note: ongoing programs may be associated with multiple strategies, so strategy group totals should not be added together.*

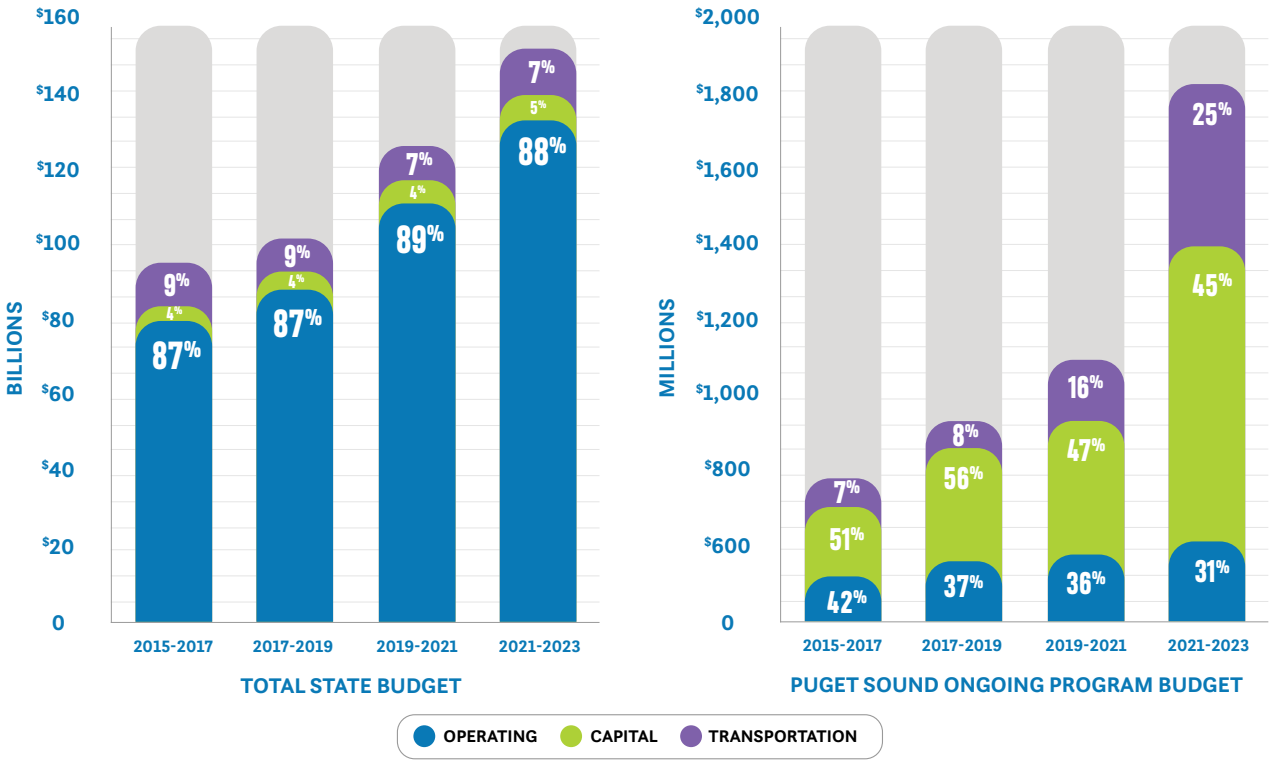


Figure 13. Comparison between total statewide budget and Puget Sound ongoing program budget, 2015-17, 2017-19, 2019-21, and 2021-23 biennia (operating, capital, and transportation).

TRENDS IN PUGET SOUND RECOVERY PROGRAM BUDGETS

The information that the Partnership and state agencies have gathered to date is limited to only four biennia and therefore does not reveal long-term trends in budgeting for Puget Sound recovery ongoing programs over time. Yet some short-term trends are apparent in the data. For example, figure 13 (above) shows that the estimated amount budgeted by state agency programs for Puget Sound recovery between the 2015-17 and 2021-23 biennia rose significantly, with an inflation-adjusted biennial growth rate of around 24 percent overall.

As figure 13 shows, the highest proportion of Puget Sound-related program funding comes from the state's capital budget. The capital budget rose by an inflation-adjusted 42 percent from the 2019-21 to the 2021-23 biennium. In addition, a 28 percent increase in the operating budget and 129 percent increase in the transportation budget led to an overall 51 percent increase in funding for inventoried programs from the 2019-21 to the 2021-23 biennium. The large rise in the transportation budget is due to continued sharp increases in the Washington State Department of Transportation's (WSDOT) Fish Barrier Correction Program. In May 2017, the 9th U.S. Circuit Court of Appeals affirmed that the state must accelerate work to remove, replace, and repair fish-passage-blocking culverts. This decision was subsequently affirmed by the Supreme Court of the United States in June 2018. The state increased funding for fish-barrier-removal projects in Puget Sound from $178 million in the 2019-21 biennium to an estimated $456 million in the 2021-23 biennium.

LARGEST PROGRAMS BY SIZE OF BUDGET

Table 2 below shows the top 12 largest Puget Sound state ongoing programs by size of budget. Many of the programs with the largest budgets are grant-making or financial-assistance programs that pass funding to local and private groups for environmental protection and Puget Sound recovery actions. For example, the Washington State Department of Ecology's Water Quality-Provide Financial Assistance—the largest inventoried program—provides grants, low-interest loans, and technical assistance to local governments, state agencies, and Tribes to enable them to build, upgrade, repair, or replace facilities to improve and protect water quality.

Though large capital programs tend to contribute the biggest investments toward Puget Sound recovery, some large (e.g., Fishery and Hatchery Science and Management; Water Quality—Control Stormwater/Wastewater Pollution), and many smaller programs funded from the operating budget make a major contribution. Many of the smaller programs, funded from the operating budget, provide the critical administration and service functions necessary to implement recovery activities.

Table 2. Twelve largest state agency ongoing programs in Puget Sound, by size of budget (operating, capital, and transportation), 2015-17, 2017-19, 2019-21, and 2021-23 biennia.

ONGOING PROGRAM		ESTIMATED AMOUNT BUDGETED FOR PUGET SOUND RECOVERY ($ MILLIONS)	
	BIENNIUM	AMOUNT	BUDGET TYPE
Water Quality—Provide Financial Assistance (Washington State Department of Ecology) Provides grants, low-interest loans, and technical assistance to local governments, state agencies, and Tribes to enable them to build, upgrade, repair, or replace facilities to improve and protect water quality.		**$1,018**	**Capital, Operating**
	2015-17	$176	
	2017-19	$220	
	2019-21	$189	
	2021-23	$433	
Fish Barrier Correction (Washington State Department of Transportation)* State highways cross streams and rivers in thousands of places in Washington state, which can impede fish migration. This program improves fish passage and reconnects streams to help keep waterways healthy.		**$760**	**Transportation**
	2015-17	$54	
	2017-19	$71	
	2019-21	$178	
	2021-23	$456	
Fishery and Hatchery Science and Management (Washington State Department of Fish and Wildlife) Spans hatchery production, fisheries and shellfish science and monitoring, and derelict gear removal.		**$267**	**Operating**
	2015-17	$44	
	2017-19	$49	
	2019-21	$66	
	2021-23	$108	
Toxic Cleanup Program—Remedial Action Grant Program (Washington State Department of Ecology) Grant program that supports the cleanup of some of the most dangerous contamination and important habitat around Puget Sound.		**$183**	**Capital**
	2015-17	$51	
	2017-19	$2	
	2019-21	$66	
	2021-23	$64	
Puget Sound Acquisition and Restoration (Puget Sound Partnership and Washington State Recreation and Conservation Office) Puget Sound Acquisition and Restoration (PSAR) supports projects that recover salmon and protect and recover salmon habitat in Puget Sound. The program is co-managed by the Puget Sound Partnership and the Recreation and Conservation Office. Local entities identify and propose PSAR projects, and the Salmon Recovery Funding Board prioritizes them for funding.		**$179**	**Capital**
	2015-17	$37	
	2017-19	$40	
	2019-21	$50	
	2021-23	$53	

**Addresses the 9th U.S. Circuit Court of Appeals ruling to accelerate work to remove, replace, and repair blocking culverts on state roads.*

Table 2. Twelve largest state agency ongoing programs in Puget Sound, by size of budget (operating, capital, and transportation), 2015-17, 2017-19, 2019-21, and 2021-23 biennia.

ONGOING PROGRAM		ESTIMATED AMOUNT BUDGETED FOR PUGET SOUND RECOVERY ($ MILLIONS)	
	BIENNIUM	AMOUNT	BUDGET TYPE
Salmon Recovery Funding Board (Washington State Recreation and Conservation Office) The board funds projects that protect existing, high-quality habitat for salmon and restore degraded habitat to increase overall habitat health and biological productivity. The board also awards grants for project-feasibility assessments and other salmon-related activities.		**$177**	**Capital**
	2015-17	$30	
	2017-19	$30	
	2019-21	$30	
	2021-23	$88	
Washington Wildlife and Recreation Program (Washington State Recreation and Conservation Office) Provides funding for a broad range of land protection and outdoor recreation, including park acquisition and development, habitat conservation, farmland and forestland preservation, and construction of outdoor recreation facilities.		**$172**	**Capital**
	2015-17	$28	
	2017-19	$45	
	2019-21	$51	
	2021-23	$48	
Water Quality—Control Stormwater/Wastewater Pollution (Washington State Department of Ecology) Implements a municipal stormwater program and permitting system with local governments and other stakeholders. The Washington State Department of Ecology also regulates point-source discharges of pollutants to surface and ground waters through a wastewater permit program.		**$142**	**Operating**
	2015-17	$39	
	2017-19	$38	
	2019-21	$32	
	2021-23	$32	
Shorelands—Floodplains by Design (Washington State Department of Ecology) Grant program for large-scale multi-benefit floodplain restoration projects that improve habitat, prevent flood hazards, and protect farmland.		**$126**	**Capital**
	2015-17	$33	
	2017-19	$25	
	2019-21	$34	
	2021-23	$34	
Forest Practices Program including the Habitat Conservation Plan (Washington State Department of Natural Resources) Protects aquatic and riparian-dependent species habitat on state and private forestlands. Projects completed under this effort include fish-passage-barrier removal.		**$103**	**Operating**
	2015-17	$25	
	2017-19	$26	
	2019-21	$22	
	2021-23	$31	
Air—Reducing Toxic Diesel Emissions (Washington State Department of Ecology) Helps to reduce toxic diesel emissions at their source by providing pass-through grants to local air agencies, ports, and fleet managers to repower, replace, or retrofit high-polluting and dirty diesel engines. Puget Sound received a one-time amount of around $85 million from Volkswagen in the 17-19 biennium to settle violations of the state and federal Clean Air Acts.		**$95**	**Capital**
	2015-17	$0.6	
	2017-19	$85	
	2019-21	$0.6	
	2021-23	$9	

Table 2. Twelve largest state agency ongoing programs in Puget Sound, by size of budget (operating, capital, and transportation), 2015-17, 2017-19, 2019-21, and 2021-23 biennia.

ONGOING PROGRAM		ESTIMATED AMOUNT BUDGETED FOR PUGET SOUND RECOVERY ($ MILLIONS)	
	BIENNIUM	AMOUNT	BUDGET TYPE
Water Resources – Streamflow Restoration Program (Washington State Department of Ecology) In 2018, the Legislature passed the Streamflow Restoration Act, chapter 90.94 RCW, to fund flow-enhancement projects to improve streamflows and fish habitat.		**$79**	**Capital, Operating**
	2015-17	$-	
	2017-19	$14	
	2019-21	$31	
	2021-23	$33	

ORIGIN OF FUNDING FOR PUGET SOUND RECOVERY PROGRAMS

Table 3, below, shows that federal pass-through and private and local funding are important, but most Puget Sound recovery program funding comes from the state government. From the 2015-17 to the 2021-23 biennium, state funding accounted for 77 percent of total ongoing program funding, with federal and private or local at 20 percent and 3 percent respectively. Over the same period state funding for Puget Sound ongoing programs nearly doubled and federal funding increased by half, factoring in inflation.

The large increases in state and federal funding for Puget Sound recovery ongoing programs over the four biennia for which we have data were most significant between the last two biennia (2019-21 and 2021-23) with state funding increasing by an inflation-adjusted 40 percent and federal funding by 60 percent. The bulk of these increases can be accounted for by raised funding levels for some of the largest programs, per table 2 above. These include the three largest programs by funding, Washington State Department of Ecology's Water Quality financial assistance program, the Washington State Department of Transportation's (WSDOT) Fish Barrier Correction Program and the Washington State Department of Fish and Wildlife's (WDFW) Fishery, Hatchery Science, and Management work. The WSDOT Fish Barrier Correction Program alone benefitted from $100 million in federal coronavirus stimulus funds. Other notable programs that received large funding increases in the 2021-23 biennium include a boost in state funding for the Salmon Recovery Funding Board (Washington State Recreation and Conservation Office) and Shellfish Safety (WDFW). Many smaller programs also received large state and federal increases in relation to the overall size of their budgets. We expect these funding increases to continue into the 2023-25 biennium and beyond, particularly as more funding from historic federal investments in infrastructure and climate—from the Infrastructure Investment and Jobs Act (IIJA, 2021) and the Inflation Reduction Act (IRA, 2022)—filter through to state programs over the coming years.

Agencies provided information about the source of federal and private and local budgets for Puget Sound recovery programs between the 2015-17 and 2019-21 biennium. The information provided for the 2021-23 state biennium shows that non-state funds came from a wide variety of federal agencies, local and Tribal governments, nonprofit groups, and private companies. From the federal perspective, which makes up the bulk of non-state funding for Puget Sound recovery, over 40 percent of funding came via the U.S. Department of Transportation for fish-barrier correction, just under 40 percent from the U.S. Environmental Protection Agency, with other significant contributions coming from the National Oceanic and Atmospheric Administration (9 percent), and the U.S. Fish and Wildlife Service (5 percent).

A NOTE ON METHODS (FOR ESTIMATING BUDGETS)

Most statewide programs lack precise methods to calculate the proportion of program budgets that can be assumed to contribute to Puget Sound recovery. Several methods were used to estimate the amount of budgeted funds for Puget Sound in our 2021-23 biennial dataset.

1. For the 29 programs that are dedicated exclusively to Puget Sound, the total budgeted amount is reported.
2. For the 98 statewide programs, each program used a specific methodology, or combination of methodologies, to estimate the Puget Sound-specific portion of the budget:
    - » Thirty-five percent of the Puget Sound budget was estimated using an assumption that the Puget Sound population makes up roughly 60 percent of the statewide population.
    - » The remaining 65 percent of the Puget Sound budget for statewide programs was estimated using specific information from the program, including:
        - Known funding for projects/activities in Puget Sound (58 percent)
        - Average staff effort in Puget Sound (4 percent)
        - A combination of the number of sites or site visits, or awarded contracts or staff in Puget Sound (3 percent)

Each Puget Sound ongoing program supports implementation of one or more 2022-2026 Action Agenda strategy. Ongoing programs may also provide broader public benefits. For example, a culvert replacement project to restore fish passage also provides modernized highway infrastructure for road users.

Table 3. State agency Puget Sound recovery program budgets, by funding authority.

FUNDING AUTHORITY	ESTIMATED AMOUNT BUDGETED FOR PUGET SOUND RECOVERY ($ MILLIONS)	SHARE (%)
State	**$3,591**	**77%**
2015-17	$587	
2017-19	$660	
2019-21	$880	
2021-23	$1,463	
Federal	**$929**	**20%**
2015-17	$186	
2017-19	$192	
2019-21	$190	
2021-23	$362	
Private/Local	**$138**	**3%**
2015-17	$16	
2017-19	$82	
2019-21	$18	
2021-23	$22	
Total	**$4,658**	**100%**

HOW WERE PUGET SOUND RECOVERY PROGRAM BUDGETS ESTIMATED BY AGENCIES?

Most of the 127 ongoing programs for which budget information was gathered are implemented statewide with a portion of their work in the Puget Sound region. Twenty-nine of the programs are dedicated exclusively to the Puget Sound region, 14 of which are housed within the Puget Sound Partnership. A variety of methods were used to calculate or estimate the portion of inventoried budgets dedicated to the Puget Sound region (see text box). Approximately 8 percent of the estimated budgets that were inventoried for the 2021-23 biennium—or $156 million—went to programs exclusively dedicated to Puget Sound.

ACTION AGENDA ALIGNMENT

HOW IS THE PARTNERSHIP ALIGNING POLICY AND RESOURCES TOWARD ACTION AGENDA IMPLEMENTATION?

The Partnership provides the governor, the Office of Financial Management, and legislative fiscal committees with a ranked list of state agency budget proposals that stand to affect Puget Sound recovery. This ranked list helps the governor decide what should be funded and in what amounts and may also inform legislative budgetary decision-making. The ranking process objectively assesses the extent to which a funding proposal is consistent with priorities in the Action Agenda and Science Work Plan.

2022 SUPPLEMENTAL BUDGET (2021-23 BIENNIUM)

In addition to ranking state agency biennial budget requests in even years, the Partnership regularly ranks the main biennial supplemental budget. The 2022 supplemental budget for the 2021-23 biennium was a significant one for Puget Sound recovery for the number and size of the requests made by state agencies. The Partnership ranked 49 requests asking for a total of $129.6 million. Of the 49 funding requests, 41 received full or partial funding at a total of $70.1 million[5]. During the legislative session, the Partnership also tracked additional unranked budget items related to Puget Sound recovery, of which 47 items were fully or partially funded, representing $431.2 million[6].

2023-25 BIENNIAL BUDGET

For the 2023-25 biennium the Partnership ranked 159 state agency budget requests related to Puget Sound recovery, amounting to nearly $3.9 billion in proposed funding needs—with the Puget Sound portion of this amount estimated to be $2.5 billion. In response to the budget requests the Legislature passed an estimated $2.3 billion budget for Puget Sound recovery in April 2023, with capital (52 percent) and transportation (41 percent) budgets taking up most of the total appropriated funds. New operating funds accounted for 6 percent of the appropriated Puget Sound budget for the 2023-2025 biennium[7].

The estimated Puget Sound budget for the 2023-2025 biennium represents around a 50 percent increase compared to the prior 2021-2023 biennium, when factoring in inflation. This continues a trend from the last biennium when the Puget Sound budget almost doubled compared to the 2019-21 biennium. This latest significant increase is seen across capital, operating, and transportation budgets, with a continued growth in state investments in areas such as court-mandated fish-barrier removal on state highways and roads and the Washington State Department of Ecology's Water Pollution Control Revolving Program. Though much smaller in scale, the Puget Sound recovery operating budget saw the largest percentage increase with an over-six-fold increase in the amount of new operating funding (see table 4). At least part of the increase in the Puget Sound budget is attributable to increases in federal pass-through funds to state government as a result of the Infrastructure Investment and Jobs Act (IIJA, 2021).

Table 4. Comparison of enacted Puget Sound recovery budgets, based on agency budget requests ranked by the Partnership, for 2021-2023 and 2023-2025 biennia.

BUDGET TYPE	STATEWIDE BIENNIAL BUDGET 2021-2023 ($ MILLIONS)	ESTIMATED PUGET SOUND BIENNIAL BUDGET 2021-2023 ($ MILLIONS)	STATEWIDE BIENNIAL BUDGET 2023-2025 ($ MILLIONS)	ESTIMATED PUGET SOUND BIENNIAL BUDGET 2023-2025 ($ MILLIONS)
Capital	1,042	661	2,138	1,201
Operating	41	20	250	147
Transportation	768	662	1,047	943
TOTAL	**1,851**	**1,344**	**3,436**	**2,292**

During the 2023-2025 biennial legislative session the Partnership tracked the progress of all the ranked budget requests from the governor's recommended budget through the House and Senate proposals and finally what was passed by the Legislature in the compromise budget. During the budget tracking process, the Partnership also identified an additional 76 budget items to track related to Puget Sound recovery efforts. Sixty-four of the 76 additional budget items were funded, at least in part, in the Legislature's compromise budget amounting to at least an additional $135 million toward Puget Sound recovery.

[5]This total represents funding for many state agency programs that operate statewide—enacted funding dedicated exclusively to Puget Sound is not available.
[6] See footnote above.
[7]Appropriated operating funding amounts represent requests for new funding or changes to existing funding. Most operating funds are carried forward to the succeeding biennium without the need for a budget request.

ACTION AGENDA ALIGNMENT

Table 5, below, shows a historical comparison of state budget investments for a selection of major Puget Sound protection and recovery-related programs, including amounts appropriated by the Legislature for the 2023-25 biennium.

Table 5. Historical comparison of major Puget Sound state capital budget investments, ranked by the Partnership[1] (estimated Puget Sound portion in parentheses).

PROGRAM	AGENCY	BIENNIAL BUDGET ($ MILLIONS)					
		2013-15	2015-17	2017-19	2019-21	2021-23	2023-25
Floodplains by Design (FbD)	Washington State Department of Ecology	50	35.6	35.4	50.4 (45.4)	50.9 (47.9)	67.4 (44.3)
Puget Sound Acquisition and Restoration (PSAR)	Puget Sound Partnership and Washington State Recreation and Conservation Office	70	37	40	49.5 (49.5)	52.8 (52.8)	59.2 (59.2)
Estuary and Salmon Restoration Program (ESRP)	Washington State Department of Fish and Wildlife and Washington State Recreation and Conservation Office	10	8	8	10 (10)	15.7 (15.7)	14.3 (14.3)
Centennial Clean Water Fund (CCWF)	Washington State Department of Ecology	50	20	35	30 (18)	40 (24)	40 (24)
Stormwater Financial Assistance Program (SFAP)	Washington State Department of Ecology	100	53 (-30)[2]	55.1	44 (26.4)	75 (45)	68 (40.8)
Salmon Recovery Funding Board (SRFB)	Washington State Recreation and Conservation Office	15	16.5	19.7	25 (11.1)	30 (12.1)	20 (8.1)
Salmon Recovery Funding Board (SRFB) – Federal[3]	Washington State Recreation and Conservation Office	60[4]	50[4]	50[4]	50[4] (22.2)	50[4] (20.2)	75[4] (30.3)
Brian Abbott Fish Passage Barrier Removal Board (FBRB)	Washington State Department of Fish and Wildlife and Washington State Recreation and Conservation Office	---	---	19.7	26.5 (11.8)	26.8 (10.8)	48.4 (19.6)
Water Pollution Control Revolving Program	Washington State Department of Ecology	200	153	150	148 (88.8)	225 (135)	435 (261)
Water Pollution Control Revolving Program – Federal	Washington State Department of Ecology	50	50	50	56 (33.6)	75 (45)	200 (120)
Streamflow Restoration Program	Washington State Department of Ecology	---	---	---	40 (26.8)	40 (24)	40 (26.8)
Washington Wildlife and Recreation Program (WWRP)	Washington State Recreation and Conservation Office	65	55.3	80	85 (48)	100 (47.8)	120 (63.2)

[1]Mostly statewide programs administered by state agencies, with benefits to Puget Sound.
[2]The 2015-2017 appropriation for the SFAP was cut by $30 million in 2016 due to a shortfall in Model Toxics Control Act (MTCA) revenue. The 2015-17 funding cut was restored in the 2017-19 biennium.
[3]National Oceanic and Atmospheric Administration Pacific Coastal Salmon Recovery Fund (PCSRF).
[4]Amounts represent expenditure authority appropriations. The following amounts are actual statewide allocations by biennium: 2013-15: $32.8 million; 2015-17: $30.5 million; 2017-19: $30.6 million; 2019-21: $30.4 million; 2021-23: $55.1 million; 2023-25: Amount not available at this time.

ACTION AGENDA ALIGNMENT

MAJOR PUGET SOUND RECOVERY GRANT PROGRAMS ENSURE FUNDED PROJECTS ARE CONSISTENT WITH THE ACTION AGENDA

State law requires the Washington State Recreation and Conservation Office (RCO) to align Salmon Recovery Funding Board (SRFB) grants with the Action Agenda for Puget Sound. SRFB, including the Puget Sound Acquisition and Restoration (PSAR) program, provides grants to protect or restore salmon habitat and assist related activities. Revised Code of Washington 77.85.130 and 77.85.240 require the SRFB to do the following:

- Prohibit funding for any proposed design or restoration project in Puget Sound that conflicts with the Action Agenda for Puget Sound.
- Give preference to projects referenced in the Action Agenda for Puget Sound.
- Give preference to Puget Sound partners without giving less preferential treatment to entities that are not eligible to be Puget Sound partners.

The Partnership certifies whether projects submitted in Puget Sound for SRFB or PSAR funding are consistent, and not in conflict, with the Action Agenda for Puget Sound by including a certification letter when submitting the Puget Sound regional package to RCO.

Floodplains by Design (FbD) (Washington State Department of Ecology) funds grants for multi-benefit projects that reduce flood hazards to communities and restores the natural functions of rivers and their floodplains. Applicants for FbD funding in the Puget Sound basin must be consistent with the Puget Sound Action Agenda to be eligible for grant awards.

ACTION AGENDA ALIGNMENT

A NEW STRATEGIC APPROACH TO FUNDING RECOVERY EFFORTS

In support of the Partnership's backbone role, the vision for our strategic funding team is to mobilize funding for recovery actions, strengthen the effectiveness of investment decisions, help to remove barriers to implementation, and educate key decision-makers and policy influencers.

The Partnership is investing National Estuary Program Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act) funding to create the strategic funding team, which will provide direct support and assistance to Tribes and local partners to carry out transformational, landscape-scale projects that will advance regionally and locally determined priorities for implementing the Action Agenda across the Puget Sound region. This funding will contribute to achieving a multi-benefit approach as the Partnership supports the efforts of the recovery community to think, plan, and act across sectors and geographies to align transportation, land use, habitat restoration and protection, agriculture, climate change mitigation, flood hazard reduction, and stormwater infrastructure.

OBJECTIVES:

- Align state and federal agencies and programs that will be implementing investment programs for the Bipartisan Infrastructure Law, Inflation Reduction Act, Washington State Climate Commitment Act, and other sources of funding behind local Puget Sound recovery priorities within the Action Agenda. Increase funding and resources flowing to Tribes and local partners.
- Build and maintain relationships with supporting federal and state agencies.
- Match Tribal and local priorities and lines of work with funding opportunities.
- Coordinate a publicly available repository of funding opportunities with funding guidance distilled in a clear and concise manner.
- Coordinate communication of upcoming funding opportunities through established venues.
- Provide advisory services for Tribes and local partners to support application development and grant package submissions.
- Support the development of collective and cross-jurisdictional projects.
- Track interest in funding opportunities and if appropriate, make connections or facilitate collaboration to bolster collective outcomes, application submission, and results.
- Assist the tracking of how Bipartisan Infrastructure Law, Inflation Reduction Act, and other funds are being used and distributed across Puget Sound.
- Address gaps, barriers, and opportunities for efficient applications to funding opportunities, effectual management of funding, and effective use of funding for successful implementation of the Action Agenda.

State legislative budget and policy outcomes

The Partnership's government relations team supports and advocates for state legislative action that advances Puget Sound recovery. Partnership staff work with other organizations to develop policy and budget requests, coordinate the Puget Sound boards through a legislative-priority-setting process, educate state legislators on Puget Sound recovery issues, and work the state legislative session to shape and pass Puget Sound-friendly policies.

2022 LEGISLATIVE SESSION OVERVIEW

When measured against past short sessions, the 60-day 2022 session was historically productive and impactful. The 2022 supplemental budget included about $500 million for Puget Sound-related budget items, including significant investments in habitat restoration projects and landowner incentive programs. Several critical policy bills also passed that enable key recovery work to continue.

On January 5, 2022, the Puget Sound Leadership Council adopted a list of policy and budget priorities. For the nine policy bills that most closely align with these priorities, a summary and status is provided in table 6, below.

Table 6. 2022 legislative session bills related to Puget Sound Partnership Leadership Council policy and budget priorities.

BILL	STATUS
HB 1099 (Duerr) – Improving the state's climate response through updates to the state's comprehensive planning framework.	Did not pass
HB 1117 (Lekanoff) – Promoting salmon recovery through revisions to the state's comprehensive planning framework.	Did not pass
SB 5619 (Lovelett) – Conserving and restoring kelp forests and eelgrass meadows in Washington state. (Washington State Department of Natural Resources request)	Passed
HB 1672 (Wylie) – Concerning local property tax levies for conservation futures.	Did not pass
HB 1700 (Paul) – Concerning sustainable funding for the derelict vessel removal account using the vessel watercraft excise tax.	Passed
SB 5585 (Rolfes) – Setting domestic wastewater discharge fees.	Passed
SB 5590 (Wagoner) – Eliminating the 2022 expiration date of the marine resources advisory council.	Passed
HB 1838 (Lekanoff) / SB 5727 (Rolfes) – Protecting, restoring, and maintaining habitat for salmon recovery.	Did not pass
SB 5747 (Stanford) – Concerning the statewide master oil and hazardous substance spill prevention and contingency plan.	Passed

A complete overview of Puget Sound related budgets and bills in the 2022 legislative session can be found here.

2023 LEGISLATIVE SESSION OVERVIEW

In 2023, the Partnership's Leadership Council adopted a set of six legislative priorities. These priorities were chosen to advance Puget Sound and salmon recovery and to contribute to climate resilience and environmental justice. The priorities included the following:

- Support Puget Sound-friendly Growth Management Act amendments and ensure successful implementation by providing local governments with the necessary tools and resources
- Protect and restore riparian areas
- Accelerate implementation of fish-passage-barrier (culverts, railroad, bridges) corrections
- Protect and restore nearshore areas
- Fully fund capital grant programs that support Puget Sound and salmon recovery
- Address toxic pollution from stormwater and focus new resources on the effort to address 6PPD and 6PPD-quinone

Puget Sound recovery priorities fared well in the 2023 Washington state legislative session, advanced by significant state investments and some major and minor policy adjustments.

Highlights include:

- Puget Sound-friendly adjustments to the Growth Management Act and resources to support local implementation
- Major new investments in riparian protection and restoration
- New tools and funding for nearshore habitat protection and restoration
- Historic investment levels in some (not all) important capital grant programs that support ecosystem and salmon recovery
- Continued investments in the effort to reduce the quantity and toxicity of stormwater and address the toxic tire chemical 6PPD-quinone

For the policy bills that most closely align with the Leadership Council's priorities, a summary and status is provided below. While some bills did not pass, the Legislature has continued to invest in ongoing progress through the budget.

Table 7. 2023 legislative session bills related to Puget Sound Partnership Leadership Council policy and budget priorities.

BILL	STATUS
HB 1181 (Duerr) / SB 5203 (Lovelett) – Improving the state's climate response through updates to the state's comprehensive planning framework.	Passed
HB 1735 (Lekanoff) – Adding net ecological gain as a voluntary element of comprehensive plans under the Growth Management Act.	Did not pass
HB 1215 (Chapman) / SB 5266 (Shewmake) – Concerning the protection and restoration of riparian areas. (Governor request)	Did not pass
HB 1378 (Reeves) / SB 5433 (Muzall) – Concerning the removal of derelict aquatic structures and restoration of aquatic lands.	Passed
SB 5104 (Salomon) – Surveying Puget Sound marine shoreline habitat.	Passed

A complete overview of Puget Sound related budgets and bills in the 2023 legislative session can be found here.

Table 8. 2023 legislative session policies and funding that align with strategies in the 2022-2026 Action Agenda.

ACTION AGENDA STRATEGY	POLICY	FUNDING
1-2 Smart Growth/ Protect Working Lands	Bill adding voluntary net ecological gain element to local land use planning (did not pass) (1735) Bill requiring local governments to incorporate climate change in local land use planning (passed) (1181) Bills to reduce barriers to infill development (passed)	$40m for incorporating climate into Growth Management Act (Washington State Department of Commerce) $2.7m to support local governments with incorporating salmon recovery into local planning (Washington State Department of Commerce) $470k to continue defining net ecological gain (Washington State Department of Fish and Wildlife)
3 – Healthy Shorelines	Bill authorizing new action to remove derelict aquatic structures (passed) (5433) Bill requiring regular survey of Puget Sound shorelines (passed) (5104)	$2.3m for monitoring Puget Sound shorelines (Washington State Department of Ecology) $9.65m for removal of derelict aquatic structures (Washington State Department of Natural Resources)
4 – Riparian Habit	Bill for voluntary protection and restoration of riparian areas (did not pass) (1215 / 1720)	$25m for project implementation (Washington State Recreation and Conservation Office) $480k for stakeholder process (Governor's Office) $398k for a statewide riparian coordinator (Washington State Recreation and Conservation Office) $2m for riparian education (Washington State Conservation Commission) Additional funding for riparian monitoring

Table 8. 2023 legislative session policies and funding that align with strategies in the 2022-2026 Action Agenda.

ACTION AGENDA STRATEGY	POLICY	FUNDING
5-6 – Floodplains and Estuaries	Bill to limit liability of salmon enhancement groups (passed) (1775)	$67m for Floodplains by Design (Washington State Department of Ecology) $59m for Puget Sound Acquisition and Restoration (Washington State Recreation and Conservation Office and Puget Sound Partnership) $14m for Duckabush estuary restoration (Washington State Department of Fish and Wildlife) $20m for Salmon Recovery Funding Board (Washington State Recreation and Conservation Office) $48.4m for Brian Abbott Fish Barrier Removal (Washington State Recreation and Conservation Office and Washington State Department of Fish and Wildlife) $14.3m for Estuary and Salmon Restoration (Washington State Recreation and Conservation Office and Washington State Department of Fish and Wildlife) $7m for Deschutes estuary restoration (Washington State Department of Enterprise Services) $3.4m for additional Salmon Recovery Office and Lead Entity capacity (Washington State Recreation and Conservation Office) and $500k for Regional Fisheries Enhancement Group capacity (Washington State Department of Fish and Wildlife)

Table 8. 2023 legislative session policies and funding that align with strategies in the 2022-2026 Action Agenda.

ACTION AGENDA STRATEGY	POLICY	FUNDING
8-11 – Toxics and Water Quality	Bill to prohibit toxics in cosmetic products (passed) (1047) Bill to study effect of stormwater on water temperature and salmon (did not pass) (1381) Bill to seek improved regulation of polychlorinated biphenyls (PCBs) (passed) (5369) Bill to limit plastic pollution (passed) (1085)	$2.26m for addressing non-point pollution (Washington State Department of Ecology) $8.7m for tire dust (6PPD) monitoring, treatment, alternatives assessment (Washington State Department of Ecology) $4.1m to study emerging toxics in salmon/orca (Washington State Department of Fish and Wildlife) $1m to clean up waste tires (Washington State Department of Ecology) and $1m to clean up tire reefs (Washington State Department of Natural Resources) $900m for clean water capital programs (Washington State Department of Ecology) $6m for WSDOT stormwater retrofits (Washington State Department of Transportation)
11-12 – Wastewater		$1m for enhancement of Puget Sound pumpouts (Washington State Parks) $2.26m for addressing non-point pollution (Washington State Department of Ecology) $790k for Geoduck Task Force (Washington State Department of Natural Resources) $15m for Conservation Reserve Enhancement Program (Washington State Conservation Commission) $3.5m for Shellfish Growing Areas program (Washington State Conservation Commission) $16.7m for federal combined sewer overflows and stormwater reuse grants (Washington State Department of Ecology) $300k for sewage treatment solutions in Island County

Table 8. 2023 legislative session policies and funding that align with strategies in the 2022-2026 Action Agenda.

ACTION AGENDA STRATEGY	POLICY	FUNDING
14-17 – Species and Food Web	Bill to increase distance between boats and Southern Resident orcas (passed) (5371) Bill to establish a joint legislative salmon committee (did not pass) (1686)	$2.2m for kelp recovery (Washington State Department of Ecology, Washington State Department of Natural Resources, University of Washington) $645k for zooplankton monitoring (Washington State Department of Fish and Wildlife) $700k for Quiet Sound (Puget Sound Partnership) $700k for Lake Washington invasive fish control (Washington State Department of Fish and Wildlife) $940k for Salish Sea marine mammal surveys (Washington State Department of Fish and Wildlife) $1.6m for salmon and steelhead monitoring (Washington State Department of Fish and Wildlife) $23m for biodiversity conservation (Washington State Department of Fish and Wildlife)
18-20 – Climate Resilience	Bill to update state climate response strategy (passed) (1170) Bill to establish climate corps (passed) (1176) Bill to grant Washington State Department of Natural Resources authority to sell ecosystem service credits (did not pass) (1789)	$30m for Sustainable Farms and Fields (Washington State Conservation Commission) $83m for state forest sequestration (Washington State Department of Natural Resources)

Congressional budget and policy outcomes and federal recovery implementation

The federal government plays a significant role in implementing the Action Agenda by helping to shape priorities and either directly funding activities or passing through funding to state, Tribal, and local implementers. The Partnership currently identifies over 90 federal agency programs, in its inventory of ongoing Puget Sound recovery programs, whose activities help to implement strategies in the Action Agenda. These programs span a broad array of federal government departments, including the U.S. Environmental Protection Agency (EPA) and the U.S. Departments of Agriculture, Commerce, Defense, Energy, Homeland Security, and Transportation.

MAJOR FEDERAL LEGISLATION AND FUNDING FOR PUGET SOUND

In just over a year, between November 2021 and December 2022, several critical pieces of federal legislation were enacted which are set to change the landscape of Puget Sound recovery efforts.

INFRASTRUCTURE INVESTMENT AND JOBS ACT

In November 2021 the Infrastructure Investment and Jobs Act (IIJA, also known as the Bipartisan Infrastructure Law), was signed into law. The law authorizes $1.2 trillion in funding ($550 billion in newly authorized funding) for investments spanning five years to advance climate, clean energy, natural infrastructure, coastal restoration, environmental justice, forest restoration, and resilience priorities. As well as providing a significant boost in funding for many existing federal ongoing programs, the IIJA created a raft of new programs that address strategies in the Action Agenda, including:

- Several transportation infrastructure programs that may fund fish-barrier removal, including the authorization of $1 billion for a new program dedicated to culvert removal: National Culvert Removal, Replacement, and Restoration Grant (Culvert AOP Program) (Action Agenda strategy 6: Fish Passage Barriers)
- Multiple clean energy and carbon capture and reduction programs at the U.S. Department of Energy (Action Agenda strategy 19: Greenhouse Gas Emissions and Carbon Sequestration)
- Emissions reduction programs such as the Clean School Bus Program (EPA), and the Electric or Low-Emitting Ferry Grant Program (U.S. Department of Transportation) that support transitioning buses and ferries to zero-emission alternatives. (Action Agenda strategy 26: Human Health)

INFLATION REDUCTION ACT

In August 2022, the Inflation Reduction Act (IRA) was signed into law. The objectives of the law include addressing inflation by reducing the federal deficit, lowering prescription drug prices, and investing in domestic energy production. However, the law has also been termed "the most significant climate legislation in U.S. history" because of historic investment and incentives to tackle climate change through funding and incentivizing the transition to a clean-energy economy. The Congressional Budget Office estimates that the IRA authorizes $391 billion in spending on energy and climate change.

CONSOLIDATED APPROPRIATIONS ACT, 2023

In December 2022, the federal government passed an appropriations package, Consolidated Appropriations Act, 2023 (H.R.2617), which provided appropriations to federal agencies for the remainder of federal fiscal year 2023. This law confirmed funding for programs authorized by the IIJA, including a significant increase in federal money for Puget Sound recovery. While the Partnership does not comprehensively track the funding appropriated to federal programs in Puget Sound, many important Puget Sound recovery programs received significant increases in their funding allocations as a result of the new law. Programs benefiting from the act's passage include the Puget Sound Geographic Program, which received authorization for strong baseline funding levels through EPA.

Both the IIJA and IRA laws will provide significant additional resources to our region, which will accelerate implementation of the Action Agenda, salmon recovery plans, Tribal recovery priorities, and local and community plans to achieve progress toward our goals, including the Vital Signs and targets set in the Action Agenda. The scale of newly authorized federal funding, alongside increases in state funding, will provide unprecedented opportunity to make transformational change for Puget Sound recovery over the next five years. The new funding will encourage us in the recovery community to think, plan, and act across sectors and geographies to align transportation, land use, habitat restoration, agriculture, flood hazard reduction, and stormwater infrastructure behind our recovery goals. The number and scale of state and federal funding sources creates a daunting challenge for governments, agencies, Tribes, and local partners to coordinate, get the right money to the right place at the right time, overcome administrative and policy barriers, and find capacity to successfully obtain and use funding.

CHIPS ACT

The CHIPS ACT could potentially invest $67 billion in accelerating advanced zero-emissions technologies to mass markets and improving climate science research. The law may support climate-related Action Agenda strategies, e.g., blue carbon research pilot projects or innovation hubs with grant programs in 10-20 different cities that would advance climate-friendly tech innovation.

PUGET SOS

In December 2022, the James M. Inhofe National Defense Authorization Act (H.R. 7776) was signed into law, which contained an important section on Puget Sound coordinated recovery: Promoting United Government Efforts To Save Our Sound, better known as "PUGET SOS." The law amends the Clean Water Act by directing federal partners to establish a Puget Sound Federal Leadership Task Force as well as creating a Puget Sound National Program Office within the EPA. The program office coordinates and manages the Puget Sound Federal Leadership Task Force, and coordinates Puget Sound restoration and protection activities across the EPA and the Salish Sea with Canadian authorities, the Pacific Salmon Commission, and the International Joint Commission. The passing of the act, which had been put forward on several previous occasions by its congressional sponsors, raises Puget Sound to the status of other nationally significant ecosystem recovery efforts such as Chesapeake Bay and the Great Lakes.

PUGET SOUND FEDERAL LEADERSHIP TASK FORCE

In collaboration with the state advisory committee and Puget Sound Tribal Management Conference, the Puget Sound Federal Leadership Task Force:

- Upholds federal trust responsibilities to restore and protect resources crucial to Tribal treaty rights.
- Provides a venue for dialogue and communication across member agencies.
- Enables and encourages member agencies to act consistently with the objectives and priorities of the following:
  - Puget Sound Action Agenda
  - Salmon recovery plans
  - Treaty Rights at Risk Initiative
  - Coastal Nonpoint Pollution Control Program
- Provides advice and support on scientific and technical issues.
- Ensures that Puget Sound restoration and protection activities are consistent with national security interests.
- Develops and approves a federal action plan.

Members of the task force include: the U.S. Forest Service, Natural Resource Conservation Service, National Oceanic and Atmospheric Administration (NOAA), U.S. Army Corps of Engineers, Joint Base Lewis-McChord, the U.S. Navy, U.S. Coast Guard, Federal Emergency Management Agency, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, U.S. Geological Survey, National Park Service, Federal Highway Administration, Federal Transit Administration and "other federal agencies, programs, and initiatives as the other members of the Puget Sound Federal Leadership Task Force determines necessary," according to the mandate. The task force will be chaired by representatives from NOAA, EPA, and the U.S. Army Corps of Engineers.

The Puget Sound Federal Leadership Task Force builds upon the work of the Puget Sound Federal Task Force, which operated on a voluntary basis under a Memorandum of Understanding from September 2016-December 2022. The Puget Sound Federal Task Force published its latest Action Plan (2022-2026) in May 2022. The Puget Sound Federal Action Plan aims to leverage federal programs across agencies and coordinate programs and priorities for the restoration and protection of Puget Sound.

The passing of PUGET SOS emphasizes the breadth and depth of federal agency involvement in and commitment to Puget Sound recovery efforts and the types of activities and investments made by those agencies. Among those investments, in this report we specifically highlight contributions made by the EPA and NOAA for their critical role in supporting implementation of the Action Agenda and salmon recovery efforts.

U.S. ENVIRONMENTAL PROTECTION AGENCY

The EPA plays a vital role in Puget Sound recovery, overseeing the Puget Sound Geographic Program and National Estuary Program (NEP) and passing through funding to the state government under the Clean Water Act. EPA has an approval process for quadrennial Action Agenda revisions, as part of its NEP funding and oversight role. Once EPA approves the Action Agenda, as the "Comprehensive Conservation Management Plan" for Puget Sound recovery, it can release significant funds for Action Agenda implementation.

PUGET SOUND GEOGRAPHIC PROGRAM AND THE NATIONAL ESTUARY PROGRAM

Congress provides Clean Water Act Section 320 funds to the EPA for Puget Sound to implement the NEP and the Puget Sound Geographic Program. These programs help communities make on-the-ground improvements for clean and safe water, protected and restored habitat, thriving species, and a vibrant quality of life for all, while supporting local jobs. A large portion of the Puget Sound Geographic Program funding is administered by a group of state agencies that oversee the distribution of awards to directly implement the Action Agenda. This Puget Sound Geographic Program funding is managed by three Strategic Initiative Leads (SILs) for Habitat (Washington State Departments of Fish and Wildlife and Natural Resources), Stormwater (Washington State Department of Ecology) and Shellfish (Washington State Department of Health). The SILs use Geographic Program funds to invest in the highest priority activities in the Action Agenda. The IIJA law has made a significant impact on EPA's funding for Puget Sound recovery, injecting an additional $17.5 million for both fiscal years 2022 and 2023 for the Geographic Program and an extra $0.9 million in NEP funding per year. Funding allocations for fiscal year 2023 are over two-and-a-half times larger when compared with allocations in 2019.

Both the Geographic Program and NEP funds require the state to match the awards at a ratio of 1:1. The Partnership continues to use funding from the Puget Sound Acquisition and Restoration (PSAR) program to match funds that come to the agency, as well as the funds that go to Tribal implementation and capacity grants.

A NEW INVESTMENT APPROACH FOR THE STRATEGIC INITIATIVE LEADS

The publication of the 2022-2026 Action Agenda signaled a move away from a funding process used by the SILs to choose from an investment list of project pre-proposals in the 2018-2022 Action Agenda (also known as a list of Near Term Actions). The SILs' revised investment approach is based on priorities detailed in a Shared Investment Plan for Federal Fiscal Year 2021-2022, informed by over six years of discussion associated with development of regional Implementation Strategies and the Action Agenda. The SILs are releasing competitive requests for proposals (RFPs) to provide grants to sponsors that accelerate Puget Sound recovery based on the priorities outlined in the investment plan (see the latest list of RFPs).

In addition to direct funding of the Action Agenda by the three SILs, EPA also currently distributes additional Puget Sound Geographic Program funding to Action Agenda implementation through several other routes:

- Federal agreements between EPA and another federal agencies to fund implementation of recovery activities.
- Support to the Northwest Indian Fisheries Commission for implementation of projects of high Tribal priority that are consistent with the Action Agenda.
- Support for the operations of the Puget Sound Partnership, as the lead organization for the Puget Sound NEP.
- Support for Puget Sound Partnership and sub-awardees to fill science gaps necessary to advance Puget Sound recovery through development and adaptive management of Implementation Strategies.
- Tribal capacity awards to support the institutional capacity of Puget Sound Tribes (19 Tribes and three Tribal consortia), facilitating participation in regional coordination boards and management conferences, as well as for implementing recovery activities consistent with the Action Agenda.
- A funding program, called the Climate Resilient Riparian Systems Lead, to provide financial incentives for landowners to permanently protect and restore riparian areas important for providing ecosystem services, including those supporting salmon recovery, while promoting climate resiliency (anticipated to award up to $30 million over four years).
- Ensuring environmental justice, human wellbeing, and ecosystem recovery in Puget Sound by directing resources and ultimately environmental and community benefits toward overburdened and underserved communities, or communities with environmental justice concerns, while supporting improved, longer-term integration of environmental justice principles into Puget Sound recovery efforts (anticipated to award up to $7 million over four years).

Activities implemented with Puget Sound Geographic Program or NEP funding are tracked in the NEP Atlas tool.

Table 9. EPA Puget Sound Geographic Program and National Estuary Program funds, federal fiscal years 2019-2023.

Award	Allocated funds ($)				
	FFY 2019	FFY 2020	FFY 2021	FFY 2022	FFY 2023
Habitat Strategic Initiative Lead: Washington State Departments of Fish and Wildlife and Natural Resources	4,859,771	6,480,000	4,950,000	5,750,000	12,300,000
Stormwater Strategic Initiative Lead: Washington State Department of Ecology	4,200,000	4,850,000	5,800,000	7,253,944	11,686,056
Shellfish Strategic Initiative Lead: Washington State Department of Health	4,200,000	4,200,000	4,050,000	4,500,000	9,950,000
Northwest Indian Fisheries Commission	4,000,000	4,575,000	4,425,000		
Northwest Indian Fisheries Commission (Infrastructure Investment and Jobs Act)				7,500,000	
Northwest Indian Fisheries Commission (Infrastructure Investment and Jobs Act) – federal fiscal year 2023 split funding				6,141,500	1,658,500
Tribal organizational capacity	3,700,000	4,250,000	4,400,000	7,081,004	7,000,000
Puget Sound Partnership geographic—including capacity for the Northwest Straits Initiative, Local Integrating Organizations, and Puget Sound Institute	4,954,229	5,966,729	6,686,729	7,840,000	10,000,000
Puget Sound Partnership – National Estuary Program base	600,000	697,500	795,000	796,000	850,333
Puget Sound Partnership – National Estuary Program base (Infrastructure Investment and Jobs Act)				909,800	909,800
Climate Resilient Riparian Systems Lead (Infrastructure Investment and Jobs Act)					9,894,685
Environmental Justice, Human Wellbeing, and Ecosystem Recovery (Infrastructure Investment and Jobs Act)					2,744,000
Federal Agreements	995,000	1,163,800	1,787,373		
Federal Agreements (Infrastructure Investment and Jobs Act)				3,400,430	2,976,815
Environmental Protection Agency staff and operations	873,875	1,080,884	1,275,180	1,428,052	2,020,944
Environmental Protection Agency staff and operations (Infrastructure Investment and Jobs Act)				515,070	262,000
Environmental Protection Agency programmatic contracts	80,125	277,587	219,718	241,000	899,000
TOTAL	**28,463,000**	**33,541,500**	**34,389,000**	**53,356,800**	**73,152,133**

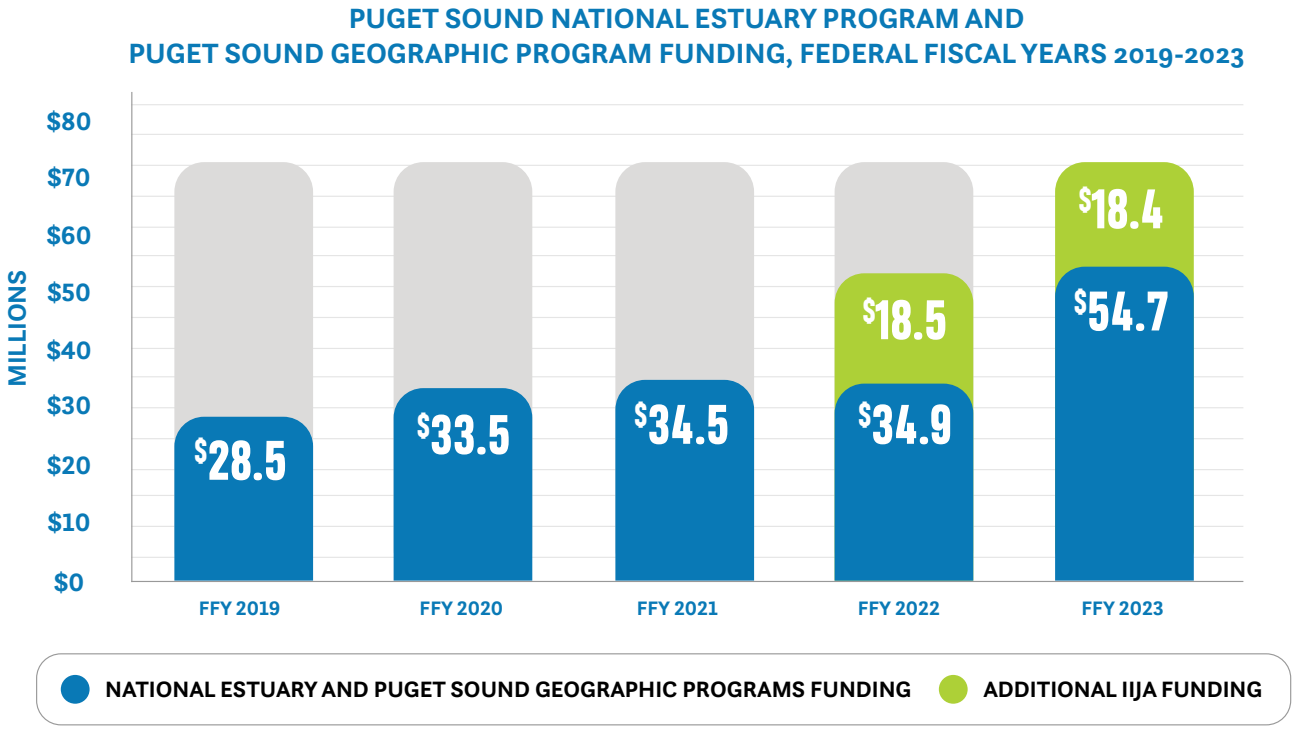


Figure 14. Puget Sound National Estuary Program and Puget Sound Geographic Program funding for federal fiscal years 2019-2023

EPA-FUNDED WATER QUALITY GRANTS AND LOANS

The Washington State Department of Ecology (Ecology) is the designated state agency (RCW 90.48.260) responsible for meeting the requirements of the federal Clean Water Act, working alongside the Puget Sound Partnership for responsibilities specific to the NEP. EPA provides funding to Ecology to manage grants eligible for nonpoint source pollution control projects under Section 319 of the federal Clean Water Act. The state is required to provide a 40 percent match in funding. EPA also funds the Clean Water State Revolving Fund (CWSRF) program managed by Ecology in Washington state. The CWSRF program provides low-interest and forgivable principal loan funding for wastewater treatment construction projects, eligible nonpoint source pollution control projects, and eligible green projects. Ecology estimates that the IIJA could provide nearly $200 million in funding over the next five years to Washington's Clean Water Act work. IIJA authorized two new capital grant funding sources for the CWSRF, in addition to the regular CWSRF Base Capitalization grant: the Bipartisan Infrastructure Law (BIL) Supplemental Grant and the BIL Emerging Contaminants Grant. Ecology is also awarding BIL funds for the Sewer Overflow and Stormwater Reuse Municipal Grant (OSG) program.

EPA AND THE JUSTICE40 INITIATIVE

In 2021, President Biden announced an executive order to establish a new Justice40 initiative, with a goal that 40 percent of the benefits of certain new and existing federal investments flow to disadvantaged communities. The initiative comes at a time when historic sources of new funding are available through new laws, including the IIJA and IRA, with many of the new sources falling under the initiative. Justice40 encompasses investments related to climate change, clean energy, reduction of legacy pollution, and the development of water and wastewater infrastructure, among others. All federal agencies were directed to identify which of their programs are covered under the Justice40 initiative and start implementing reforms to those programs. The White House issued additional guidance in 2023 to federal agencies to use a climate and economic justice screening tool to identify disadvantaged communities. EPA has identified 73 covered programs, including programs with a central role in Puget Sound recovery efforts, such as the Geographic Program (including Puget Sound), the NEP, the CWSRF, and many more (EPA covered programs).

NOAA: PACIFIC COASTAL SALMON RECOVERY FUND (PCSRF)

The Pacific Coastal Salmon Recovery Fund (PCSRF), administered by NOAA, is a significant source of funding for developing and implementing critical salmon recovery projects in California, Oregon, Washington, Idaho, Nevada, and Alaska. The fund has been essential to preventing the extinction of 28 listed Pacific salmon and steelhead species on the West Coast and, in many cases, has stabilized the populations and contributed to their course of recovery. The Recreation and Conservation Office (Governor's Salmon Recovery Office) coordinates applications for PCSRF funds for Washington state. Most of the PCSRF funds awarded to Washington state are distributed to each salmon recovery region based on a formula established by the Salmon Recovery Funding Board (SRFB). A portion of the Washington state award is also separately distributed to the Northwest Indian Fisheries Commission and the Washington State Department of Fish and Wildlife for hatchery reform activities and monitoring. The overall Washington state PCSRF funding allocation was around $30 million in the four state biennia between 2014 and 2021. In grant rounds 2022 and 2023, that figure increased to over $55 million—including $12.5 million in IIJA funds—representing a combined investment of over $179 million over the last five biennia statewide.

The SRFB allocated over $14 million in PCSRF project funding in the Puget Sound region—including Hood Canal—for grant rounds 2020 and 2021 (2019-2021 biennium). For grant round 2022, the Puget Sound region allocated $3.5 million—including $0.5 million in IIJA funds. The amount allocated for projects in grant round 2023 is unknown at the time of writing. Overall, the IIJA law authorized $172 million in addition to PCSRF's regular funding allocation, representing an extra $34.4 million per year in funding available to the program across all five states over five years.

PCSRF funds Puget Sound regional and local salmon recovery organizations (established by RCW 77.85.090) to engage with their federal, state, Tribal, and local partners to pursue the habitat, hatchery, harvest, and hydropower actions essential to achieving salmon recovery. This work includes managing the local grant processes that identify and prioritize salmon recovery projects. Matching dollars for implementing these projects are provided by local governments, Tribal governments, businesses, property owners, foundations, and a variety of other sources.

Transboundary/ Cross-Border Work

The Puget Sound basin falls within the southern portion of the transboundary Salish Sea ecosystem, which we share with Canada. Our shared waters include the Strait of Juan De Fuca, the San Juan and Gulf Islands archipelago, and the boundary waters of northern Puget Sound and the southern Strait of Georgia.

These shared waters create an interdependence with Canadian partners for achieving a number of the Action Agenda's protection and recovery objectives. At more regional scales, such interdependent Vital Signs and progress objectives include recovering Southern Resident orcas, preventing oil spills and toxics in the food web, maintaining marine water quality, and increasing climate resilience. At more local scales along the border, transboundary issues include protecting shellfish resources from pathogen pollution, safeguarding international shipping traffic, controlling the spread of invasive species, and managing local flooding.

As noted earlier, higher-level coordination directives associated with the Puget Sound Federal Leadership Task Force (SoS Bill/HR 7776, 2022), the National Estuary Program (NEP CCMPs: Content and Approval Requirements, 1992), and the British Columbia-Washington State Environmental Cooperation Agreement and Environmental Cooperation Council have been established. In support of and in addition to these higher-level directives, several types of coordination mechanisms needed to address associated transboundary issues include the newly formed Informal Transboundary Caucus led by the Partnership, Ecology, and the EPA; the Statement of Cooperation between EPA and Environment and Climate Change Canada; the long-standing Salish Sea Ecosystem Conference; and academia, such as the Salish Sea Institute. Various Management Conference forums like the Puget Sound Ecosystem Monitoring Program and the Science Panel also provide important opportunities for increasing coordination across the border on relevant issues. While we have made notable progress in coordinating on numerous transboundary issues (see the accomplishments section of this report), in other instances a lack of effective transboundary coordination may pose a risk to achieving some key Puget Sound recovery objectives.

ACTION AGENDA ALIGNMENT

HOW IS THE PARTNERSHIP ALIGNING POLICY AND RESOURCES TOWARD ACTION AGENDA IMPLEMENTATION?

Aligning the Federal Task Force Action Plan with the Action Agenda

The Partnership worked closely with lead staff from the Puget Sound Federal Task Force (PSFTF) to help align and integrate the May 2022 update to the Task Force Action Plan (2022-2026) with the 2022-2026 Action Agenda. The updated Action Plan helps integrate federal activities into the Puget Sound Action Agenda in the following ways:

- The PSFTF Action Plan is organized around the three Strategic Initiatives (Habitat, Shellfish, and Stormwater). The leads for the three Strategic Initiatives are responsible for developing and updating Implementation Strategies for achieving specific ecosystem targets for the Puget Sound Vital Sign Indicators. In turn, the Implementation Strategies inform the strategies and actions in the Action Agenda.
- The PSFTF Action Plan reflects high mutual interest and substantial coordination and collaboration in several areas, including, for example: riparian protection and restoration; fish passage restoration; restoration project permit streamlining; green infrastructure and stormwater; science and monitoring; and habitat protection and restoration.
- Strategies, actions, and key opportunities from the 2022-2026 Action Agenda were systematically considered and influenced the PSFTF Action Plan's priority federal actions to protect and restore Puget Sound.

The PSFTF and Puget Sound Partnership will continue to work together to improve understanding, recognition, and alignment of federal ongoing programs with Action Agenda implementation.

Progress on implementation of the Washington State Healthy Environment for All (HEAL) Act's environmental justice goals

In 2021, the Washington State Legislature passed the Healthy Environment for All (HEAL) Act, codified as RCW 70A.02, a law that directs seven Washington state natural resource and health agencies to work on eliminating environmental and health harm within communities affected by systemic racism in land use decisions, industrial development, extraction, and the built environment.

The HEAL Act is the first statewide law in Washington to create a coordinated state agency approach to environmental justice. The law establishes a clear definition for Washington that builds on the U.S. Environmental Protection Agency's definition of environmental justice:

"Environmental justice means the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, rules, and policies. Environmental justice includes addressing disproportionate environmental health impacts in all laws, rules, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, the equitable distribution of resources and benefits, and eliminating harm."

The law covers seven state agencies: the Washington State Departments of Agriculture, Commerce, Ecology, Health, Natural Resources, and Transportation; and the Puget Sound Partnership. HEAL further establishes environmental justice obligations for the Partnership, including requirements to participate in the state's Environmental Justice Council and interagency workgroup, develop and implement community engagement and Tribal consultation frameworks, incorporate environmental justice into implementation plans and budget development processes, and report on impacts and outcomes of environmental justice.

ENVIRONMENTAL JUSTICE COUNCIL

The law also creates an Environmental Justice Council to provide recommendations and guidance to the state and an interagency workgroup to assist with technical coordination among the state agencies.

Agencies covered by the HEAL Act are required to:

- Create and implement a community engagement plan.
- Create and implement a Tribal consultation framework and offer Tribal consultation.
- Include environmental justice in agency strategic plans.
- Incorporate environmental justice in budget creation process and in funding and grant decisions.
- Conduct environmental justice assessments on significant agency actions.
- Develop metrics, measure progress, and report progress to the Environmental Justice Council and Office of Financial Management.
- Serve at Environmental Justice Council meetings as non-voting liaisons and participate in an interagency workgroup.

WHAT DOES THE HEAL ACT MEAN FOR THE PUGET SOUND RECOVERY COMMUNITY?

The HEAL Act guides many of the state agencies that work with communities on Puget Sound recovery. It ensures that the perspectives, values, and needs of overburdened communities help direct the collective effort to recover Puget Sound. It also works to consider overburdened communities in the distribution of environmental benefits, which include actions that reduce, mitigate, or prevent environmental harms.

We see human wellbeing, environmental justice, and diversity, equity, and inclusion work as key to ecosystem recovery. Human health and quality of life depend on a healthy Puget Sound. As a recovery community, we must acknowledge and address inequities and injustices that exist within our recovery system. The 2022-2026 Action Agenda for Puget Sound, our shared plan for Puget Sound recovery, incorporates human wellbeing, Tribal nations' treaty and sovereign rights, environmental justice, and climate justice into the strategies that will help us make progress on recovery.

The aim of the law is to help us plan and construct a recovery effort that is responsive to all our needs. Implementation of the HEAL Act will help us build trust and relationships with new partners to ensure they are meaningfully involved in decision-making; create recovery strategies and commitments that integrate environmental justice principles; and distribute funding and environmental benefits equitably across communities who consider Puget Sound their home.

The Partnership's agency work plan outlines our commitment to integrating environmental justice into our programs, and the draft of our budget and funding and environmental justice procedures guide the Partnership's policies to work toward environmental justice through recognition of impacted communities, participation of vulnerable populations, and equitable distribution of Partnership programs and resources.

WHAT IS THE PARTNERSHIP DOING TO CARRY OUT THE HEAL ACT?

Inclusion of environmental justice in the agency's Strategic Plan
We are in the middle of our 2020-2025 Strategic Plan timeline. Two goals reflect our commitment to equity and environmental justice: We are more diverse, inclusive, and equitable as a result of implementing our Diversity, Equity, and Inclusion Action Plan; and we have a staff sufficient to support the requirements of statute, federal, state, Tribal, and local collaboration, and partner expectations. Staff also have the necessary support and training to perform effectively (including diversity, equity, and inclusion training).

Our HEAL Implementation Plan includes priority areas of work for the Partnership and outlines how we will implement each HEAL Act mandate. Our work plan is updated annually to include timely milestones for each initiative, and to ensure that we are meeting our agency obligations.

ENVIRONMENTAL JUSTICE ASSESSMENTS

The HEAL Act instructs the Partnership to conduct environmental justice assessments when considering significant agency actions. Environmental justice assessments are a process that staff will be required to follow to determine the impacts of significant agency actions on overburdened communities and vulnerable populations.

HEAL budget and funding policy
The HEAL Act directs the Partnership to outline our approach to carrying out the budget and expenditures section (RCW 70A.02.080) of the act. Our approach represents the agency's current best thinking on this topic.

Our approach was shaped by substantial leadership and engagement from the Equity and Environmental Justice Program; the interagency working group, composed of representatives from the agencies named in the HEAL Act; our staff; and our Leadership Team. We welcome guidance and feedback from the Environmental Justice Council, Tribal Nations, and community on our proposed approach and stand ready to adapt it as we learn more.

Our HEAL Act budget and funding policy document includes information on our approach to the following:

- Environmental justice principles
- Decision-making processes
- Focusing applicable expenditures on creating environmental benefits
- Creating meaningful participation opportunities
- Clearly articulating environmental justice goals and performance metrics
- Considering a broad scope
- Establishing a goal of 40 percent

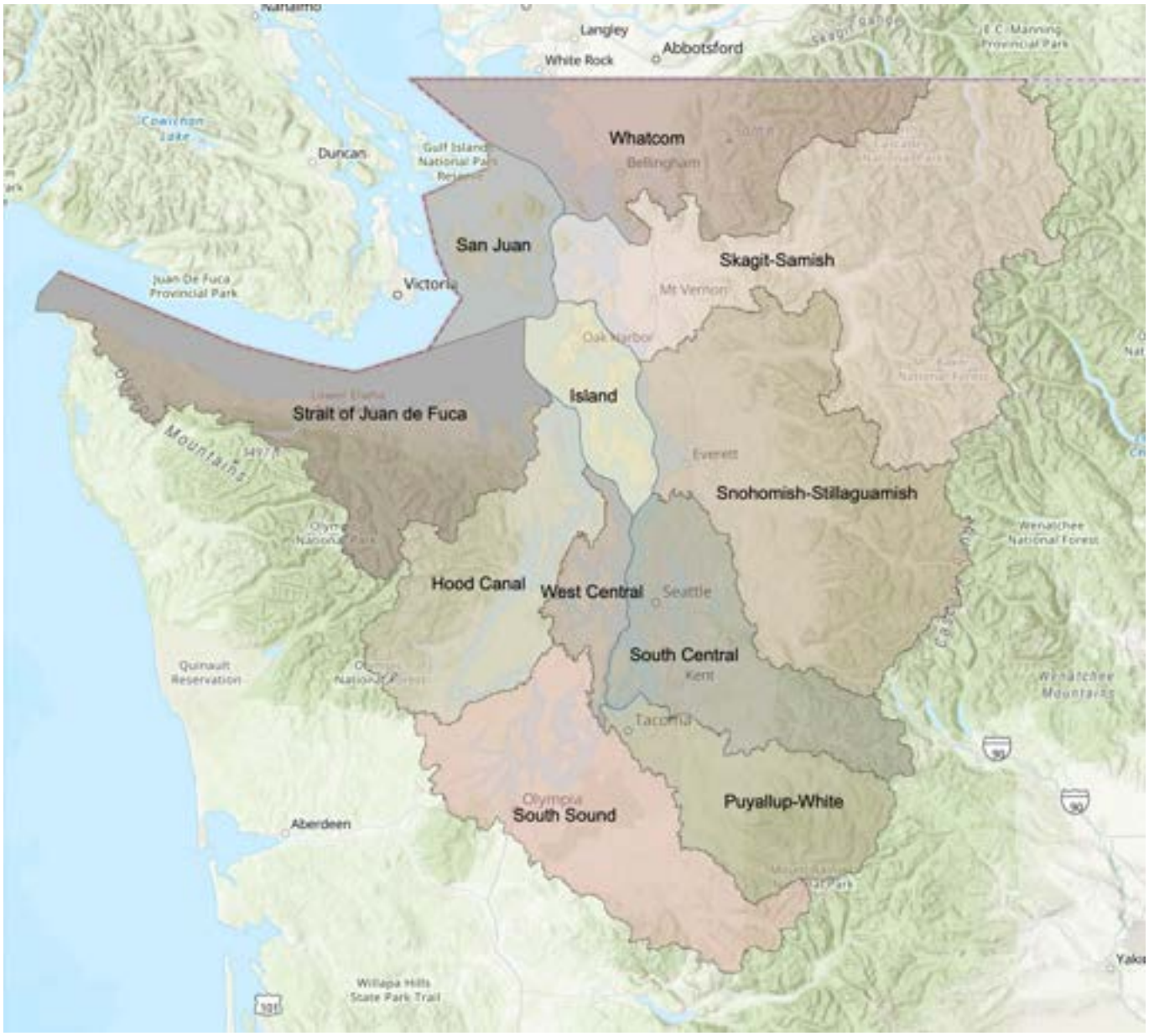


Figure 16. Map of Local Areas and Local Integrating Organizations in the Puget Sound region.

Local recovery funding and implementation

Local Integrating Organizations (LIOs) are local forums that collaboratively work to develop, coordinate, and implement strategies and actions that contribute to the protection and recovery of the ecosystem. LIOs provide a venue for partners to identify and develop locally driven recovery strategies. Each LIO develops an ecosystem recovery plan that outlines specific strategies and actions that guide local ecosystem recovery and advises regional scale recovery. Elected officials (Tribal, state, county, and city), local government staff, nonprofit organizations, special districts (for example, conservation districts), salmon recovery groups, agriculture, businesses and industry members, educational institutions, and residents participate in LIOs to collaboratively develop and foster implementation of the relevant local ecosystem recovery plans and the Action Agenda.

LIOs meet regularly to do the following:

- coordinate projects;
- strategize funding opportunities for priority actions, initiatives, and programs;
- exchange research; and
- identify science-based ecosystem recovery strategies and actions that incorporate community needs and values.

There are currently 10 active LIOs representing geographic areas in Puget Sound, and each LIO receives capacity funding to support planning and coordination efforts within their watershed.

Since November 2021, as the LIO program has continued to develop and expand in capacity and impact, efforts have been made to strengthen pathways for integrating local priorities into relevant regional decision-making systems. In 2020, the LIO program began working with the boards program to host Partnership board meetings by and within LIOs with the intent of elevating local recovery priorities, discussing where local priorities can support regional priorities, and expanding local decision-maker engagement with the Puget Sound recovery community. These local forums are objective-driven discussions that cover complex challenges, both acute and chronic, that require collaborations and actions at multiple scales. Over the last two years, eight of 10 LIOs have hosted either the Ecosystem Coordination Board or the Leadership Council to discuss issues and challenges and request board support for solutions.

At the request of local forums and with Partnership board support, we've seen the following results:

- state agencies have recommissioned and directed funding to support the state grant coordination group to improve the funding process for habitat-restoration practitioners;
- board members have supported and helped drive legislation to improve permitting processes for salmon recovery projects; and
- members have also supported funding requests for multiple efforts, including the removal of derelict vessels in the West Sound region.

The impact of these forums has been significant and celebrated for improving local-regional coordination and elevating local concerns.

LIO committees and their coordinators have also built momentum in collective action. During this reporting period, the LIO program piloted the LIO Coordinator Collective Project. The LIOs allocated annual program support funds to understand and identify solutions to local ecosystem recovery barriers that are recognized and prioritized by all 10 LIOs. The LIOs also used these funds to create attention and momentum to address and overcome those barriers. The first of this kind of project, Building Collective Commitment to Priority Shoreline Permitting Solutions, targeted the widespread issue of under-permitted and unpermitted shoreline development in areas of Puget Sound, despite existing outreach programs and resources for shoreline property owners. A consulting team examined root causes of the issue and potential pathways forward in collaboration with subject matter experts through interviews and a workshop. This work culminated in a detailed summary report that equipped LIO coordinators with ideas and suggested steps to continue working towards solutions. LIO coordinators continue to work with the results of this project as the program prepares for another project.

Recognizing that these two examples represented larger programmatic growth, the Partnership led LIO coordinators in an effort to collectively redefine and refocus the identity and vision of the LIO program.

LIO coordinators attended a series of virtual and in-person retreats to:

- articulate a unified, consensus-driven vision for the program;
- outline program values, goals, and overarching objectives;
- identify and rank program elements in terms of value and effectiveness; and
- build a path forward for all LIOs to understand, communicate, and execute their clear role within the Puget Sound recovery system.

Through this collaborative work, the group created a final vision for the program, a set of guiding values, and four clear objectives that will steer the work of all 10 LIOs going forward. The LIO program and all participant LIOs work toward and envision "thriving ecosystems through the power of local communities and regional collaboration."

ACTION AGENDA IMPLEMENTATION AT THE LOCAL LEVEL

Recovery efforts at the local level are critical to our success in implementing the Action Agenda. With so much happening across the Sound though, it is challenging to quantify and articulate the size and scale of local recovery efforts. Table 10, below, shows a summary of local government spending on a subset of activities that benefit Puget Sound recovery, however, it does not recognize other critical efforts from Tribes, nonprofit organizations, conservation districts, educational institutions, businesses and residents. See the accomplishments featured in this report for a selection of snapshots of locally implemented recovery activities across the Sound.

Local governments in Puget Sound are critical to maintaining and recovering the health of the ecosystem.
While we do not have a full picture of all the activities local governments fund with benefits to Puget Sound, Washington state law directs local jurisdictions to report their expenditures to the State Auditor's Office. These expenditure data provide a snapshot of local government spending on a subset of critical services such as wastewater utilities and pollution control and remediation. For example, spending on sewer and reclaimed water utilities in the 12 Puget Sound counties in 2021 was $1.5 billion alone; see table 10, below.

Table 10. Selected expenditures reported by local governments, related to Puget Sound ecosystem health and recovery in 12 Puget Sound counties (Clallam, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston, Whatcom)

SUBJECT OF REPORTED EXPENDITURE	EXPENDITURES ($ MILLIONS)		
	2019	2020	2021
Utilities: sewer and reclaimed water utilities	1,376	1,548	1,515
Utilities: combined utilities (including sewer and stormwater)	301	14	
Utilities: storm drainage utilities	352	391	412
Utilities: solid waste	629	632	655
Transportation: street cleaning[1]	19.6		
Conservation: soil and water conservation	41	40	49
Conservation: flood control	68	95	99
Conservation: diking or drainage	29	32	35
Conservation: weed control	6.8	6.6	7.2
Conservation: pollution control and remediation[2]	27	28	38
Other environmental services[3]	69	99	66

[1]The costs of cleaning the road or street surface by flushing, washing, or sweeping by machine or by hand, and the collection and disposal of sweepings, leaves, rocks, and storm debris, except that associated with snow and ice control.
[2]Expenditures related to prevention and remediation of an environmental pollution (e.g., removal and cleanup of underground tanks, etc.).
[3]Expenditures related to conservation and development, forest and mineral resources, fish, shellfish, and game resources, wetlands restoration and maintenance, promotion of recycling, and other energy conservation efforts, etc.
Source: https://portal.sao.wa.gov/FIT/

NOTES ON DATA:

- Expenditures are provided by local governments to the Washington State Auditor's Office, as directed by state law. The data has not been audited. Missing data and variances may exist due to incomplete reporting or changes in the local governments required to report.
- Data is reported by local governments using the prescribed account codes contained in the Budgeting, Accounting, and Reporting System (BARS) manual (https://sao.wa.gov/bars-annual-filing/bars-manuals/). The manual is maintained by the Washington State Auditor's Office with input from the Local Government Advisory Committee.
- Though the vast majority of local government expenditures are funded through local taxes, licenses, permits, fines, and charges for goods and services, a portion of revenues come from federal, state, and other local governments.
- Expenditures selected for inclusion in this table are a small subset of local-government-reported activities with assumed links to the health of the Puget Sound ecosystem. These data are intended to help illustrate the scale of local government investments in Puget Sound ecosystem-health-related activities. Therefore, these data should not be interpreted as a comprehensive summary of local government spending on Puget Sound recovery.

Funding for the Puget Sound Partnership

The Partnership's operating budget comes from state and federal sources. Our state budget consists of funds from the following accounts: General Fund, Aquatic Lands Enhancement Account, and the Model Toxics Control Operating Account. The agency primarily uses these funds as match to federal grants provided by the EPA. State appropriations have not been made directly to two dedicated accounts established by the State Legislature to support Puget Sound recovery (RCW 90.71.110 and RCW 90.71.400). However, the 2021-23 biennial budget included $2.576 million from the State General Fund for the Partnership to fund research projects designed to advance scientific understanding of Puget Sound recovery. This appropriation is closely linked to the intent of Puget Sound Scientific Research Account (RCW 90.71.110) and is ongoing.

Other new funding that was specifically itemized in the 2021-23 biennial budget includes:

- $418,000 for a four-year habitat recovery pilot program (RCW 77.55.480) to streamline the local and state environmental permitting process for habitat recovery projects that benefit freshwater, estuarine, or marine fish, or their habitats.
- $576,000 to develop and implement an action plan that advances diversity, equity, and inclusion and environmental justice in Puget Sound recovery efforts.
- $200,000 for coordination and monitoring related to Puget Sound kelp conservation and recovery.
- $500,000 for the Partnership to implement shipping noise-reduction initiatives and monitoring programs in Puget Sound, in coordination with Canadian and United States authorities, to establish and administer the Quiet Sound Program to better understand and reduce the cumulative effects of acoustic and physical disturbance from large commercial vessels on Southern Resident orcas.
- $688,000 to help implement environmental justice task force recommendations.

As shown in figure 17, in the 2021-23 biennium, the Partnership's operating budget totaled $16.6 million in state funds and $20.5 million in federal U.S. EPA funds. The Partnership also received $1.3 million from the NOAA Pacific Coastal Salmon Recovery Fund (PCSRF) to continue to serve as the regional salmon recovery organization for Puget Sound. The Partnership also received $300,000 from the Puget Sound Acquisition and Restoration (PSAR) fund through an interagency agreement with the Recreation and Conservation Office (RCO) to co-manage PSAR project prioritization, monitoring, and investments.

For the 2023-25 biennium the State Legislature has so far appropriated $21.3 million in state funds to the Partnership's operating budget, including $700,000 in continued funding for the Quiet Sound Program, and the Partnership has budgeted $26.7 million in federal U.S. EPA funds. The Partnership also received $1.4 million NOAA PCSRF funds and $650,000 PSAR program funds. The Partnership was able to carry forward unspent PSAR program funds into the 2023-25 biennium, which explains the increased size of the PSAR budget when compared to the 2021-23 biennium.

It is notable that the Partnership's state and federal funding has increased significantly in the last two biennia, with state funding increasing by almost half between the 2019-21 and 2023-25 biennia, adjusting for inflation. Federal funding has also increased sharply due to increases in funding allocations for U.S. EPA's National Estuary and Puget Sound Geographic programs.

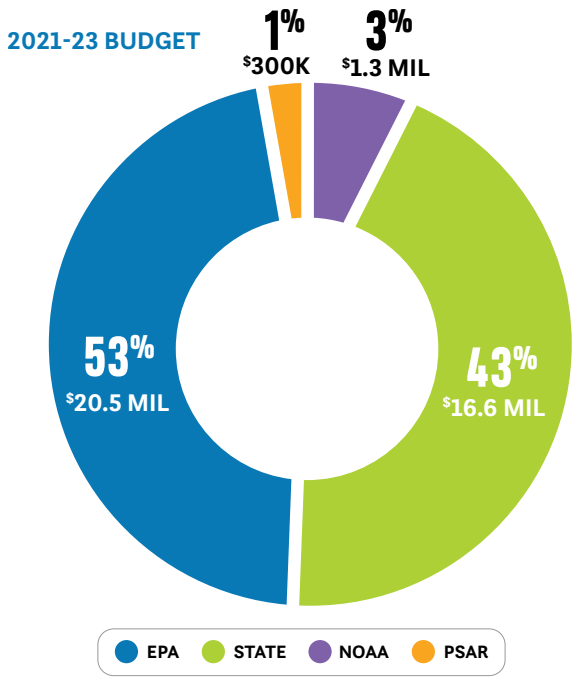


Figure 17. Puget Sound Partnership operating budget for the 2021-2023 biennium.

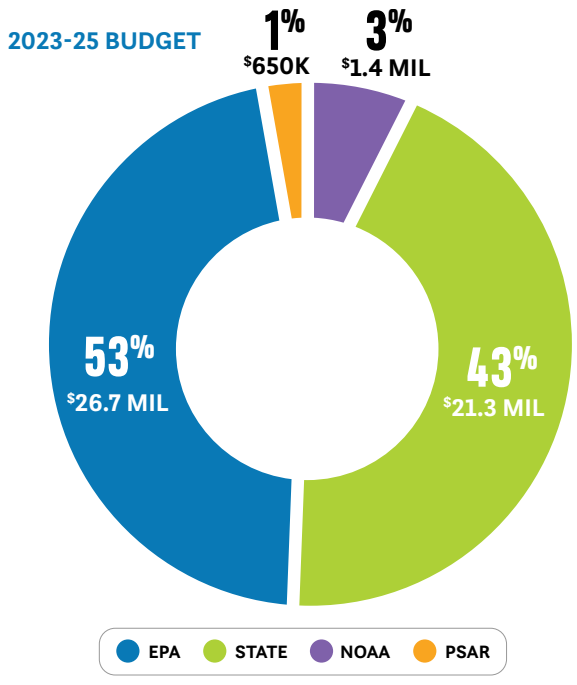


Figure 18. Puget Sound Partnership operating budget for the 2023-2025 biennium.

How do we assess and manage progress toward recovery?

SCIENCE TO INFORM RECOVERY EFFORTS

Successful Puget Sound recovery relies on science to provide credible information to answer the questions that enable us to manage recovery efforts to meet our recovery goals, the Puget Sound Vital Signs. The importance of science is recognized both in the Partnership's enabling statute and the Science Panel, a Partnership board made up of top scientists from Washington state, Oregon, and Canada, dedicated to providing expertise and advice to guide science-based decision-making for Puget Sound recovery. The Science Panel's priorities are laid out in the current Science Work Plan for 2020-2024.

The Partnership also leads coordination of the Puget Sound Ecosystem Monitoring Program (PSEMP), a collaborative network of subject matter experts who generate, organize, synthesize, and communicate scientific information to track ecosystem conditions that directly address management and science questions critical to Puget Sound recovery.

Funding is also available to the Partnership to make direct investment awards to science projects that support the objectives of PSEMP, including to develop and report on Vital Sign Indicators and address questions to inform and assess progress toward Action Agenda desired outcomes and statutory goals for Puget Sound recovery. Monitoring to Accelerate Recovery (MAR) proposals are solicited and funded by the Partnership every two years.

Puget Sound Indicators

Puget Sound Indicators are a suite of interconnected indicators that monitor progress towards our goals for a healthy Puget Sound ecosystem and human population. Puget Sound Indicators include Action Agenda Progress Indicators, Salmon Habitat Indicators (formerly Common Indicators), and Vital Sign Indicators (see the state of the ecosystem section of this report for detailed information about the status of the Vital Sign Indicators).

Action Agenda Progress Indicators illuminate progress and barriers in implementing the Action Agenda, with some offering results on two-to-four-year timescales. Salmon Habitat Indicators describe changes in the quality and quantity of habitat for salmon on an intermediate timescale, helping us understand conditions necessary for salmon recovery. Vital Sign Indicators track the status of our ultimate desired outcomes and demonstrate results in Puget Sound-wide ecosystem health on long (20-40-year) timescales.

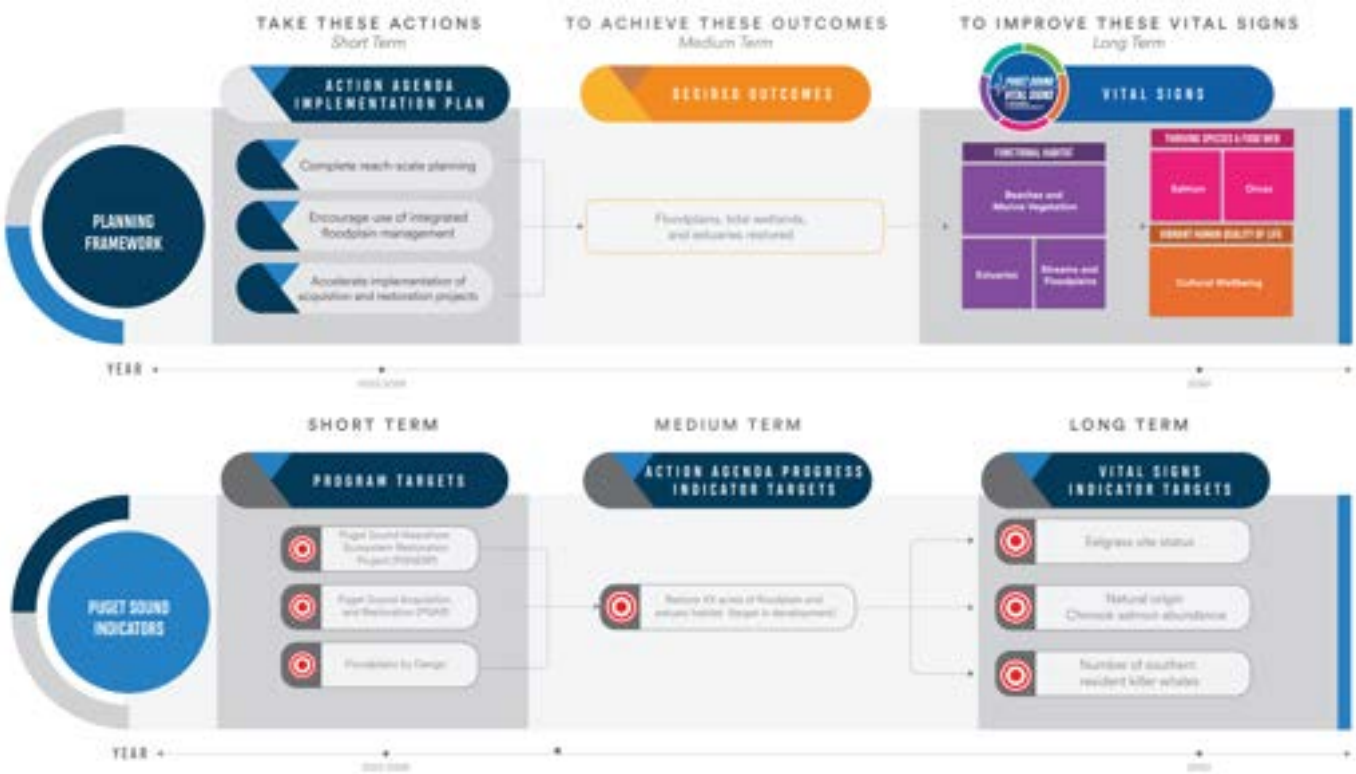


Figure 19. Elements of the planning and monitoring framework that illustrate how to achieve success and monitor progress for an example Action Agenda strategy: Protect and restore floodplains and estuaries.

ACTION AGENDA PROGRESS INDICATORS TRACK HUMAN ACTIVITIES THAT IMPACT THE VITAL SIGNS AND VITAL SIGN INDICATORS

Action Agenda Progress Indicators (Progress Indicators) are a suite of metrics that track the human activities that positively or negatively impact the Vital Sign Indicators. Progress Indicators do the following:

- focus on monitoring the restoration community's performance on restorative activities within the scope of our collective influence;
- monitor changes at a Sound-wide scale that are influenced by multiple programs and entities; and
- demonstrate progress on timescales responsive to current investments (typically two-to-12-year scales)

While Vital Sign Indicators help us gauge the status of ecosystem function by measuring water quality, species' populations, the presence of toxins, and more, Progress Indicators measure implementation and successes of the strategies outlined in the Action Agenda. They help to identify whether businesses, governments, and residents are adopting desired behaviors and whether the adverse effects of human activity on the ecosystem are decreasing. In this way, Progress Indicators define what we hope to achieve on shorter timescales so we can effectively and strategically adapt our recovery plans.

Progress Indicators are currently under development; results and trends will ultimately be reported on the Partnership's reporting platform, PS Info. Results and trends for some preliminary Progress Indicators may be available for the *2025 State of the Sound*.

ACTION AGENDA PROGRESS INDICATORS TRACK MANAGEMENT TOPICS DESCRIBED IN ACTION AGENDA STRATEGIES

Table 11, below, outlines proposed examples of Progress Indicators that could support tracking the implementation of Action Agenda strategies. To learn more about how Progress Indicators are scoped and developed as well as our current work plan for Progress Indicator development, visit the Action Agenda Progress Indicators development website.

Table 11. Proposed examples of Progress Indicators that could support tracking the implementation of Action Agenda strategies.

	STRATEGY TOPIC	ACTION AGENDA STRATEGY	PROPOSED PROGRESS INDICATORS
1	Smart growth	Strategy 1: Smart Growth	Habitat conversion Impervious surface Urban density and growth
2	Agricultural land protection	Strategy 2: Working Lands	Farmland preservation Farmland conversion
3	Forest land protection	Strategy 2: Working Lands	Forestland preservation Forestland conversion
4	Marine shoreline management	Strategy 3: Healthy Shorelines	Extent of unpermitted armor Shoreline armor removal Extent of shoreline armor
5	Riparian management	Strategy 4: Riparian Areas	Riparian restoration and acquisition
6	Floodplains (non-tidal) and estuaries (tidal) management	Strategy 5: Floodplains and Estuaries	Floodplains and estuaries restoration Floodplains and estuaries acquisition Flood risk reduction
7	Fish passage enhancement	Strategy 6: Fish Passage Barriers	Miles made accessible to fish passage
8	Water resources and streamflow management	Strategy 7: Freshwater Availability	*In development*
9	Toxics in consumer products	Strategy 8: Toxic Chemical Pollution	*In development*
10	Water pollution identification & correction	Strategy 9: Water Pollution Source Identification & Correction	*In development*
12	Urban stormwater runoff	Strategy 10: Stormwater Runoff and Legacy Contamination	*In development*

Table 11. Proposed examples of Progress Indicators that could support tracking the implementation of Action Agenda strategies.

	STRATEGY TOPIC	ACTION AGENDA STRATEGY	PROPOSED PROGRESS INDICATORS
13	Toxic site clean-up	Strategy 10: Stormwater Runoff and Legacy Contamination	*In development*
14	Onsite septic systems	Strategy 11: Wastewater Systems	Onsite septic system (OSS) inspection compliance OSS failures and repairs OSS outreach and financial assistance
15	Wastewater treatment plants	Strategy 11: Wastewater Systems	*In development*
16	Agricultural runoff	Strategy 12: Working Lands Runoff	Water quality best management practices adoption Agricultural runoff reduction
17	Working forests runoff	Strategy 12: Working Lands Runoff	Water quality best management practices adoption Forestland runoff reduction
18	Oil spills	Strategy 13: Oil Spills	*In development*
19	Submerged aquatic vegetation management	Strategy 16: Submerged Aquatic Vegetation	*In development*
20	Recreational and commercial boating	Strategy 17: Responsible Boating	*In development*

ACTION AGENDA PROGRESS INDICATORS SUPPORT ADAPTIVE MANAGEMENT OF THE PUGET SOUND RECOVERY EFFORT

Progress Indicators serve as an informative bridge between shorter-term planning documents and the longer-term goals (e.g., ecosystem recovery described by our recovery goals and measured by our Vital Sign Indicators) that we hope to achieve. Progress Indicators tell us which strategies are making meaningful progress and help us learn from our implementation activities and adjust as necessary when revising the Action Agenda. This learning and decision-making process is adaptive management; such adaptation ensures that we continue efforts that are proving effective and founded upon the best available science and knowledge we have.

Progress Indicators support adaptive management by:

- Affirming the need to accelerate funding or scale-up key programs or actions that drive changes in an indicator.
- Determining whether a key issue is being adequately managed and whether existing levels of funding and effort should be sustained.
- Illuminating persistent barriers that must be addressed or that require novel approaches to make adequate progress.

Progress Indicator evaluation plans will summarize known contributing factors that influence the ability to observe desired trends in Progress Indicators. They illuminate gaps and uncertainties in Progress Indicator reporting and promote evaluation studies that would help to meaningfully interpret observed trends in Progress Indicators. These plans are written collaboratively with our partners to support conversations on prior investments and management actions taken by the recovery community. To learn more about the adaptive management framework utilized by the Partnership, see Appendix I of the 2022-2026 Action Agenda.

Setting targets for ongoing programs

The Partnership's collaboration with state agencies to set targets for a selection of ongoing Puget Sound recovery programs shows recognition of the key role that programs play in implementing Action Agenda strategies and actions.

Developed through a collaborative process between the Partnership and a subset of state agency programs in 2021-22, **Program Targets** are commitments about the results that Puget Sound recovery-related programs will aim to achieve over the four-year implementation period of the 2022-2026 Action Agenda. Targets provide the Partnership and the recovery community with a transparent and measurable way to assess program needs and barriers and promote increased support for programs to help them achieve their targets.

A Program Target helps define program success that, if achieved within the time period, would implement Action Agenda strategies and accelerate progress toward one or more of our desired recovery outcomes. The targets serve as one of the foundational elements of the Partnership's tracking, evaluation, and accountability efforts. They sit alongside other assessment approaches such as Action Agenda Progress Indicators, which tend to be focused on broader and longer-term monitoring of Sound-wide activities that may include multiple different efforts and programs.

Eight of the 2022-2026 Action Agenda strategies are affiliated with one or more Program Targets; see table 12 below.

Setting and evaluating targets for programs is one tool that will help to improve the effectiveness of Puget Sound recovery programs and accelerate progress toward recovery goals.

Table 12. 2022-2026 Action Agenda Program Targets, organized by strategy.

STRATEGY	PROGRAM NAME	TARGET DESCRIPTION
Strategy 2 – Working Lands	Floodplains by Design (Washington State Department of Ecology (Ecology))	4,140 acres of working lands protected or improved
Strategy 3 – Healthy Shorelines	Nearshore Credits Program (Puget Sound Partnership (Partnership))	938 cumulative tons of creosote removed
	Estuary and Salmon Restoration Program: Shore Friendly (Washington State Department of Fish and Wildlife (WDFW))	Conduct 914 technical site visits with interested shoreline landowners and follow up with over 330 technical site visits with site-specific recommendations
Strategy 4 – Riparian Areas	Conservation Reserve Enhancement Program (CREP) (Washington State Conservation Commission (SCC))	675 acres of riparian buffer installed in Puget Sound agricultural areas
Strategy 5 – Floodplains and Estuaries	Puget Sound Acquisition and Restoration (Partnership)	Fund 6,000 acres of salmon habitat protection or restoration projects
	Puget Sound Nearshore Ecosystem Restoration Program (WDFW)	Secure funds to start the process-based restoration of 2,414 acres of Puget Sound Nearshore Ecosystem Restoration Program-identified nearshore habitat projects
	Floodplains by Design (Ecology)	Fund 4,554 acres of floodplain or estuary habitat restoration or reconnection

Table 12. 2022-2026 Action Agenda Program Targets, organized by strategy.

STRATEGY	PROGRAM NAME	TARGET DESCRIPTION
Strategy 8 – Toxic Chemical Pollution	Toxics Reduction Program (Ecology)	Reduce toxic chemicals or generated hazardous waste by an additional 8,000 pounds or more, and generate extra cost savings of $20,000 or more
Strategy 12 – Working Lands Runoff	Shellfish Program (SCC)	Fund the installation of best management practices in agricultural areas in Puget Sound with a cumulative effectiveness index of over 680 acres, 99,512 linear feet, and 2,748 units
Strategy 17 – Responsible Boating	Derelict Vessel Removal Program (Washington State Department of Natural Resources)	Number of derelict vessels removed: Remove 180 or more vessels between 2022-2025
Strategy 20 – Climate Adaptation and Resilience	Floodplains by Design (Ecology)	Support 1,340 homes or structures with reduced flood or climate risk

HOW CAN TARGETS BENEFIT PROGRAMS AND THE RECOVERY EFFORT?

The Partnership aims to use Program Targets to identify shared barriers across many programs—and assess program needs—to promote increased support. The Partnership will:

- **Build a Puget Sound budget based on resources needed to achieve targets.** Through our consultations with state partners and our affiliated decision package ranking, we support agencies' decision packages to obtain the resources needed to meet Program Targets.
  - ***SUPPORT EXAMPLE*** The Partnership awarded extra points to the ranking of state agency 2023-25 biennial budget requests where the request would help the program advance towards achieving its target. The rankings informed the governor's budget and were also provided to state legislative committees and staff. See the results of the 2023-25 ranking process for requests related to Program Targets, in table 13.
- **Promote federal support of programs.** In cases where federal support is needed to achieve Program Targets, we will highlight and promote programs through Puget Sound Day on the Hill and other activities.
  - ***SUPPORT EXAMPLE*** The Partnership coordinated a conversation between the Washington State Department of Natural Resources' (DNR) Derelict Vessel Removal Program and senior staff from the Puget Sound Federal Task Force and the National Oceanic and Atmospheric Administration's (NOAA) Marine Debris Program. NOAA agreed to connect with DNR to look at potential options for federal funding.
- **Highlight program accomplishments and contributions to Puget Sound recovery goals through *Making Waves* and other communication platforms.** Showcase programs that set targets through our various periodic communication platforms such as *Making Waves*, the Partnership's online magazine.
  - ***SUPPORT EXAMPLE*** The Partnership's communications team worked with the Washington State Department of Ecology's Toxics Reduction program to provide a profile of its work in the *Making Waves* newsletter. This program profile was intended to raise awareness and showcase results of the program with partners to increase program demand and familiarity.

- **Support programs to overcome barriers.** The Partnership will support agencies to overcome barriers and will seek solutions such as:
  - identifying ways to enhance program resources;
  - working with our boards and legislative program to pursue legal or policy changes;
  - coordinating forums at the Leadership Council or our other venues to facilitate dialogue among multiple agencies; and
  - providing support to programs to improve data and metrics to more effectively track progress.
  - ***SUPPORT EXAMPLE*** The Partnership funded a research (capstone) project through Oregon State University to evaluate 1) the effectiveness of the Washington State Department of Fish and Wildlife (WDFW) Shore Friendly program, 2) WDFW and local lead organizations' understanding of how well the program is being implemented, 3) whether the program is having the intended effect, and 4) whether the program is meeting the need and is focused on the right approaches to reduce shoreline armor on private lands. This evaluation is part of a broader effort to develop a monitoring and evaluation framework for the Shore Friendly program to improve effectiveness and accountability.
  - ***SUPPORT EXAMPLE*** Partnership staff coordinated a forum at the March 2023 Leadership Council meeting about approaches to fund Sound Safe Infrastructure (habitat restoration in locations where there is major transportation infrastructure). Several partners from different sectors (including state and federal transportation agencies) participated in the discussion, which generated a suite of potential solutions. The Partnership worked with partners to investigate some of the potential solutions and brought some recommendations to the June 2023 Leadership Council meeting. The Partnership organized the forums at the request of the Puget Sound Nearshore Ecosystem Restoration Program. We report more on this example in the section of the report about overcoming barriers to Puget Sound recovery.
- **Apply lessons learned from Program Targets to inform the next Action Agenda.** Shape the future content of the 2026-2030 Action Agenda by using the lessons learned from Program Targets and knowledge from helping programs overcome barriers.

HOW DID WE CHOOSE WHICH PROGRAMS TO SET TARGETS FOR?

The objective is to set targets for a subset of programs that play a critical role in achieving Puget Sound recovery, which also meet the following standards:

- The program aligns with and supports implementation of one or more Action Agenda strategies and supports achievement of at least one of the Action Agenda desired recovery outcomes.
- Data are available to track and report on a program-level measure that reflects the key outcomes of a program.
- The program is a high priority for the respective agency and the Puget Sound recovery community.

HOW ARE PROGRAM TARGETS TRACKED, AND WHERE CAN I SEE THE LATEST PROGRESS INFORMATION?

Program Target partners will report on their Program Targets annually to help us gauge progress toward achieving the targets. Programs provide data about progress toward their interim milestones, as well as updates about the support they need to overcome barriers to enable them to meet the targets. More information about Program Targets and the latest progress updates is presented on the PS Info Ongoing Programs Portal.

Table 13. Outcome of Puget Sound Partnership 2023-25 biennial budget ranking – position of all Program-Target-related budget requests (rows shaded in green) in the ranking (from a total of 156 ranked requests).

RANK	REQUEST TITLE	AGENCY	BUDGET TYPE	AGENCY REQUEST ($000'S)	COMPROMISE BUDGET ($000'S)	PROGRAM TARGET
1	Estuary and Salmon Restoration	Washington State Recreation and Conservation Office (RCO)	CAP	$25,512	$14,309	Shore Friendly
2	Duckabush Estuary Habitat Restoration (State)	Washington State Department of Fish and Wildlife (WDFW)	CAP	$66,000	$14,000	PSNERP
2	Duckabush Estuary Habitat Restoration (Federal)	WDFW	CAP	$30,000	$30,000	PSNERP
2	Puget Sound Acquisition and Restoration	RCO	CAP	$65,419	$59,165	PSAR
5	2023-25 Floodplains by Design	Washington State Department of Ecology (Ecology)	CAP	$70,392	$67,392	FbD
5	Conservation Reserve Enhancement Program (CREP PIP)	Washington State Conservation Commission (SCC)	CAP	$100	$100	CREP
5	Conservation Reserve Enhancement Program	SCC	CAP	$7,725	$15,000	CREP
5	Puget Sound and Adjacent Waters Nearshore Restoration - Match	WDFW	CAP	$281	$281	PSNERP
9	2023-25 Remedial Action Grants Program	Ecology	CAP	$115,111	$115,111	N/A
9	Improve Shellfish Growing Areas	SCC	CAP	$4,000	$3,500	Shellfish Program
11	2023-25 Clean Up Toxic Sites-Puget Sound	Ecology	CAP	$7,455	$7,455	N/A
11	Address Toxic Tire Wear Chemical	Ecology	OP	$2,702	$2,702	N/A
11	Agriculture Science Program	SCC	OP	$1,250	$1,000	N/A
11	Building a Climate-Resilient WDFW	WDFW	OP	$5,306	$4,424	N/A
11	Emerging Toxics in Chinook and Orca	WDFW	OP	$2,412	$4,096	N/A

RANK	REQUEST TITLE	AGENCY	BUDGET TYPE	AGENCY REQUEST ($000'S)	COMPROMISE BUDGET ($000'S)	PROGRAM TARGET
11	Toxic Tire Wear in Stormwater	Ecology	OP	$5,195	$5,195	N/A
17	River Migration Mapping for Salmon	Ecology	OP	$354	$354	N/A
18	2023-25 State Match Water Pollution Control Revolving Program	Ecology	CAP	$35,000	$35,000	N/A
18	2023-25 Water Pollution Control Revolving Program (State)	Ecology	CAP	$435,000	$435,000	N/A
18	2023-25 Water Pollution Control Revolving Program (Federal)	Ecology	CAP	$200,000	$200,000	N/A
18	Floodplain Management Grants	Ecology	OP	$800	$800	N/A
18	Helping Local Government Recover Salmon	Washington State Department of Commerce	OP	$5,494	$2,747	N/A
18	Modernizing TurboPlan System	Ecology	OP	$1,050	$1,050	Toxics Reduction
18	Removal of Aquatic Derelict Structures (Capital)	Washington State Department of Natural Resources (DNR)	CAP	$19,597	$9,650	Conservation Credits
18	Removal of Aquatic Derelict Structures (Operating)	DNR	OP	$1,144	$1,143	Conservation Credits

Overcoming barriers to Puget Sound recovery

The monitoring and assessment work the Partnership undertakes alongside its many partners, including activity tracking, indicator development and monitoring, and target setting, are tools that help us to gauge our progress toward recovery. This work can help us identify where there are barriers or challenges that need to be addressed to enable progress. Once identified, we rely on our leaders and decision-makers across the region to recognize and seek to address those issues. One of the most important venues for addressing recovery barriers is through the Partnership's boards and advisory groups, as well as forums at the local level.

Boards addressing inconsistencies

The section below provides examples of barriers addressed by the Leadership Council, Ecosystem Coordination Board, Science Panel, and Salmon Recovery Council between October 2021 and June 2023.

Leadership Council – acceleration forum

One of the duties of the Leadership Council is to guide implementation of the 2022-2026 Action Agenda, which includes removing barriers to implementation that our partners are facing. An example of this work includes the Sound Safe Infrastructure acceleration forum hosted by the Leadership Council at their March and June 2023 meetings.

For the acceleration forum, the Leadership Council hosted a discussion regarding the large influx of money coming to the Puget Sound region as a result of the passage of the federal Bipartisan Infrastructure Law (the Infrastructure Investment and Jobs Act) and the Inflation Reduction Act, in addition to the 16-year, nearly $17 billion Washington state transportation funding package. The focus of the forum was to identify mechanisms to encourage the influx of transportation dollars to be used to create transportation projects which also have strong environmental and human wellbeing benefits—Sound Safe Infrastructure. The opportunity to try to direct more federal funds to support Sound Safe Infrastructure was initially raised by the Partnership at the request of partners at the Washington State Department of Fish and Wildlife (WDFW) who manage the Puget Sound Nearshore Ecosystem Restoration Program (PSNERP). WDFW is trying to identify ways to accelerate PSNERP's work so that they can meet or exceed their Program Target listed in the Action Agenda: to "secure the funds needed to start the process-based restoration of up to 2,414 acres of PSNERP-identified nearshore habitat projects."

In March 2023, the Leadership Council and presenters identified some of the main challenges surrounding this issue and began brainstorming possible actions to ensure more restoration projects can successfully compete for transportation funds. After this meeting, Partnership staff researched and explored several of the ideas with partners. In June 2023, staff presented and discussed a summary of findings and proposed next steps for the Leadership Council and Partnership to advance.

Supporting materials: June 8 briefing memo Sound Safe Infrastructure

Local Forums with Leadership Council and Ecosystem Coordination Board
The Partnership's boards are committed to engaging local decision-makers—including elected officials who are not engaged in the Management Conference—for structured conversations that elevate the stature of local priorities and identify ways in which the Management Conference can help address barriers. Each year, the Partnership's Leadership Council and Ecosystem Coordination Board co-host a two-hour local forum at two of their quarterly meetings with leadership from a Local Integrating Organization (LIO) and Lead Entity for salmon recovery. Below are two examples of local forums hosted during this reporting period and their outcomes to date.

Leadership Council – local forums
On June 8, 2022, the Snohomish Stillaguamish (Sno/Stilly) Local Integrating Organization (LIO) presented on the impacts of administrative burdens and policy requirements for a variety of state grant programs that have caused delays in restoration projects. During their presentation, they described multiple challenges, including:

- Grant timeframes that are too short and limit efficiency of long-term restoration projects.
- Grant programs that lack long-term funding sources and require reapplication for funding every couple of years.
- Duplicative application portals that each require significant specialization, time, and effort to:
  - learn, gain permission, and access;
  - work with IT departments to load proprietary software on government computers; and
  - train staff on the system requirements.
- Grant-match requirements at the sponsor level limit project effectiveness and underreport the amount of funds leveraged by local agencies.
- Grant-match requirements pose a barrier to many organizations in securing funding to implement essential recovery projects.
- Grant reporting complexity: Project sponsors must report project results into multiple grant online databases on different time scales.

In September 2022, the Island County LIO brought similar concerns and recommendations to the Leadership Council during their local forum. In addition, the Puyallup White River LIO presented on other similar concerns at an Ecosystem Coordination Board local forum in November 2022. Each of these forums brought forth local government perspectives about challenges with state grant requirements and each provided recommendations.

The Leadership Council chair and the executive director of the Partnership have been working with leaders at the Washington State Department of Ecology, Washington State Recreation and Conservation Office, WDFW, and Washington State Conservation Commission to support a working group. This working group, called Align, would bring these agencies together to develop and implement biennial work plans to identify and remove administrative challenges, barriers, and gaps in state grant programs, incorporating input from the project-sponsor community. The agencies who participate in this work group signed an MOU that describes their purpose as "identifying and implementing administrative improvements in state voluntary funding programs addressing salmon protection, recovery, and restoration; and watershed recovery; and ecosystem recovery; and water quality protection and restoration." The Partnership has also committed $183,000 over two years to fund facilitation of the group and to help develop and support implementation of the Align work plan.

Between October 2021 and June 2023, the Leadership Council hosted three local forums, including with Snohomish Stillaguamish LIO and Island LIO as described above, and the Alliance for a Healthy South Sound.

Supporting materials:

- Snohomish Stillaguamish LIO local forum agenda, briefing materials, and presentations
- Island LIO local forum agenda and briefing materials
- Alliance for a Healthy South Sound agenda, briefing materials, and presentations

Ecosystem Coordination Board – local forums
On October 28, 2021, the Ecosystem Coordination Board hosted its first local forum with the West Sound Partners for Ecosystem Recovery (WSPER LIO). Local leaders from the WSPER raised several barriers to achieving ecosystem recovery, including:

- integrating salmon and ecosystem recovery priorities in local jurisdiction planning;
- water quality challenges with shellfish downgrades; and
- management of derelict vessel removal and on-water living practices.

For the first topic, WSPER committee members described how salmon recovery priorities remain separate from other local planning initiatives, creating a barrier to implementation of recovery actions. For this topic, a panel of local experts discussed how salmon recovery goals and projects could be integrated into local and regional comprehensive plans and the development of capital improvement and transportation project lists. As a result of this work, the board's land use subcommittee has been identifying opportunities to provide guidance for local jurisdictions during comprehensive planning.

For the second topic, WSPER committee members described how West Sound has experienced downgrades in several shellfish districts due to poor water quality and excessive heat. They discussed the impacts of these downgrades on local consumers and Tribal harvesting practices, as well as the need for greater collaboration between agencies, better public education, and more funding for pollution control programs. As a result, federal representatives on the board and the Shellfish Strategic Initiative considered investments and other ways to provide more resources to support low-income residents with septic repairs or replacements. In the fall of 2022, the Shellfish Strategic Initiative released a request for proposals (RFP) which included an investment priority for onsite sewage system (OSS) management and "ensuring OSS owners have access to and are eligible for incentives, loans, and other financial assistance sources" for maintenance, repairs, and upgrades.

For their final topic, WSPER described both the impacts of on-water living practices to water quality and the challenges with disposal of derelict vessels in West Sound. The board supported WSPER by advocating that funding for the Washington State Department of Natural Resources' derelict vessel removal account be included as a Puget Sound legislative priority during the 2022 Washington state legislative session. Ultimately, House Bill 1700—concerning sustainable funding for the derelict vessel removal account using the vessel watercraft excise tax—passed during session.

The Ecosystem Coordination Board hosted three additional local forums between October 2021 and June 2023, including with Whatcom LIO, Puyallup White River LIO, and San Juan LIO.

Supporting materials:

- WSPER local forum agenda, briefing memos, and presentations
- Whatcom local forum agenda, briefing memos, and presentations
- Puyallup White River local forum agenda, briefing memos, and presentations
- San Juan local forum agenda, briefing memos, and presentations

Science Panel
Per Washington state statute [RCW 90.71.280(1)(c)] one of the Science Panel's roles is to "develop and provide oversight of a competitive peer-reviewed process for soliciting, prioritizing and funding research and modeling projects."

Since 2019, the Partnership has received biennial state appropriations of approximately $1.7 million for Puget Sound Scientific Research. For 2021-2023, the Science Panel supported the Partnership in designing a solicitation for, reviewing applications, and awarding funding to six projects:

- Human Well-being and Environmental Effects of Green Infrastructure. Project lead: Ailene Ettinger, The Nature Conservancy.
- Sea Lion Abundance Puget Sound. Project Lead: Mari Smultea, Smultea Sciences.
- Using Bioenergetics to Plan Effective Restoration Projects for Chinook Salmon. Project lead: Emily Howe, The Nature Conservancy.
- Modeling Cumulative Effects to Guide Southern Resident Killer Whale Recovery. Project lead: Rob Williams, Oceans Initiative.
- Prioritization of Contaminants of Emerging Concern. Project Lead: Ruth Sofield, Western Washington University.
- Qualitative Social Science through the Skagit Story. Project Lead: Sara Jo Breslow, Sara Jo Breslow LLC.

The principal investigators for each of these projects presented to the Science Panel on July 20, 2023, to describe their work, the problem or issue they set out to address, what they produced, who they hope will use their project findings, and next steps. All of these projects substantially contribute to increasing our understanding of the science needed to support sound policy decisions and investments in recovery.

Supporting materials: July 20, 2023, Science Panel Puget Sound Scientific Research briefing memo

Salmon Recovery Council
The Puget Sound Salmon Recovery Council has long been focused on maintaining and increasing funding for salmon recovery. The 2007 Puget Sound Salmon Recovery Plan estimated an annual funding need of $120 million to fully implement the recovery plan, and secured funding has consistently fallen short of that need.

Starting in 2020 and continuing into 2022, a funding subcommittee of the Salmon Recovery Council explored county-level conservation futures (CFT) programs for potential areas of alignment with salmon recovery priorities. The subcommittee posited that with some modest changes to these local taxing authorities, greater alignment with salmon recovery needs and the overall baseline funding for salmon recovery could increase. To this end, the funding subcommittee and a consultant support team from Environmental Science Associates (ESA) engaged with pilot counties on best practices for CFT programs. Focusing on Kitsap County, ESA and the subcommittee produced a recommendations report that details best practices for CFT program administration that could maximize the contributions of these existing funding authorities to salmon recovery outcomes.

The Salmon Recovery Council and its funding subcommittee provided the recommendations report to Kitsap County's Commissioners in March 2022, and expect that many of the best practices outlined in the report could apply to other county CFT programs as well. Future work for the council may include re-engaging with Kitsap County to assess its success in implementing recommended changes and identifying additional Puget Sound counties to work with.

Resident concerns and how those concerns have been addressed

	VENUE RECEIVED	CONCERN	DISPOSITION OF CONCERN
1	**Public comment period for HEAL Act significant agency actions**	A public comment period was conducted through June 15, 2023. We invite you to reach out to us at any time. We will use input to help inform decisions on conducting assessments and how we communicate and engage.	A summary of comments and Partnership responses can be found here.
2	**Leadership Council**	The November 2021 Salish Sea Vessel Traffic Projections identifies 22 new or expanding terminal and refinery projects that have been proposed or permitted or were recently completed. Unlike the 12 British Columbia projects, none of the 10 new, expansion, or redevelopment projects in Washington state quantifies any increases in ocean-going vessel traffic. The lack of any review of the environmental impacts from the Washington state projects' potential increases in vessel traffic highlights a failure of Washington state's Environmental Policy Act (SEPA). Project proponents in Washington state have received development permits without quantifying the projects' increase in vessel traffic in their applications. Once the permits have been issued and the development that enables additional vessel traffic has occurred, there is nothing that requires the environmental impacts of any increase in vessel traffic to be addressed, unless the permits are conditioned to require further SEPA review if vessel traffic increases occur. The Salish Sea Vessel Traffic Projections highlights the need to implement the Orca Task Force's Recommendation 27: Determine how permit applications in Washington state that could increase traffic and vessel impacts could be required to explicitly address potential impacts to orcas. As you well know, increases in vessel traffic impact the critically endangered Southern Resident killer whales. 1) Southern Residents rely on echolocation to hunt for their preferred prey, Chinook salmon. 2) Vessel traffic noise masks or impairs Southern Residents' communication and echolocation, making it more difficult to socialize and to find scarce prey; this in turn requires them to expend more energy. 3) The presence of vessels inhibits the Southern Residents' foraging behavior. 4) Disturbance from vessels and vessel noise are hindering the recovery of the Southern Resident killer whale population.	The Partnership works with the Governor's Office of Salmon Recovery to support implementation of the Orca Task Force recommendations. The Leadership Council discussed strategies to accelerate or improve implementation at the December 9, 2021, acceleration forum.

	VENUE RECEIVED	CONCERN	DISPOSITION OF CONCERN
3	**Leadership Council**	Strait Ecosystem Recovery Network legislative priorities and example actions for the 2022 Washington state legislative session **Topic: Overarching priorities** 1. Ensure that Tribal sovereignty, treaty rights, and the Tribe's role as co-managers of natural resources (i.e., Boldt decision) within Washington state are explicitly recognized, and that "Free, prior, and informed consent" is well provided for when developing legislative actions. 2. Ensure that the ecosystem services provided by rural areas, such as the North Olympic Peninsula, are appropriately recognized and valued when developing legislative actions for economic, shoreline and land use, natural resource, and climate change planning. **Topic: Engaging rural economies to confront climate change** 3. Start new markets that incentivize enhanced carbon sequestration. 4. Distinguish rural from urban needs and solutions to ensure rural areas, such as the North Olympic Peninsula, are not unfairly harmed or forced into wasteful, counterproductive measures. **Topic: Local on-site septic programs** 5. Establish stable funding sources to fully implement local ongoing on-site septic programs, particularly in rural areas with shellfish resources such as the North Olympic Peninsula. **Topic: Local water resource management** 6. Enhance local water resource management programs and rules. **Topic: Local shoreline and land use management** 7. Enhance ongoing implementation of local shoreline and land use management protection, and incentive programs and plans. **Topic: Oil spill prevention, preparedness, and response** 8. Enhance and support improvements to regional, Tribal, and local oil spill preparedness, prevention, and response. **Topic: 2022 capital funding that will help advance the work of the Strait Ecosystem Recovery Network** 9. Enhance capital funding for habitat protection and restoration projects and clean water programs, as well as transportation improvements that benefit habitat and lead to zero emission.	The Partnership agrees these topics are important for Puget Sound recovery. Each was considered for inclusion—and many were included—in the Leadership Council priorities for the 2022 and 2023 state legislative sessions. The Partnership is also working to improve transparency and engagement in our process to set legislative priorities. Local Integrating Organizations and other partners are now provided with additional opportunities to identify and develop Puget Sound legislative priorities.

	VENUE RECEIVED	CONCERN	DISPOSITION OF CONCERN
4	**Leadership Council**	Model Toxics Control Act (MTCA) concern with cleanup in wetlands near the Edmonds ferry terminal. There are issues with contaminants on a property originally slated to be a parking lot. Ongoing capacity issues are slowing the work.	The Partnership supports the cleanup of contaminated sites in the Puget Sound region. Cleanup of contaminated sites is prioritized based on the effect to humans and the environment. Action Agenda strategy 10 includes a key opportunity to increase funding and capacity for contaminated site cleanup. This could include agency-initiated toxic cleanups, local government cleanups, and cleanups associated with public-private partnerships.
5	**Leadership Council**	Salmon populations do not respond on the timetable everyone wants them to, and recovery is going to take a while. Match levels are a critical factor influencing success.	The Partnership agrees that salmon populations do not respond as quickly as desired. Salmon recovery plans in Puget Sound provide long-term goals and strategies for recovery while also identifying near-term opportunities to advance action. Many organizations involved in Puget Sound recovery have identified that match can be a limiting factor for implementing restoration projects. The Partnership has supported conversations to alleviate this burden, and we do not require match for Puget Sound Acquisition and Restoration funds. We are grateful to our federal partners for the many federal grants under the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act) that are waiving match requirements and to the Washington State Recreation and Conservation Office for revisiting their match policies for state grants (see briefing memo for agenda item five from the May 2023 meeting Meetings - RCO (wa.gov)).

	VENUE RECEIVED	CONCERN	DISPOSITION OF CONCERN
6	**Leadership Council**	Regarding salmon emergencies, a comment related to removing salmon recovery funding from the legislative priorities. Noted that funding salmon emergencies is a new way of thinking about how to address short-term needs.	The Partnership supports the Salmon Recovery Council in its exploration of a mechanism to respond to salmon emergencies. The Partnership is ready to support the salmon recovery community in establishing such a mechanism when appropriate. We support the Salmon Recovery Council in recommendations they would bring forward on this topic.
7	**Action Agenda comments**	The Partnership conducted a public review period of the draft 2022-2026 Action Agenda from March 15 through April 15, 2022. During this period, members of the recovery community submitted feedback via an online form to address gaps in information, provide clarifications, and propose other revisions to the draft 2022-2026 Action Agenda. Feedback was then addressed by Partnership staff, Strategic Initiative Leads, and other partners and incorporated into the draft 2022-2026 Action Agenda. 508 comments were submitted to the Puget Sound Partnership during the public review period from 50 groups and individuals. All comments from those reviewers are listed in this document.	Public comments received can be found here

Accomplishments

This section, new for the *2023 State of the Sound*, highlights projects and efforts from our partners that are making a difference in Puget Sound recovery. These accomplishments show the quality and range of work that our partners do and demonstrate the commitment of the recovery community. Of course, there are many impactful projects and initiatives throughout the region that could not be included in this section; however, the following accomplishments aim to provide a representative sample of the dynamic and diverse work being done to accelerate Puget Sound recovery.

Accomplishments were identified by working closely with stakeholders, experts, and partners from across the region to draw upon their insights and expertise to solicit project recommendations. The final selection of accomplishments in this section encompasses a variety of funding sources, sponsors, and project types across Puget Sound – and includes large-scale restoration projects, scientific and monitoring projects, and efforts to reduce human environmental impacts, among others. Many of these projects are also carrying out innovative actions, prioritizing environmental justice, and improving specific conditions within Puget Sound and beyond.

Puget Sound recovery is a long-term effort that will require continued collective action from organizations and people throughout the entire region. It's important that we celebrate our successes and appreciate the people who work hard every day to preserve and protect this place that we love.

ACCOMPLISHMENT SELECTION AND DEVELOPMENT PROCESS

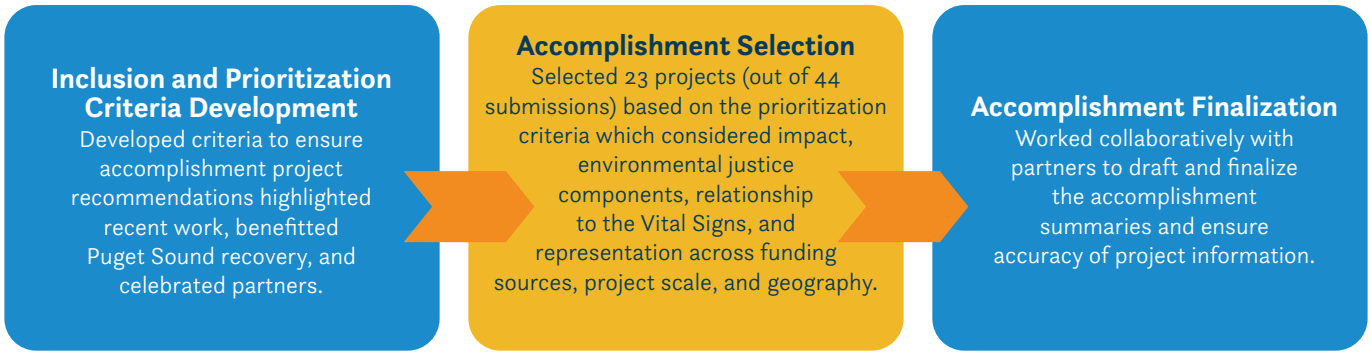


Table of contents

RESTORATION ACCOMPLISHMENTS

Projects in this section seek to restore natural environments and improve ecological functions by mitigating degradation impacts.

1. Authorization for Howard Hanson Dam Fish Passage 100
2. Derelict Vessel Removal 102
3. Middle Fork Nooksack River Fish Passage 104
4. Dungeness River Floodplain Restoration 106
5. Lower Russell Levee Setback & Habitat Restoration 108
6. Port Susan Bay Restoration for Resiliency 110

SCIENCE AND POLICY ACCOMPLISHMENTS

Projects in this section are related to technical and social research and the development of funding opportunities, programs, and task forces.

7. Chemical Indicator Development for Pollutant Monitoring 112
8. Pacific Sand Lance Assessment in Subtidal Habitats 114
9. Enhancing the Human Wellbeing Vital Signs through Inclusive Engagement 116
10. Floating Kelp Indicator Development 118
11. Shoreline Monitoring Toolbox 120
12. Stormwater Summits 122
13. Transformative federal funding for Puget Sound Recovery 124
14. Puget Sound Federal Leadership Task Force 126

MANAGEMENT PRACTICES ACCOMPLISHMENTS

Projects in this section seek to improve management practices by developing best practices on a variety of topics, working with landowners, and supporting Puget Sound stewardship.

15. Quiet Sound Large Vessel Slowdown 128
16. Hoodsport Shellfish Beds Reopened for Harvest 130
17. Stormwater Park Retrofits 132
18. Jefferson County On-site Septic Cost Share Program 134
19. Sound Horsekeeping Program 136
20. Regional Forest Pilot Program 138
21. Green Crab Monitoring 140
22. Transboundary Sea Duck Management 142
23. Equity and Environmental Justice Three-Year Workplan 144

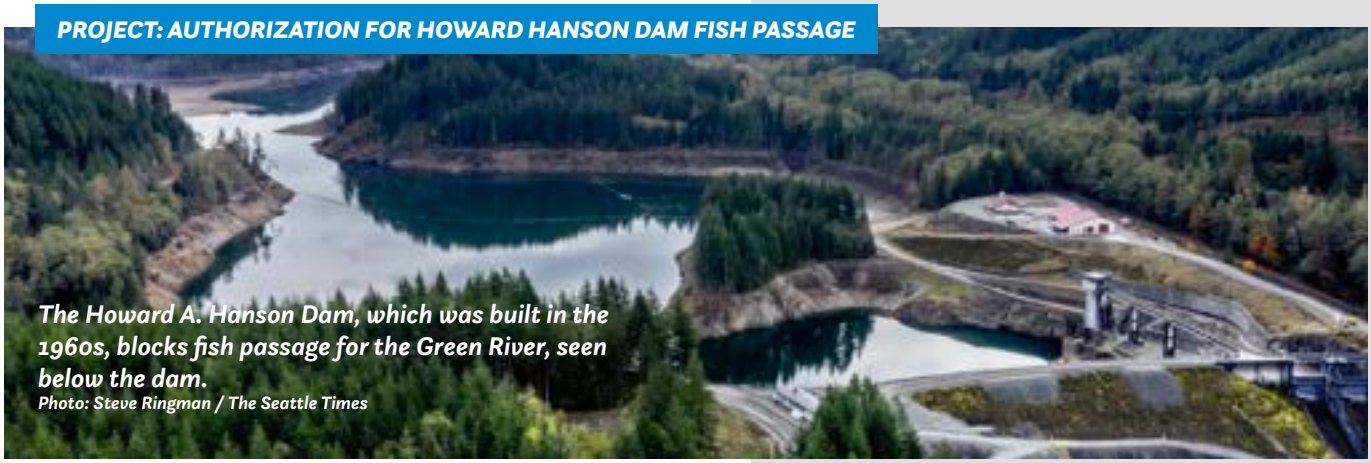
PROJECT: AUTHORIZATION FOR HOWARD HANSON DAM FISH PASSAGE

Congress approves historic funding on Howard Hanson Dam to unlock more than 100 miles of prime salmon habitat, making it one of the largest salmon production opportunities in the Puget Sound.

The Howard Hanson Dam is set to be one of the largest projects on a list of over 300 others that the U.S. Army Corps of Engineers will undertake in the coming years. The project–set to start between 2026 and 2027–will not only increase storage capacity for Tacoma Public Utilities and maintain critical flood management for communities in the Green River Valley, but will also restore salmon migration to over a hundred miles of prime habitat.

Photo by: U.S. Army Corps of Engineers

PROJECT: AUTHORIZATION FOR HOWARD HANSON DAM FISH PASSAGE



The Howard A. Hanson Dam, which was built in the 1960s, blocks fish passage for the Green River, seen below the dam.
Photo: Steve Ringman / The Seattle Times

KEY ACCOMPLISHMENTS

- The project received administrative authorization through the Water Resources Development Act in 2022 and received initial funding in 2022 through the Bipartisan Infrastructure Law for $220 million.
- By advancing a fish-passage facility for salmon migrating downstream, 100 miles of river and tributary habitat will be opened to salmon spawning and rearing in what could be the largest salmon production opportunity in the Puget Sound region.
- The project can increase supply of municipal and industrial water for the greater region that Tacoma Public Utilities serves.
- Citizens of Auburn, Kent, Tukwila and Renton—who depend on the dam to protect their livelihood and roughly $21.5 billion in property—will be better protected from flooding upon completion of the project.

WHY IS THIS IMPORTANT?

- **Restores critical salmon habitat.** Almost half of the Green River's spawning and rearing habitat has been unavailable to Chinook salmon since 1910. This project will reopen essential waterway passage over a century later.
- **Protects endangered species.** The National Oceanic and Atmospheric Administration declared that the lack of fish passage endangers ESA-listed Chinook and their predator, the Southern Resident killer whale. Fish passage is set to be restored by 2030.

PROJECT PARTNERS

- U.S. Army Corps of Engineers
- Members of the Puget Sound congressional delegation
- Muckleshoot Indian Tribe
- Pierce County
- City of Tacoma
- City of Kent
- Tacoma Public Utilities
- Tacoma Water
- Lakehaven Water and Sewer District
- Covington Water District
- Green/Duwamish and Central Puget Sound Watershed (WRIA 9)

PROJECT FUNDING

- Bipartisan Infrastructure Law
- U.S. Army Corps of Engineers Civil Works budget

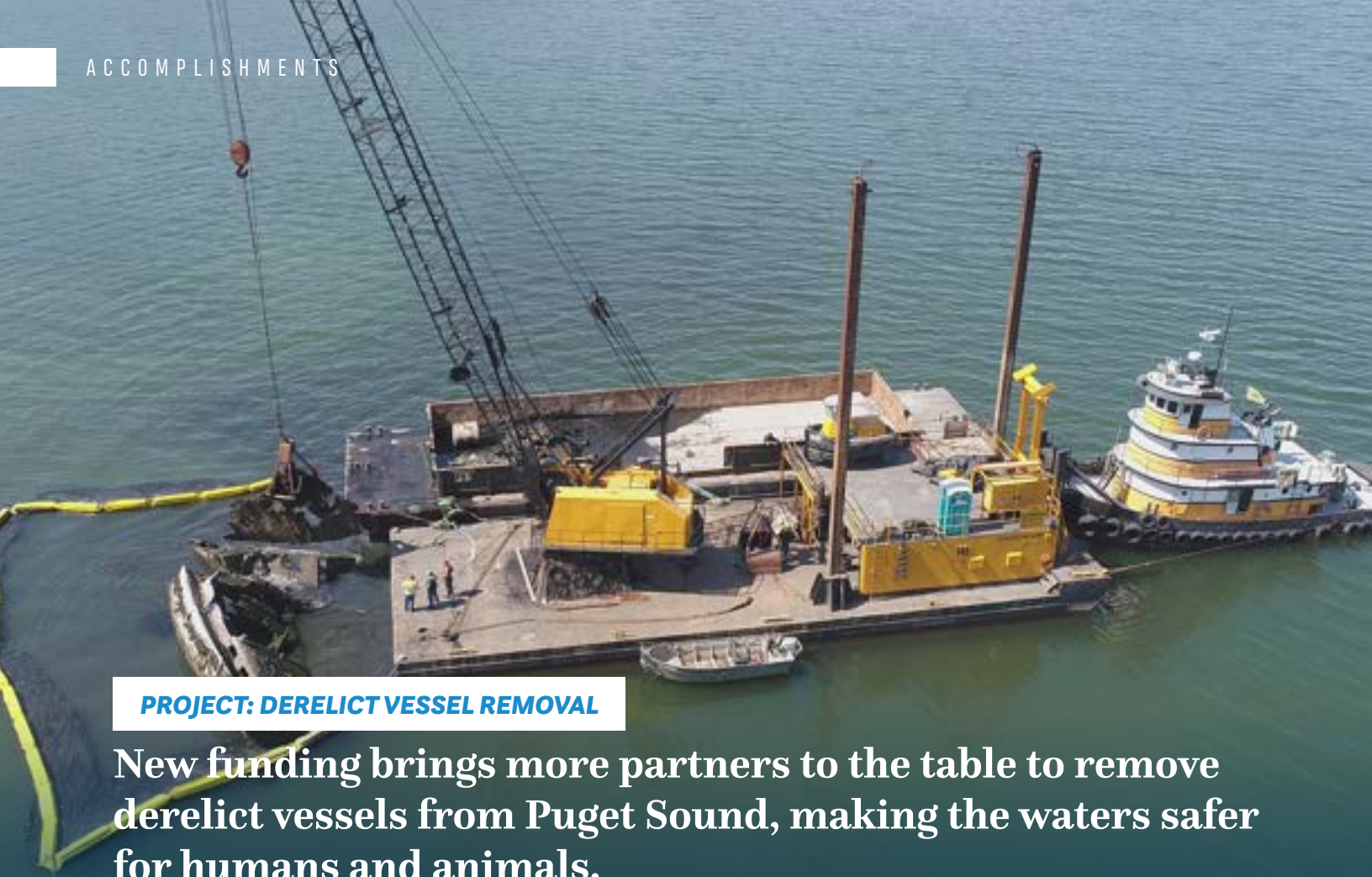
RELATED VITAL SIGNS

Salmon

Streams and Floodplains

RELATED ACTION AGENDA STRATEGIES

- 5 **Floodplains and Estuaries**
- 6 **Fish Passage Barriers**
- 15 **Salmon Recovery**
- A **Funding**



PROJECT: DERELICT VESSEL REMOVAL

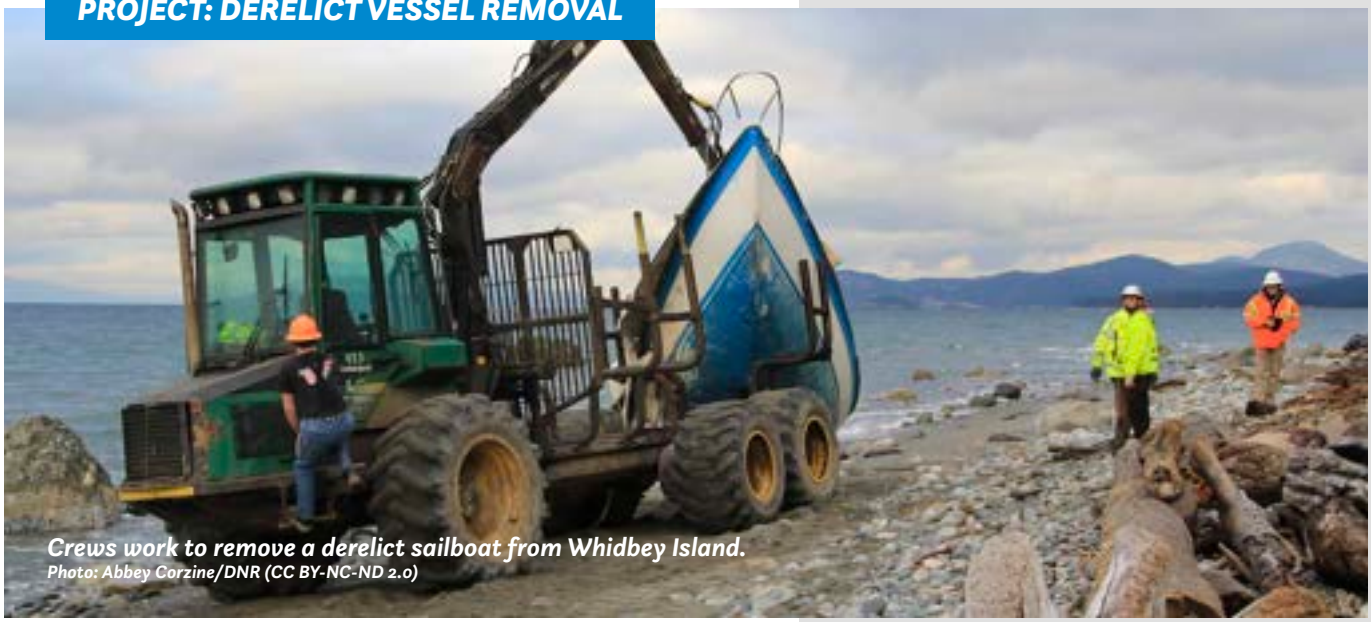
New funding brings more partners to the table to remove derelict vessels from Puget Sound, making the waters safer for humans and animals.

The Northwest Straits Commission (NWSC) received congressionally directed funding in January 2023, selected as a funding priority by Senator Patty Murray. A portion of the funds are being directed towards derelict vessel removals by a working group made up of seven county-based Marine Resources Committees (MRCs) and Tribal partners within the Northwest Straits region. The partners compiled a prioritized list of derelict vessels in their communities where removals are likely to benefit the nearshore and marine ecosystems, treaty rights, recreation, and access. Federal funds have provided a unique opportunity for NWSC to form a collaborative team to remove derelict vessels that have been prioritized by local MRCs and Tribes, in concert with the Washington Department of Natural Resources (DNR) Derelict Vessel Removal Program.

Project Contact: Dana Oster, Marine Program Manager
Northwest Straits Commission
oster@nwstraits.org

Photo by: Jason Thompson, Swinomish Indian Tribal Community

PROJECT: DERELICT VESSEL REMOVAL



Crews work to remove a derelict sailboat from Whidbey Island.
Photo: Abbey Corzine/DNR (CC BY-NC-ND 2.0)

KEY ACCOMPLISHMENTS

- At least 11 vessels will be removed by November 2023, made possible through congressional funds to the Northwest Straits Commission.
- The Northwest Straits Commission convened Marine Resources Committees, Tribal partners, including the Swinomish Indian Tribal Community and Makah Tribe, to create a collaborative workgroup to identify and prioritize derelict vessel prevention and removal opportunities.

WHY IS THIS IMPORTANT?

- **Improves community safety.** The removal of derelict and abandoned vessels improves boater safety and recreational and cultural access by removing known navigational hazards.
- **Protects our marine environment.** Derelict and abandoned vessels pose a threat to the marine environment as both a physical impediment to habitats and processes and a potential source of pollutants and marine debris. Removing these vessels improves conditions in Puget Sound for a variety of wildlife.
- **Additional funds bring more partners to the table.** Derelict vessels abandoned on Tribal tidelands have been ineligible for removal through the State Derelict Vessel Removal Program, which places the burden of removal on Tribes. Federal funds, prioritized by Senator Patty Murray, awarded to the Northwest Straits Commission allowed the collaboration of partners to expand to derelict vessels on Tribal and privately held tidelands.

PROJECT PARTNERS

- Northwest Straits Commission
- Marine Resources Committees (Clallam, Island, Jefferson, San Juan, Skagit, Snohomish, and Whatcom counties)
- Swinomish Indian Tribal Community
- Makah Tribe
- Washington State Department of Natural Resources

PROJECT FUNDING

- Congressionally directed funds, fiscal year '22, administered by the National Oceanic and Atmospheric Administration

RELATED VITAL SIGNS

Outdoor Activity

Toxics in Aquatic Life

RELATED ACTION AGENDA STRATEGIES

13 **Oil Spills**

17 **Responsible Boating**

24 **Cultural Practices and Local Foods**

26 **Human Health**

PROJECT: MIDDLE FORK NOOKSACK RIVER FISH PASSAGE

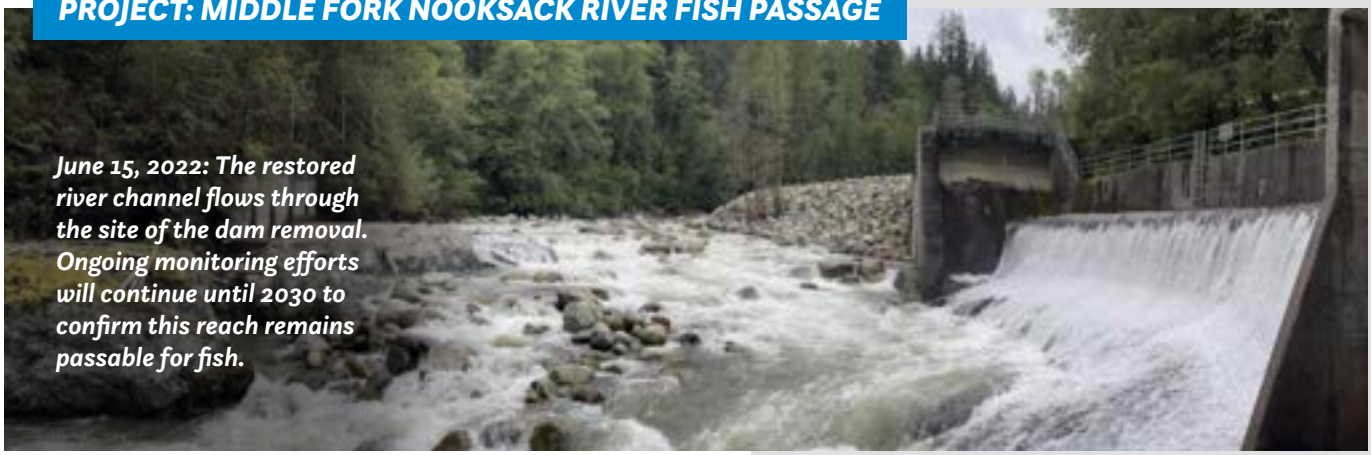
Dam removal on the Middle Fork Nooksack River elevates salmon recovery and fulfills a long-term vision.

The Middle Fork Nooksack River Fish Passage Project removed a diversion dam on one of three primary river forks, fulfilling the highest priority restoration action for endangered salmon and trout species in the Nooksack Watershed. The project also contributes to Southern Resident killer whale recovery and provides cultural, economic, and recreational benefits.

Modifications to the Middle Fork Nooksack River's diversion dam were proposed long before its removal in 2022. Initial conversations began in 2000, when the City of Bellingham was approached by the Nooksack Indian Tribe and Lummi Nation. Since signing a formal partnership agreement with the Tribes and Washington State Department of Fish and Wildlife, the city and project partners have considered several design options. Now, the dam removal not only achieves their goals of restoring fish passage and maintaining municipal water supply, but also restores "the spiritual power and beauty in the eyes of the Nooksack Indian Tribe."

Photo by: Gary Ives

PROJECT: MIDDLE FORK NOOKSACK RIVER FISH PASSAGE



June 15, 2022: The restored river channel flows through the site of the dam removal. Ongoing monitoring efforts will continue until 2030 to confirm this reach remains passable for fish.

KEY ACCOMPLISHMENTS

- Removal of the diversion dam and channel restoration effectively reestablished 16 miles of spawning and rearing habitat for spring Puget Sound Chinook salmon, Puget Sound steelhead and coastal-Puget Sound bull trout.
- This project is an example of successful collaboration among Tribes (Lummi Nation and Nooksack Indian Tribe), local government (City of Bellingham), state government agencies (Washington State Department of Fish and Wildlife), and nonprofits (American Rivers).
- This project maintains the ability to periodically divert water to support a reliable municipal water supply for over 120,000 community members.

WHY IS THIS IMPORTANT?

- **Supports salmon recovery.** The project was identified as the highest priority recovery action of the Water Resources Inventory Area (WRIA) Salmonid Recovery Plan and is recognized for its ability to yield the greatest Nooksack Chinook salmon population increase of any single restoration action.
- **Is of cultural significance.**The Nooksack River and its watershed are the ancestral lands of Indigenous peoples, including the Nooksack Indian Tribe. The area and project site remains important today for many Tribal religious and cultural activities.
- **Economic benefits.** Project construction provided the equivalent economic impact of creating approximately 224 direct and indirect jobs.
- **Enhances recreational uses.** Whitewater kayaking is popular on the Middle Fork of the Nooksack River. The work completed in the restoration process provided additional benefits to recreational whitewater kayakers, as they navigate this section of the Middle Fork.

PROJECT PARTNERS

- Nooksack Indian Tribe
- Lummi Nation
- Washington State Department of Fish and Wildlife
- American Rivers

PROJECT FUNDING

- Puget Sound Acquisition and Restoration, Puget Sound Partnership and Washington State Recreation and Conservation Office
- Paul G. Allen Family Foundation
- City of Bellingham
- Pacific Salmon Treaty, Orca Recovery Funding, and Community-Based Restoration Program, National Oceanic and Atmospheric Administration
- Puget Sound Coastal Program, U.S. Fish and Wildlife Service
- Resources Legacy Fund
- Salmon Recovery Funding Board, Washington State Recreation and Conservation Office

RELATED VITAL SIGNS

Salmon | Cultural Wellbeing

RELATED ACTION AGENDA STRATEGIES

15 **Salmon Recovery**

PROJECT: DUNGENESS RIVER FLOODPLAIN RESTORATION

Dungeness River reconnected with historic floodplain to restore vital salmon habitat.

A large-scale (100+ acres) project, the Dungeness River Floodplain Restoration project reconnects the Dungeness River with its historic floodplain to improve habitat conditions, restore riverine processes, reduce flood risk, and improve habitat for threatened Chinook, chum, steelhead, bull trout, and other salmon. The restoration also benefits other projects being co-implemented in the basin, such as the revegetation of the floodplain.

Photo by: John Gussman/ Jamestown S'Klallam Tribe

PROJECT: DUNGENESS RIVER FLOODPLAIN RESTORATION

KEY ACCOMPLISHMENTS

- Removed a 2.4-mile-long levee along the Dungeness River and a section of a road that bisected the floodplain. Reconnected the river to its historic floodplain, creating new salmon rearing and spawning habitat.
- In concert with the Jamestown S'Klallam Tribe's adjacent levee setback project, the river is now reconnected to 180 acres of historic floodplain and over 3,800 feet of critical side channel habitat, preferred habitat for Pacific salmon.
- This project benefits four fish species listed as threatened on the Endangered Species Act (ESA) list, including Puget Sound Chinook, Hood Canal summer chum, Puget Sound steelhead, and bull trout, as well as several other salmon species, and many other aquatic and terrestrial species.

WHY IS THIS IMPORTANT?

- **Is a key recovery strategy and has broad support.** The levee setback is a key strategy in the Dungeness Chapter of the Puget Sound Chinook Recovery Plan. Advocates for this project included the Dungeness River Management Team, comprised of a variety of stakeholders including Clallam County, Jamestown S'Klallam Tribe, and others.
- **Benefits other restoration efforts on the Dungeness.** The Dungeness River Floodplain Restoration project is the culmination of 10 years of planning and design work. It is one of many restoration efforts along the river that restores vital habitat, improves conditions for threatened salmon, and reduces flood risk.
- **Provides a public benefit.** During construction a road was removed from the floodplain. Earlier in the process, the public asked the County commissioners to relocate the road to the top of the levee and the levee was built with that use in mind. Currently the commissioners are reviewing that decision to take into account a change in community sentiment - many people now use the levee for outdoor recreation, including to walk, ride bikes, and watch wildlife.

PROJECT PARTNERS

- Clallam County
- Jamestown S'Klallam Tribe

PROJECT FUNDING

- Puget Sound Acquisition and Restoration, Puget Sound Partnership and Washington State Recreation and Conservation Office
- Floodplains by Design, Bonneville Environmental Foundation, Washington State Department of Ecology, American Rivers
- National Coastal Wetlands Conservation Grant, U.S. Fish and Wildlife Service and Washington State Department of Ecology

RELATED VITAL SIGNS

Salmon

Streams and Floodplains

RELATED ACTION AGENDA STRATEGIES

4 **Riverine Areas**

5 **Floodplains and Estuaries**

15 **Salmon Recovery**

PROJECT: LOWER RUSSELL LEVEE SETBACK & HABITAT RESTORATION

An updated flood facility provides multi-dimensional results in the Green River and the City of Kent.

The Lower Russell Levee Setback project, completed in May 2023, brings multiple benefits for the Green River and the broader community; as a part of a flood management strategy, it improves riparian and aquatic habitat and enhances recreational opportunities.

Project Contact: Kerry Bauman
Kerry.Bauman@kingcounty.gov

PROJECT: LOWER RUSSELL LEVEE SETBACK & HABITAT RESTORATION

Constructed floodplain habitat

KEY ACCOMPLISHMENTS

- Replaced the flood containment system on the Green River by setting back and updating the 1.4 miles of existing levee to meet current design standards and reconnect over 40 acres of historical floodplain.
- Improved aquatic and riparian habitat for fish and wildlife, providing shallow, slow water habitat for ESA-listed fish species.
- Relocated and enhanced Van Doren's Landing Park and constructed new Green River Trail through the reach. Its reopening in May 2023 marked the project's completion.

WHY IS THIS IMPORTANT?

- **Meets broader project goals.** The levee setback is an early action project of the Green River System Wide Improvement Framework (SWIF) and a priority project in the 2005 WRIA 9 Salmon Habitat Plan.
- **Protects surrounding assets.** The Lower Green River Valley supports economic assets that contribute to over one-eighth of Washington's gross domestic product. The updated levee system will protect residential and commercial development in the area.
- **Increases recreational opportunities.** Project construction created opportunities for active and passive recreation by replacing and complementing existing parks, trails, and open space.

PROJECT PARTNERS

- King County Water and Land Resources Division
- City of Kent
- King County Flood Control District
- Muckleshoot Indian Tribe
- WRIA 9

PROJECT LEAD

- King County

PROJECT FUNDING

- King County Flood Control District
- Washington State Department of Ecology
- Puget Sound Acquisition and Restoration, Puget Sound Partnership and Washington State Recreation and Conservation Office

RELATED VITAL SIGNS

Outdoor Activity | Salmon | Streams and Floodplains

RELATED ACTION AGENDA STRATEGIES

4 **Riverine Areas**

5 **Floodplains and Estuaries**

15 **Salmon Recovery**

PROJECT: PORT SUSAN BAY RESTORATION FOR RESILIENCY

Advancing estuarine benefits and climate resilience through Port Susan Bay restoration.

Port Susan Bay restoration site, in the Stillaguamish Delta, is a critical habitat for threatented Chinook salmon. By restoring channel networks and connectivity across the estuary, Port Susan Bay Restoration for Resiliency will provide benefits to several salmon species and surrounding marsh habitat, while also improving long-term climate resilience for the delta. The project builds off the Sustainable Lands Strategy[1] to advance fish, flood, and farm benefits in the watershed.

---

[1]The Sustainable Lands Strategy (SLS) was convened in 2010 by Snohomish County, Tulalip and Stillaguamish Tribes, state and federal agencies, and agricultural and environmental stakeholders to improve coordination and generate progress for fish, farm, and flood management interests.

Photo by: Randi Shaw, TNC

PROJECT: PORT SUSAN BAY RESTORATION FOR RESILIENCY

KEY ACCOMPLISHMENTS

- Creation of ~21,000 linear feet of new channel network, reconnecting two river distributaries and 11 blind tidal channels across 150 acres of marsh habitat.
- Increases juvenile-rearing capacity and habitat conditions for several salmon species, including Puget Sound Chinook, listed as threatened on the Endangered Species Act list.
- Goes beyond enhanced species habitat, improving resilience to climate impacts such as sea level rise by increasing delivery of river sediments across the marsh, reducing salinity levels in marsh habitats, and through techniques like adding elevation to marsh areas.

WHY IS THIS IMPORTANT?

- **Supports a fully functioning estuary habitat.** This adaptive management project builds on 10 years of monitoring data, and a changing surrounding landscape. This site's location adjacent to the river and the bay supports longitudinal connectivity across the Stillaguamish Delta—and provides an opportunity to benefit the ecological processes that support a functional estuarine habitat. This helps distribute freshwater and sediments across the delta, supporting both juvenile salmonids and marsh habitat. The adaptive design also prepares the site for even greater connectivity in the future, as channels will connect to the Stillaguamish Tribe's zis a ba 2 restoration site next door. This project also supports upstream salmon recovery projects by providing critical rearing habitat in the estuary before the fish head out to sea.
- **Supports the local economy.** In just its initial design phase, Port Susan Bay Restoration for Resiliency supported more than 15 jobs–the construction and monitoring phases required at least 50 more.
- **Important to Tribal treaty rights.** Expanding the delta habitat benefits the Stillaguamish Tribe of Indians and adjacent Tulalip Tribes. The Port Susan Bay restoration design synergizes with an adjacent 248-acre restoration site led by these two Tribes, such that both sites will function as one hydrologically-connected marsh.

PROJECT PARTNERS

- Stillaguamish Tribe of Indians
- Washington State Department of Fish and Wildlife
- Tulalip Tribes

PROJECT LEAD

- The Nature Conservancy

PROJECT FUNDING

- Puget Sound Acquisition and Restoration, Puget Sound Partnership and Washington State Recreation and Conservation Office
- Estuary and Salmon Restoration Program, Washington State Department of Fish and Wildlife
- Salmon Recovery Funding Board, Washington State Recreation and Conservation Office
- Killer Whale Research and Conservation Program, National Fish and Wildlife Foundation
- National Coastal Wetlands Conservation Grant, U.S. Fish and Wildlife Service, Washington State Department of Ecology
- Community-based Restoration Program Coastal & Marine Habitat Restoration Grant, National Oceanic and Atmospheric Administration
- Transformational Habitat Restoration and Coastal Resilience Grant, National Oceanic and Atmospheric Administration

RELATED VITAL SIGNS

Estuaries | Salmon | Economic Vitality

RELATED ACTION AGENDA STRATEGIES

5 **Floodplains and Estuaries**

15 **Salmon Recovery**

22 **Outdoor Recreation and Stewardship**

25 **Economic Benefits**

PROJECT: CHEMICAL INDICATOR DEVELOPMENT FOR POLLUTANT MONITORING

Chemical toxicant indicators developed to improve water quality and protect salmon.

Aquatic organisms in Puget Sound are exposed to complex mixtures of thousands of chemicals that may have cumulative or synergistic impacts on their health and survival and limit the amount of seafood we can safely eat. This project aimed to improve water quality by identifying and quantifying a suite of chemical indicators representing long-term, new, and emerging chemical toxicants that may be harmful to salmonid health and that impair water quality, especially in systems impacted by urban stormwater.

Project Grantee/Contact: Edward Kolodziej
University of Washington Tacoma
koloj@uw.edu

PROJECT: CHEMICAL INDICATOR DEVELOPMENT FOR POLLUTANT MONITORING

Development of chemical indicators to detect, track, and assess treatment of novel and emerging toxic stormwater pollutants

KEY ACCOMPLISHMENTS

- New analytical methods were developed to identify and quantify pollutants, and detect chemicals that pose health risks to humans and aquatic life.
- Compost-based treatment systems were determined to be the most effective for removing pollution from stormwater.
- New information on tire particle pollution (6PPD) helped researchers understand key drivers and factors of fate and transport of this pollutant, linked to salmon mortality.

WHY IS THIS IMPORTANT?

- **Informs watershed management best practices.** Stormwater managers in the Puget Sound region need to know how to monitor contaminants in roadway runoff and receiving waters and where to install stormwater treatment systems. Knowledge from this project will inform which key toxicants to analyze, how and when to sample, what compounds are driving coho salmon mortality, and which treatment systems are most effective to protect ecosystem health.
- **Links stormwater treatment and water quality.** This project provides key information for stormwater management and pollution remediation from stormwater.

PROJECT PARTNERS

- Puget Sound Partnership
- Center for Urban Waters

PROJECT FUNDING

- U.S. Environmental Protection Agency via the Puget Sound National Estuary Program Stormwater Strategic Initiative[1]

RELATED VITAL SIGNS

Toxics in Aquatic Life | Salmon | Local Foods

RELATED ACTION AGENDA STRATEGIES

- 8 **Toxic Chemical Pollution**
- 10 **Stormwater Runoff and Legacy Contamination**
- 15 **Salmon Recovery**
- 24 **Cultural Practices and Local Foods**
- 26 **Human Health**
- E **Research and Monitoring**

[1]*This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement PC-01J95801 to Washington State Department of Ecology. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.*

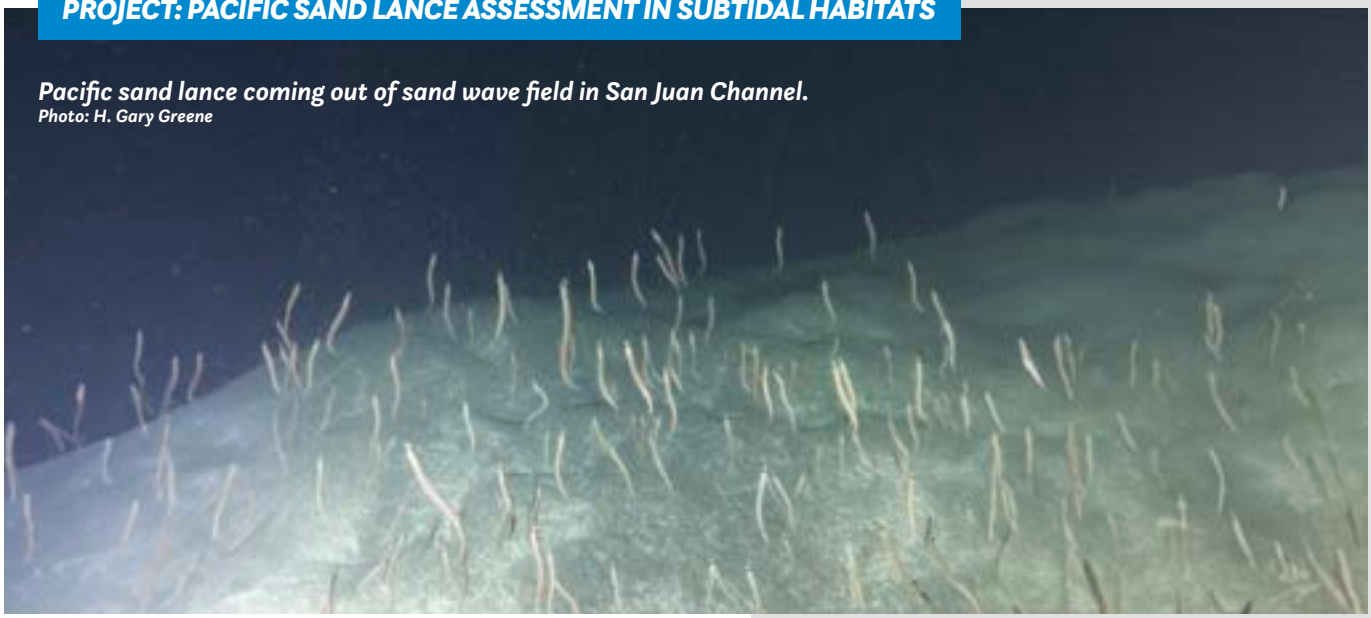
PROJECT: PACIFIC SAND LANCE ASSESSMENT IN SUBTIDAL HABITATS

Research into Pacific sand lance helps us understand the value of forage fish in tackling salmon decline.

Pacific sand lance is a forage fish that is eaten by salmon in the Salish Sea. Forage fish play a key role in the marine food web, moving nutrients from the tiny organisms they consume to animals higher on the food chain, when eaten by larger fish. Recently conducted research, *Assessing Pacific Sand Lance in Subtidal Habitats across the San Juan Archipelago,* can influence future salmon recovery efforts by demonstrating impacts on critical forage fish species.

Project Contact: H. Gary Greene
greene@mlml.calstate.edu

PROJECT: PACIFIC SAND LANCE ASSESSMENT IN SUBTIDAL HABITATS



Pacific sand lance coming out of sand wave field in San Juan Channel.
Photo: H. Gary Greene

KEY ACCOMPLISHMENTS

- Determined and quantified areas where salmon feed on Pacific sand lance by analyzing the contents of over 200 salmon stomachs, which were obtained by salmon fishers and boat operators local to the San Juan Archipelago.
- Researchers mapped over 29 new nearshore habitat types based on the pre-existing knowledge of sand lance general locations and findings, indicating roughly 21 percent of salmon stomach contents contained sand lance.

WHY IS THIS IMPORTANT?

- **Detected salmon decline in the San Juan Archipelago.** The San Juan Archipelago and a valuable fishery in the region are experiencing a critical decline in salmon populations. This research will support greater understanding of the importance of salmon foraging habits in their recovery.
- **Improves understanding of Pacific sand lance habitat.** Pacific sand lance is critical prey for salmon and other marine fishes, mammals, and birds. This study helps assess where preferred foraging areas and salmon feeding habitat are located in the waterway.
- **Implications for future research.** Researchers can draw on methodologies in this study and expand research into foraging sites north and south, from the Strait of Georgia to Puget Sound.

PROJECT PARTNERS

- Center for Habitat Studies, Moss Landing Marine Labs
- San Jose State University
- Tombolo Mapping Lab, Orcas Island
- University of Washington Friday Harbor Laboratories
- San Juan County Local Integrating Organization

PROJECT FUNDING

- Habitat Strategic Initiative, U.S. Environmental Protection Agency Puget Sound National Estuary Program

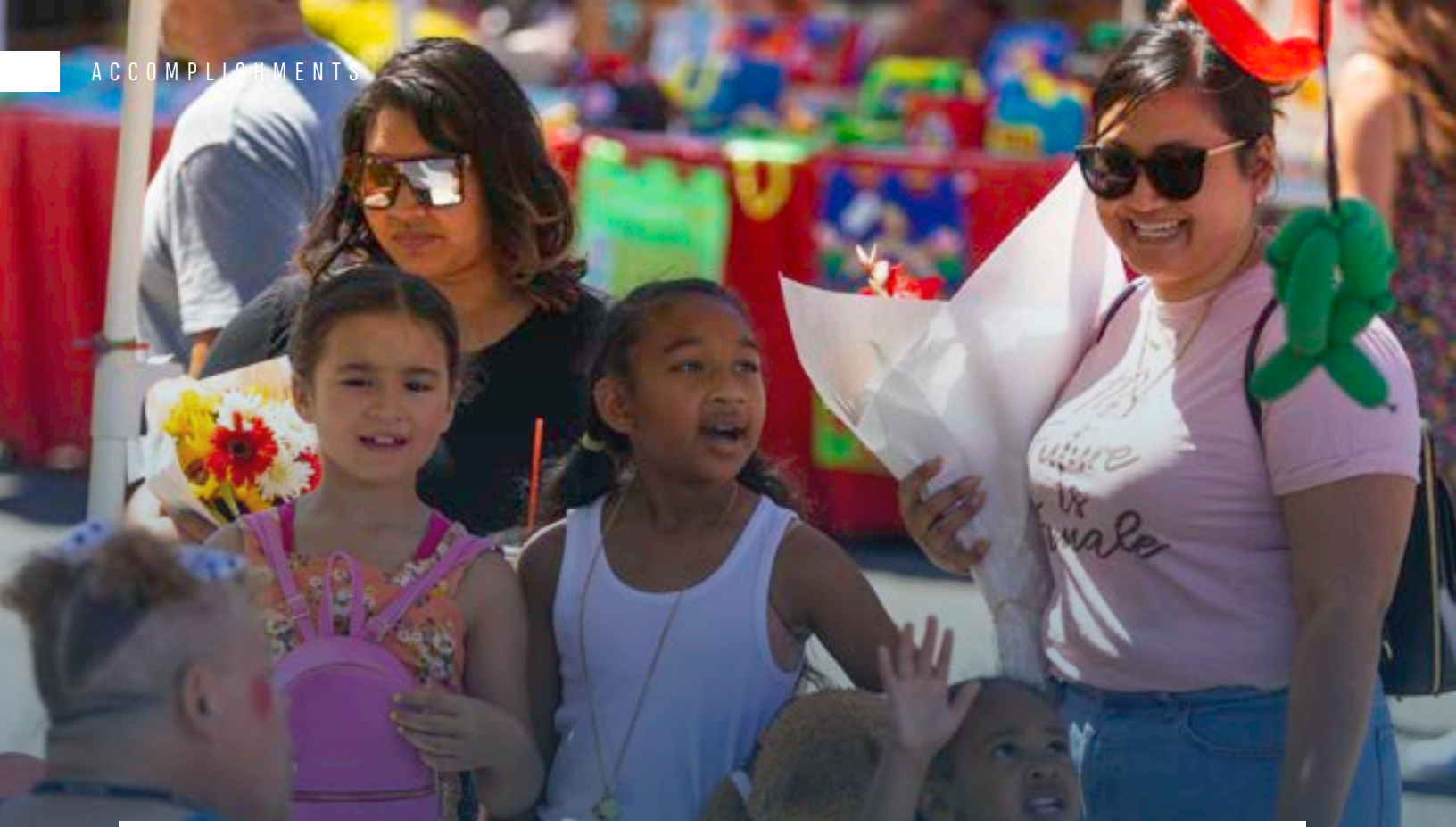
RELATED VITAL SIGNS

Salmon | Birds | Orcas | Forage Fish

RELATED ACTION AGENDA STRATEGIES

15 **Salmon Recovery**

C **Research and Monitoring**



PROJECT: ENHANCING THE HUMAN WELLBEING VITAL SIGNS THROUGH INCLUSIVE ENGAGEMENT

Elevating human wellbeing of minority communities through inclusive engagement in Vital Signs monitoring.

To elevate our shared understanding of human wellbeing among minority communities in the Puget Sound region, the Washington State Department of Fish and Wildlife engaged in a community-based participatory research project in collaboration with a team of community partners. This project sought to address the underrepresentation of Black, African American, and Asian American and Pacific Islander (AAPI) residents in the Human Wellbeing Vital Signs Survey, the primary tool used to monitor human wellbeing among residents in the region. Community partners included the Asia Pacific Cultural Center and Empowering People in Communities. The team used co-created facilitated dialogues and in-person surveys to foster engagement among residents, building partnerships and gaining understanding of how different communities in the region perceive their health and wellbeing.

PROJECT: ENHANCING THE HUMAN WELLBEING VITAL SIGNS THROUGH INCLUSIVE ENGAGEMENT

KEY ACCOMPLISHMENTS

- A selection of 218 underrepresented community members were engaged through seven co-created facilitated dialogues.
- New community relationships were formed, which will allow for future collaboration.
- The engagement successfully expanded Human Wellbeing Vital Sign data and information, which helps scientists track the human component of Puget Sound recovery more comprehensively and robustly.
- The project illustrated that the current iteration of the Human Wellbeing Vital Signs largely resonated among participating community members with some variations among communities.
- The project improved understanding of Human Wellbeing Vital Sign Indicators, and recommended new indicators that resonate with local communities, including:
  - Accessibility
  - Equity
  - Physical Health
  - Place and Landscape
  - Fish and Wildlife
  - Trees and Plants
  - Safety
- The project also demonstrated that participating community members' survey responses largely mirrored those of other surveys, with some exceptions. From the perspective of the project social scientist, this helped validate the current iteration of Human Wellbeing Vital Signs. One example of exceptions was Good Governance. Both sets of participating community members (Black and African American and AAPI residents) responded differently on average compared to one another and compared to average response patterns in the regional survey.
- The project illustrated that more should be done to better engage non-white residents and further explore the potential of integrating Environmental Justice- or Equity-based Vital Signs or indicators into the Human Wellbeing Vital Signs.

WHY IS THIS IMPORTANT?

- **Centers environmental justice.** The facilitated dialogues successfully strengthened inclusive interactions and communications with underrepresented communities with an emphasis on understanding wellbeing, climate change, and meaningful places in Puget Sound.
- **A model to improve inclusive engagement throughout Puget Sound.** This engagement process resulted in a protocol that can be scaled and spread in other difficult-to-engage communities in monitoring (or recovery) throughout the region.

PROJECT PARTNERS

- Washington State Department of Fish and Wildlife
- Asia Pacific Cultural Center
- Empowering People in Communities
- Peace Community Center
- Cascadia Consulting Group
- Oregon State University

PROJECT FUNDING

- Puget Sound Partnership

RELATED VITAL SIGNS

RELATED ACTION AGENDA STRATEGIES

- 21 **Place Attachment**
- 22 **Outdoor Recreation and Stewardship**
- 23 **Good Governance**
- 24 **Cultural Practices and Local Foods**
- 25 **Human Health**
- C **Research and Monitoring**
- D **Education Partnerships**
- E **Stewardship and Motivating Action**

PROJECT: FLOATING KELP INDICATOR DEVELOPMENT

Puget Sound has a new Vital Sign Indicator, thanks to a broad-based group of experts.

A newly formed Kelp Forest Monitoring Alliance has completed the first version of a new statewide indicator within the Puget Sound Vital Signs. The indicator assesses kelp forest status and trends throughout Washington state by tracking the area of kelp beds on the water surface.

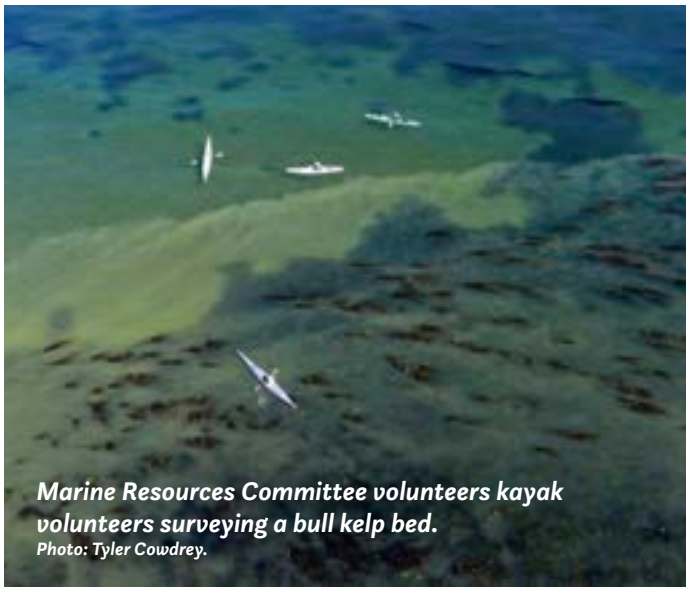
PROJECT: FLOATING KELP INDICATOR DEVELOPMENT

KEY ACCOMPLISHMENTS

- Data suggests that floating kelp populations are stable along much of the northern outer coast and Strait of Juan de Fuca.
- Major losses have occurred in Central and South Puget Sound. Floating kelp has disappeared from almost 80 percent of shorelines in the area, and declines dominate individual sites.
- Approximately one-third to one-half of floating kelp locations are considered stable.
- More data is needed to definitively assess the status of nearly half of sub-basins with floating kelp.

WHY IS THIS IMPORTANT?

- **Kelp is a foundation for marine ecosystems.** Floating kelp beds are a vital component of Puget Sound food webs, providing nutrients for marine animals and birds. Kelp beds may also play a critical role in combating climate change by absorbing carbon dioxide in the ocean's surface layers and producing oxygen.
- **Floating kelp is threatened.** Stressors such as climate change, nutrient imbalances, and urbanization pose an urgent threat to floating kelp. It is imperative that we understand how kelp is doing, and how we can mitigate stressors and restore kelp beds.
- **Promotes diverse participation in kelp management.** The varying perspectives represented in the Kelp Forest Monitoring Alliance will enrich the indicator and advance kelp conservation and restoration actions. The team combines thinking from a diverse group of individual experts and organizations belonging to state agencies, Tribes, community science organizations, and nongovernmental organizations.



Marine Resources Committee volunteers kayak volunteers surveying a bull kelp bed.
Photo: Tyler Cowdrey.

PROJECT PARTNERS

- Washington State Department of Natural Resources
- Samish Indian Nation
- Northwest Straits Commission
- University of Washington Friday Harbor Laboratories
- Washington Sea Grant
- Marine Agronomics

PROJECT FUNDING

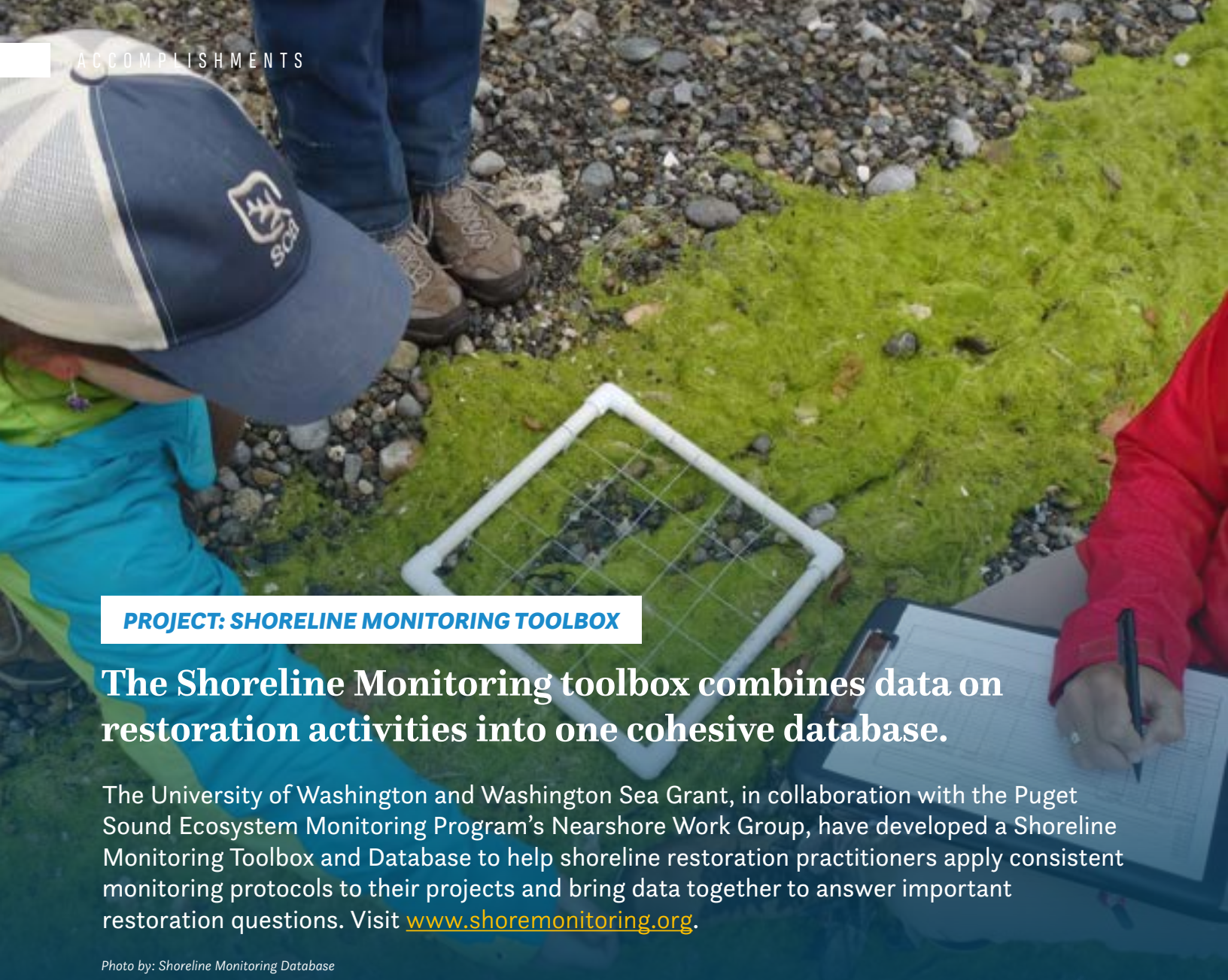
- Washington State Department of Natural Resources
- Samish Indian Nation
- Northwest Straits Commission
- University of Washington Friday Harbor Laboratories
- Washington Sea Grant
- Marine Agronomics
- Puget Sound Partnership

RELATED VITAL SIGNS

Beaches and Marine Vegetation

RELATED ACTION AGENDA STRATEGIES

- **16** **Submerged Aquatic Vegetation**
- **B** **Strategic Leadership and Collaboration**
- **C** **Research and Monitoring**



PROJECT: SHORELINE MONITORING TOOLBOX

The Shoreline Monitoring toolbox combines data on restoration activities into one cohesive database.

The University of Washington and Washington Sea Grant, in collaboration with the Puget Sound Ecosystem Monitoring Program's Nearshore Work Group, have developed a Shoreline Monitoring Toolbox and Database to help shoreline restoration practitioners apply consistent monitoring protocols to their projects and bring data together to answer important restoration questions. Visit www.shoremonitoring.org.

Photo by: Shoreline Monitoring Database

PROJECT: SHORELINE MONITORING TOOLBOX

University of Washington research scientists Julia Kobelt and Kerry Accola survey for logs at the Bowman Bay restored site.

KEY ACCOMPLISHMENTS

- The project builds on almost a decade of restoration work by the University of Washington Wetland Ecosystem Team and partners including Washington State Department of Fish and Wildlife, Northwest Straits Foundation, Vashon Nature Center, and more.
- The Shoreline Monitoring Database includes information on 63 restoration sites and houses protocols for the monitoring of specific animals, habitat, vegetation, and logs.
- Data from the toolbox allowed researchers to evaluate how coastal landforms and wind-generated ocean waves influence shoreline restoration effectiveness in a publication for *Frontiers*.
- Expert teams have recently restored several sites along Puget Sound shorelines where damaging sea armor (i.e., seawalls and bulkheads) exists.

WHY IS THIS IMPORTANT?

- **Created a collaborative restoration database.** Initial project aspirations resulted in the production of the Shoreline Monitoring Database. The site houses informative resources about ongoing shoreline restoration activities.
- **Has large-scale habitat benefits.** Findings in the *Frontiers* publication are noted to be applicable to restoration efforts that go beyond the Salish Sea.

PROJECT PARTNERS

- Washington Sea Grant
- University of Washington
- Washington State Department of Fish and Wildlife
- Vashon Nature Center
- Northwest Straits Foundation
- University of Washington Friday Harbor Laboratories
- Sound Data

PROJECT FUNDING

- Puget Sound Geographic Program, U.S. Environmental Protection Agency
- Washington State Department of Fish and Wildlife
- Habitat Strategic Initiative, U.S. Environmental Protection Agency Puget Sound National Estuary Program

RELATED VITAL SIGNS

Beaches and Marine Vegetation

RELATED ACTION AGENDA STRATEGIES

3 **Healthy Shorelines**

C **Research and Monitoring**

PROJECT: STORMWATER SUMMITS

Stormwater Summit 2.0 commits to regional collaboration for pollution reduction.

Stormwater management is important for healthy and sustainable ecosystems and communities. It protects the environment and properties from flooding, reduces demand on public stormwater infrastructure, and supports healthy streams and rivers. The Stormwater Summit came out of King County Executive Dow Constantine's call to action encouraging cities and counties to coordinate their stormwater management. Several partners and community leaders presented on regional stormwater management practices that will support for more cohesive, cooperative approaches to improving water quality in the Aligning Across Watersheds series. Visit www.stormwatersummit.com/resources

Photo by: Puget Sound Regional Council

Project Contact: John Brosnan
jbrosnan@kingcounty.gov

PROJECT: STORMWATER SUMMITS

KEY ACCOMPLISHMENTS

- Stormwater Summit 1.0 was the result of the commitment from stormwater practitioners, elected officials, regional thought leaders, and representatives of cities, counties, Tribes, public agencies, and nonprofits to explore a more cohesive, cooperative approach to managing stormwater regionally, to improve water quality.
- Practitioners then gathered again from over 50 municipalities and organizations around the region for a series of four technical workshops in late 2022 and early 2023 to collaboratively co-design the following regional implementation targets:
  - » Build 30 strategically sited regional stormwater parks;
  - » Treat 100 miles of roadway runoff to remove toxic pollutants; and
  - » Provide flow control to 5,000 acres through green stormwater infrastructure and new detention ponds.
  - » The fourth goal centered on pollution prevention remains in development.
- Stormwater Summit 2.0 took place in May 2023 and demonstrated the continued commitment of the stakeholders to manage stormwater at the watershed scale, cooperatively working towards the common goals of reducing pollution in stormwater and achieving healthier streams, rivers, communities, and more sustainable ecosystems.

WHY IS THIS IMPORTANT?

- **Meets commitments through collaboration.** The Stormwater Summit originated with the aspiration to solidify commitments from a broad set of partners while also designing new partnerships, governance models, and management strategies.
- **Enables diverse participation.** The first Stormwater Summit framed the challenge through the lenses of health equity, design justice in community engagement and co-design, and elevating the need to expand coordination with Tribal governments. Leadership and frontline staff ranging from cities, Tribal governments, counties, nonprofit organizations, and more were encouraged to contribute to the summit.
- **Aligns stormwater management efforts.** Collaboration among regional officials, stormwater practitioners, nonprofits, and other entities is important for effective and sustainable stormwater management at the Puget Sound-basin scale, and to help make more prioritized, strategic investments in the most impactful places.

PROJECT PARTNERS

- U.S. Environmental Protection Agency
- Washington State Department of Ecology
- Puget Sound Salmon Recovery Council
- Washington State Department of Transportation
- Staff from numerous cities, counties, Tribal governments, nongovernmental organizations, academic institutions, and more.

PROJECT FUNDING

- King County
- South Central Local Integrating Organization

RELATED VITAL SIGNS

Toxics in Aquatic Life | Freshwater | Streams and Floodplains

RELATED ACTION AGENDA STRATEGIES

9 **Water Pollution Source Identification and Correction**

10 **Stormwater Runoff and Legacy Contamination**

B **Strategic Leadership and Collaboration**

PROJECT: TRANSFORMATIVE FEDERAL FUNDING FOR PUGET SOUND RECOVERY

Historic levels of federal funding support Puget Sound and salmon recovery.

Recent federal funding, consisting of regular appropriations, the Bipartisan Infrastructure Law, and the Inflation Reduction Act represents unprecedented—and potentially transformative—investments in the Puget Sound region in support of ecosystem and salmon recovery.

PROJECT: TRANSFORMATIVE FEDERAL FUNDING FOR PUGET SOUND RECOVERY

KEY ACCOMPLISHMENTS

- Over the past two years, multiple transformative funding packages—including the Bipartisan Infrastructure Law and the Inflation Reduction Act—passed through Congress and were signed into law. Collectively, these funding packages include billions of dollars for programs and projects that support Puget Sound and salmon recovery, including the following:
  - The National Oceanic and Atmospheric Administration's Climate Resilience Regional Challenge
  - U.S. Environmental Protection Agency's Climate Resilient Riparian Systems Program
  - U.S. Department of Transportation's National Culvert Removal, Replacement, and Restoration Program
  - U.S. Fish and Wildlife Service's America The Beautiful Initiative
  - Federal Emergency Management Agency's Building Resilient Infrastructure and Communities Program
- In 2023, Congress increased funding for the Puget Sound Geographic Program by nearly 58 percent from 2022, created a Puget Sound Recovery National Program Office at the U.S. Environmental Protection Agency, and codified the Puget Sound Federal Leadership Task Force.

WHY IS THIS IMPORTANT?

- **Creates innovative funding streams and grants for Puget Sound recovery programs.** A lack of adequate funding has been a fundamental barrier to progress in Puget Sound recovery efforts. Underfunding has led to delayed projects; inefficient, piecemeal implementation; lost ecological benefits; lost local job and economic development opportunities; and ultimately, a failure to achieve resilience in Puget Sound. These new and expanded programs are desperately needed and dramatically bolster potential funding sources for programs that support Puget Sound recovery.
- **Elevates national focus on Puget Sound recovery.** The creation of a Puget Sound National Program Office at the U.S. Environmental Protection Agency, and the corresponding increase in federal investment, represents an affirmation of Puget Sound recovery as a national priority comparable to other nationally significant water ecosystems such as the Great Lakes or the Chesapeake Bay.

PROJECT PARTNERS

- Puget Sound congressional delegation

PROJECT FUNDING

- Bipartisan Infrastructure Law
- Inflation Reduction Act
- Annual congressional appropriations

RELATED VITAL SIGNS

RELATED ACTION AGENDA STRATEGIES

- 3 **Healthy Shorelines**
- 4 **Riparian Areas**
- 5 **Floodplains and Estuaries**
- 6 **Fish Passage Barriers**
- 15 **Salmon Recovery**
- 18 **Awareness of the Effects of Climate Change**
- 20 **Climate Adaptation and Resilience**
- A **Funding**

PROJECT: PUGET SOUND FEDERAL LEADERSHIP TASK FORCE

Puget Sound Federal Leadership Task Force established to further Puget Sound recovery.

The **Puget Sound Federal Leadership Task Force**, formally established by Congress in 2022, is made up of senior leadership from 16 different federal agencies whose actions and programs relate to Puget Sound recovery in some way. The task force is tasked with aligning agency expertise and resources in order to restore and protect resources crucial to Tribal treaty rights, act as a resource and forum for member agencies, bolster objectives and the priorities to further Puget Sound restoration and protection actions, and develop and approve a federal action plan. Crucially, Congress directed the task force to conduct its work in close coordination and collaboration with the Tribal Management Conference and the State Advisory Committee.

PROJECT: PUGET SOUND FEDERAL LEADERSHIP TASK FORCE

KEY ACCOMPLISHMENTS

- Developed and improved the 2022-2026 Puget Sound Federal Task Force Action Plan that seeks to leverage federal programs across agencies and coordinate diverse programs and priorities for the restoration and protection of Puget Sound.
- Provides a venue for dialogue and communication across member agencies.

WHY IS THIS IMPORTANT?

- **Upholds federal trust responsibilities to restore and protect resources crucial to Tribal treaty rights.** The agencies are charged with incorporating Tribal treaty rights in their strategies for Puget Sound restoration, as highlighted in the Treaty Rights at Risk document created by the Northwest Indian Fisheries Commission. This document outlined the federal government's responsibilities to address habitat loss as noted in the 1974 Boldt Decision.
- **A resource across recovery efforts.** The task force provides a coordinating body that ensures Puget Sound restoration and protection activities are consistent with Tribal, state, and local efforts and shares advice and support on scientific and technical issues.

PROJECT PARTNERS

- Puget Sound congressional delegation
- U.S. Department of Transportation
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Forest Service
- National Park Service
- U.S. Fish & Wildlife Service
- National Oceanic and Atmospheric Administration
- Navy Region Northwest
- Joint Base Lewis McChord
- U.S. Bureau of Indian Affairs
- Federal Emergency Management Agency
- Federal Highway Administration
- Federal Transit Administration
- U.S. Geological Survey
- Natural Resources Conservation Service
- Farm Service Agency
- U.S. Army Corps of Engineers

PROJECT FUNDING

- Federal funding

RELATED VITAL SIGNS

Good Governance

RELATED ACTION AGENDA STRATEGIES

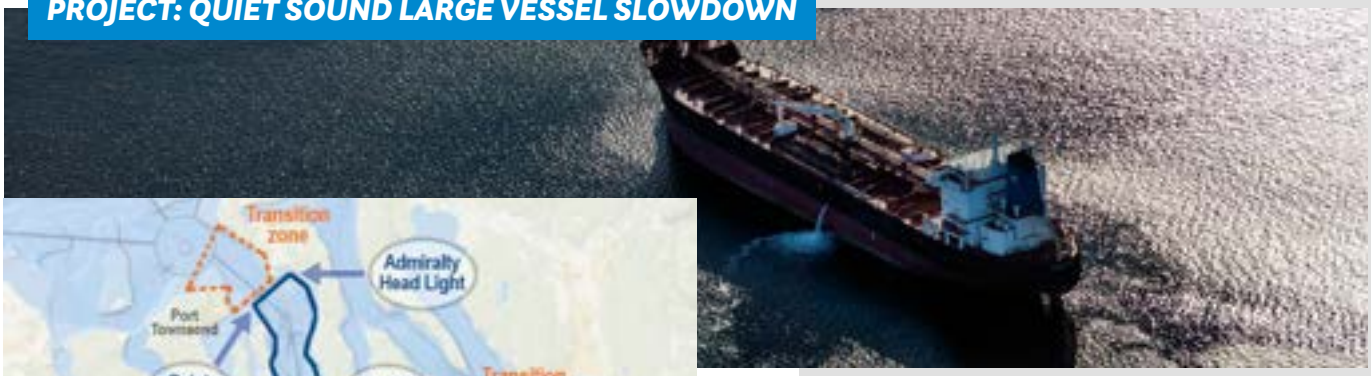
B **Strategic Leadership and Collaboration**

PROJECT: QUIET SOUND LARGE VESSEL SLOWDOWN

Large vessel slowdowns help protect endangered whales in Puget Sound.

Quiet Sound launched a slowdown trial, the first voluntary effort of its kind in Puget Sound, for large commercial vessels to reduce their speed and decrease underwater noise to protect the Southern Resident orcas.

PROJECT: QUIET SOUND LARGE VESSEL SLOWDOWN



KEY ACCOMPLISHMENTS

- Quiet Sound had 60 percent voluntary compliance by ships which reduced the loudness of underwater noise by about 50 percent in a stretch of waterway in which Southern Resident orcas regularly occurred in the fall/winter of 2022.

WHY IS THIS IMPORTANT?

- **Improves foraging conditions for orcas in Puget Sound.** Underwater noise and disturbance from commercial vessels has been found to decrease foraging efficiency in orcas. Reducing vessel noise that masks echolocation and communication to improve access to prey has been identified as a crucial need for orca recovery.
- **A transboundary collaboration success story.** Quiet Sound is a coordinated effort between the U.S. and Canada, building off of the efforts and successes of the Enhancing Cetacean Habitat and Observation program, a multi-year collaborative initiative launched by the Vancouver Fraser Port Authority to better understand and manage the cumulative impact of commercial vessel activities on at-risk whales in the Salish Sea.
- **Lays the groundwork for the future.** This work provides an official proof-of-concept for a seasonal slowdown in Washington state, which will set the stage for improving the conservation benefit of voluntary changes to vessel operations over time, developing effective communication with mariners, and collecting data on vessel sound levels when the whales are present in Puget Sound.

PROJECT PARTNERS

- Quiet Sound is a collaborative program among government agencies, ports, the shipping industry, the U.S. military, Tribal groups, nongovernmental organizations and the scientific community.

PROJECT FUNDING

- Puget Sound Partnership
- Port of Seattle
- Port of Tacoma
- Northwest Seaport Alliance
- U.S. Environmental Protection Agency
- National Oceanic and Atmospheric Association
- Bonneville Environmental Foundation
- National Fish and Wildlife Foundation
- Individual donors

RELATED VITAL SIGNS

Marine Water | Good Governance | Orcas

RELATED ACTION AGENDA STRATEGIES

- 17 **Responsible Boating**
- 23 **Good Governance**
- B **Strategic Leadership and Collaboration**
- C **Research and Monitoring**

PROJECT: HOODSPORT SHELLFISH BED REOPENED FOR HARVEST

Shellfish harvesting in a stretch of the southern Hood Canal after nearly half a century.

Poor water quality conditions inhibited opportunities for commercial shellfish harvesting on roughly a mile of beaches for almost 50 years. Now, **Hoodsport shellfish beds reopen for harvest** following the announcement that clams and oysters have been deemed safe to eat.

PROJECT: HOODSPORT SHELLFISH BED REOPENED FOR HARVEST

Josh Hermann and other members of the Skokomish Indian Tribe harvest shellfish at a newly approved beach near Hoodsport.

Photo: Julian Sammons, Skokomish Indian Tribe Water Quality Program

KEY ACCOMPLISHMENTS

- A total of 66 acres of tidelands were upgraded for recreational, Tribal, and private harvest after 45 years of being closed for shellfish harvesting.
- Years of persistent pollution from five commercial septic systems were addressed through consistent water quality work and four years of total cleanup performed by project partners.
- Since harvesting was approved on the 66 acres in 2021, two additional public beaches have been opened for recreational and Tribal harvesting.
- The success of the project is a testament to the sustained collaboration of partners over many years through the Hood Canal Regional Pollution Identification and Correction Program.

WHY IS THIS IMPORTANT?

- **Protects resources of cultural significance.** The Hoodsport area and its harvesting opportunities are culturally significant for the Skokomish Indian Tribe, who co-manage the shellfish beds with the Washington State Department of Fish and Wildlife to split the harvest in accordance to the treaties signed in 1855.
- **Reduces pollution in the Hood Canal.** Effectively cleaning up the nearly mile-long stretch of Hoodsport beaches adds to continuous efforts to reduce human pollution in the waterway.
- **Increases recreational opportunities.** The re-opening of two public beaches and increasing acreage of tidelands approved for shellfish harvesting provide new recreational opportunities in the Hood Canal region. This opportunity was extended to private tideland owners who can now harvest shellfish on their own beaches—also enabling commercial harvesting for Tribes across the newly approved area.

PROJECT PARTNERS

- Skokomish Indian Tribe
- Mason County
- Washington State Department of Health
- Hood Canal Coordinating Council
- Hood Canal Regional Pollution Identification and Correction Program

PROJECT FUNDING

- National Estuary Program, U.S. Environmental Protection Agency
- Skokomish Indian Tribe
- Mason County
- EPA Clean Water Act Tribal Section 106 Program (CWA-106)
- EPA Indian Environmental General Assistance Program (EPA-GAP)

RELATED VITAL SIGNS

Shellfish Beds | Cultural Wellbeing | Toxics in Aquatic Life

RELATED ACTION AGENDA STRATEGIES

9 **Water Pollution Identification and Correction**

22 **Outdoor Recreation and Stewardship**

24 **Cultural Practices and Local Foods**

PROJECT: STORMWATER PARK RETROFITS

The Stormwater Park Retrofits project shares best practices on creating effective stormwater parks to improve water quality and benefit human health.

The **Stormwater Park** Retrofits project aims to improve water quality, support compact development, and bolster human health through learning lessons from developed stormwater parks, identifying opportunities for stormwater parks region wide, and catalyzing the planning and development of new stormwater parks.

What is a stormwater park? A designed green space that manages and treats stormwater runoff while providing recreational and ecological benefits to the community.

Project Grantee/Contact: Erika Harris
Puget Sound Regional Council
eharris@psrc.org

PROJECT: STORMWATER PARK RETROFITS

Stormwater Parks | Puget Sound Regional Council

KEY ACCOMPLISHMENTS

- Developed seven fact sheets on stormwater parks that have already been built, including key lessons learned.
- Provided technical assistance for the planning of six new stormwater parks.
- Developed a guidance document for planning stormwater parks that provides information on integrating equity, maintenance considerations, and funding resources for planning, construction, and maintenance.
- Presented information on stormwater parks at over 10 convenings and a recorded webinar.

WHY IS THIS IMPORTANT?

- **Promotes equity, health, and resiliency.** Stormwater parks can help with many challenges that jurisdictions face, such as equity, health, and resiliency. They address climate resilience and community health by increasing access to green space and recreation. They can help advance racial equity when built in communities underserved by parks and by supporting Tribal treaty rights.
- **Regional scalability.** Bringing the building of stormwater parks to scale in the region can help meet the growing need for both stormwater management and recreation.
- **A wise investment.** These cost-effective solutions will play a crucial role in improving the health of communities and Puget Sound.

The project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement PC-01J95801 to Washington State Department of Ecology. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

PROJECT PARTNERS

- Puget Sound Regional Council
- Washington State Department of Ecology
- Local jurisdictions

PROJECT FUNDING

- Stormwater Strategic Initiative, U.S. Environmental Protection Agency Puget Sound National Estuary Program
- Washington State Department of Ecology

RELATED VITAL SIGNS

Outdoor Activity | Toxics in Aquatic Life | Fresh Water Quality

RELATED ACTION AGENDA STRATEGIES

10 **Stormwater Runoff and Legacy Contamination**

E **Stewardship and Motivating Action**

PROJECT: JEFFERSON COUNTY ON-SITE SEPTIC COST SHARE PROGRAM

Septic Cost Share Program improves the health of shellfish growing areas.

Jefferson County On-Site Septic (OSS) Cost Share Program was a Shellfish Strategic Initiative funded in 2018 to improve water quality in threatened shellfish growing areas and re-open closed shellfish growing areas. The project was designed to support low-income property owners of shoreline properties who were unable to achieve septic repairs due to financial hardship. This project had the co-benefits of improving water quality and providing housing stabilization for low-income property owners in Jefferson County. An additional benefit is the trust building between property owners and the county regarding maintaining septic systems to code, an essential component of this work.

PROJECT: JEFFERSON COUNTY ON-SITE SEPTIC COST SHARE PROGRAM

KEY ACCOMPLISHMENTS

- The program enables up to 100 percent of cost share per household based on eligibility requirements. Though most individual applicants qualified for the full $20,000 grant, more than half needed an additional Craft3 loan to accomplish expensive and complicated septic installations.
- Nine septic installations have been completed as of April 2023 thanks to the Septic Cost Share program.

WHY IS THIS IMPORTANT?

- **Improves the health of eligible individuals.** The cost share program lowers the risk of living without safe sanitation to the individual, community, and environment. In addition, this program has the potential to provide for housing stabilization.
- **Protects shellfish growing areas.** Failing septic and sewage systems contribute to poor water quality, which threatens shellfish growing areas. Repair and replacement of these systems will ease the threat to those beds and eventually allow closed areas to re-open, improving the resilience of a food source and economic asset in the region.
- **Culture change among property owners.** The fundamental change in the nature of the relationship between the county and citizens in regards to septic systems brought on by this program has begun a process of rebuilding trust. Property owners are more comfortable disclosing problems with their septic systems and seek Operations & Monitoring inspections proactively. In general, there has been an increase in citizens seeking support from the county in identifying solutions to their wastewater problems as opposed to hiding problems for fear of fines and enforcement proceedings. Program staff have gone on to find other sources of funding to support all property owners whether or not they live on the shoreline.

PROJECT PARTNERS

- Craft3
- Habitat for Humanity of East Jefferson County
- Shold Excavating
- Nathan Cleaver Septic, Cascade Community Connections
- Real Estate Professionals for Affordable Housing (REPAH)

PROJECT FUNDING

- Puget Sound Partnership
- Shellfish Strategic Initiative, U.S. Environmental Protection Agency Puget Sound National Estuary Program

RELATED VITAL SIGNS

Toxics in Aquatic Life | Local Foods | Shellfish Beds | Sound Stewardship

RELATED ACTION AGENDA STRATEGIES

- 17 **Wastewater Systems**
- 26 **Human Health**
- A **Funding**
- E **Stewardship and Motivating Action**

PROJECT: SOUND HORSEKEEPING PROGRAM

The Sound Horsekeeping Program is improving management of livestock to keep our streams clean.

The Sound Horsekeeping program, managed by Snohomish Conservation District, helps livestock owners learn and implement management techniques that improve pastures, reduce mud, manage manure, and provide wildlife habitat on their property. These actions not only keep horses healthier and make chores more efficient–they also reduce runoff and limit nutrient pollution, leading to healthier streams, creeks, wetlands, and ultimately, Puget Sound.

PROJECT: SOUND HORSEKEEPING PROGRAM

KEY ACCOMPLISHMENTS

- Provided 115 technical assistance letters or farm plans to provide guidance and recommendations about beneficial farm management practices.
- Coordinated 184 on-farm visits for technical guidance.
- Facilitated 46 guided manure spreader uses following soil testing and user training.
- Held 11 educational workshops, fairs, and farm tours.
- Provided two instances of assistance to other counties.

WHY IS THIS IMPORTANT?

- **Good land management benefits Puget Sound.** The program helps livestock owners implement techniques, such as erosion control near bodies of water and manure management to reduce nutrient runoff, which improve conditions in the surrounding environment and water quality and a healthier Puget Sound.
- **Provides free services and support for the public.** The program coordinates farm planners to visit and provide guidance for free. In some cases, the district may even be able to help cover the cost of improvements. By reducing or eliminating costs, the program ensures broader participation by removing financial barriers and improving accessibility and success by removing financial barriers and ensuring broader participation.

PROJECT PARTNERS

- Back Country Horsemen
- Horses for Clean Water
- Local veterinarians
- Farnham's Folly horse farm

PROJECT FUNDING

- Snohomish Conservation District
- Washington State Department of Health
- Washington State Department of Ecology

RELATED VITAL SIGNS

Sound Stewardship | Freshwater | Streams and Floodplains

RELATED ACTION AGENDA STRATEGIES

- 2 **Working Lands**
- D **Education Partnerships**
- E **Stewardship and Motivating Action**

PROJECT: REGIONAL FORESTRY PILOT PROGRAM

Regional Forestry Pilot Program assists small forest landowners in reducing forest conversion, improving habitat, and protecting water quality.

Efforts made through the Puget Sound Conservation Districts (PSCD) Regional Forest Stewardship Pilot Project have allowed small forest landowners to reduce forest land conversion, improve habitat structure, protect water quality, and limit stormwater runoff.

PROJECT: REGIONAL FORESTRY PILOT PROGRAM

Regional Forestry Pilot Program - Better Ground

KEY ACCOMPLISHMENTS

- The program successfully reached 10,000 acres, prepared 1,500 acres for Current Use taxation enrollment[1], and provided 600 landowners with technical assistance. Through a collaborative effort, the project achieved its grant deliverables a year in advance.
- Foresters and outreach specialists collaborated in creating engagement content for small forest landowners in the region. This material has been added to the Washington State Conservation Commission's marketing toolkit and will now be a resource for districts across the state.
- The Regional Forest Stewardship Pilot Project advances the Land Development and Cover Implementation Strategy. This strategy seeks to support ecologically important lands while maintaining a balance between economic and community needs.

WHY IS THIS IMPORTANT?

- **Working where it matters most.** The Regional Forestry team created a framework for reaching high-priority landowners based on natural resource goals and potential risk for development or transition to non-forest use. These landowners were contacted first for technical assistance and service delivery to maximize the benefit of the program.
- **Bolsters natural stormwater management.** Forest cover is essential to the vitality of Puget Sound. It provides a natural stormwater management system to the region. Trees work to mitigate stormwater runoff by capturing and storing rainfall in their canopy.

[1]*The Open Space Taxation Act allows property owners to have their open space, farm and agricultural, and timber lands valued at their current use rather than at their highest and best use.*

PROJECT PARTNERS

- King Conservation District
- Kitsap Conservation District
- Pierce Conservation District
- Mason Conservation District
- San Juan Islands Conservation District
- Skagit Conservation District
- Snohomish Conservation District
- Thurston Conservation District
- Whidbey Island Conservation District

PROJECT FUNDING

- Habitat Strategic Initiative, U.S. Environmental Protection Agency Puget Sound National Estuary Program

RELATED VITAL SIGNS

Forests and Wetlands | Sound Stewardship | Freshwater

RELATED ACTION AGENDA STRATEGIES

2 **Working Lands**

E **Stewardship and Motivating Action**

PROJECT: WASHINGTON SEA GRANT CRAB MONITORING

Hundreds of volunteers and an expert team collectively combat invasive green crabs.

The Washington Sea Grant Crab (WSG) Team works to protect critical Salish Sea nearshore habitats and species from the European green crab, an extreme invasive species that poses an immediate threat to vital ecosystems.

Project Contact: Emily Grason
WSG Crab Team Program Lead
crabteam@uw.edu

Photo by: Northwest Straits Initiative

PROJECT: WASHINGTON SEA GRANT CRAB MONITORING

KEY ACCOMPLISHMENTS

- WSG Crab Team works with more than 250 volunteers and dozens of agency and Tribal staff across Washington and British Columbia to manage the invasive species by providing scientific advising and species-specific expertise.
- Within Salish Sea shorelines, the WSG Crab Team monitoring network conducts monthly trapping surveys for early detection and population tracking of European green crabs at 57 sites. Since launching in 2015, the network has made the first detections of green crab in eight water bodies, helping managers to prioritize actions and respond rapidly while populations remain small. Each year, monitors contribute more than 4,500 hours of effort and 2,000 trap sets to support management goals.

WHY IS THIS IMPORTANT?

- **Elevates invasive species control.** European green crabs are historically known to be a damaging invasive species globally. In Washington state, they pose a threat to vital economic, environmental, and cultural resources. Consequences of their presence are felt across aquaculture and fishing industries, salmon recovery, within food webs, and in natural eelgrass beds and estuarine marsh habitats.
- **Improves comprehension of critical Puget Sound habitats.** Research performed in tracking the invasive species will contribute to a long-term dataset on green crab and other mobile organisms living in soft sediment habitats. The gathered knowledge increases our overall understanding of Washington's pocket estuary and salt marshes.

European green crab
Photo: P. Sean McDonald

PROJECT PARTNERS

- Washington State Department of Fish and Wildlife
- Northwest Straits Commission
- Makah Tribe
- Lower Elwha Klallam Tribe
- Jamestown S'Klallam Tribe
- Port Gamble S'Klallam Tribe
- Stillwaters Environmental Center
- Washington State Department of Natural Resources Aquatic Reserves
- Stillaguamish Tribe
- Samish Indian Nation
- Swinomish Indian Tribal Community
- Dungeness National Wildlife Refuge/U.S. Fish and Wildlife Service
- Suquamish Tribe
- North Sound Stewards
- Sound Water Stewards
- Padilla Bay National Estuarine Research Reserve
- Salish Sea Conservation Corps
- Lummi Nation

PROJECT FUNDING

- The Marine and Nearshore Lead Organization
- Habitat Strategic Initiative, U.S. Environmental Protection Agency Puget Sound National Estuary Program
- Washington State Department of Fish and Wildlife Aquatic Invasive Species Program

RELATED VITAL SIGNS

Beaches and Marine Vegetation | Estuaries | Economic Vitality

RELATED ACTION AGENDA STRATEGIES

- 3 **Healthy Shorelines**
- 14 **Invasive Species**
- 25 **Economic Benefits**
- C **Research and Monitoring**

PROJECT: TRANSBOUNDARY SEA DUCK MANAGEMENT

Collaboration between experts in Washington state and Canada focus on declining sea duck populations.

A group of experts across Washington and Canada are collaborating to better understand and address the mechanisms driving wintering sea duck population declines in the Salish Sea. Monitoring data from the U.S. and Canada indicates that sea duck species like surf scoters have undergone notable declines since the early 2000s. The collaborative team created a centralized spatial database for easy access to transboundary sea duck data, creating a foundation for further analyses and conservation actions.

Project Contact: David Bradley
Birds Canada
dbradley@birdscanada.org

Photo by: Washington State Department of Fish and Wildlife

PROJECT: TRANSBOUNDARY SEA DUCK MANAGEMENT

Long-tailed duck
Photo: July Gallagher

KEY ACCOMPLISHMENTS

- Creation of a comprehensive database of sea duck monitoring data and associated habitat data.
- Transboundary group of public and private entities identified opportunities to incorporate sea duck habitat needs into management and planning processes.
- Recommended a unified approach to modeling sea duck habitat in the Salish Sea ecosystem to analysts and conservation managers.
- The intersection of Indigenous food systems, clam harvest, and sea ducks will be explored in the next phase of the project.

WHY IS THIS IMPORTANT?

- **Promotes conservation of an integral ecosystem component.** Currently declining in population, sea ducks in the Salish Sea rely on healthy populations of shellfish and other benthic prey.
- **Emphasizes the connection to local Tribes and First Nations.** Sea ducks have a historical connection to Indigenous peoples and are an important subsistence resource. Upcoming management planning will focus on shellfish and benthic prey availability.

PROJECT PARTNERS

- Birds Canada
- Environment and Climate Change Canada
- Audubon Washington
- Ducks Unlimited Canada
- Washington State Department of Fish and Wildlife
- Washington Cooperative Fish and Wildlife Research Unit
- Pacific Birds Habitat Joint Venture
- Puget Sound Ecosystem Monitoring Program Marine Birds Work Group

PROJECT FUNDING

- Sea Duck Joint Venture, U.S. Fish and Wildlife Service

RELATED VITAL SIGNS

Birds | Local Foods | Cultural Wellbeing

RELATED ACTION AGENDA STRATEGIES

- 23 **Good Governance**
- 24 **Cultural Practices and Local Foods**
- C **Research and Monitoring**

PROJECT: EQUITY AND ENVIRONMENTAL JUSTICE THREE-YEAR WORKPLAN

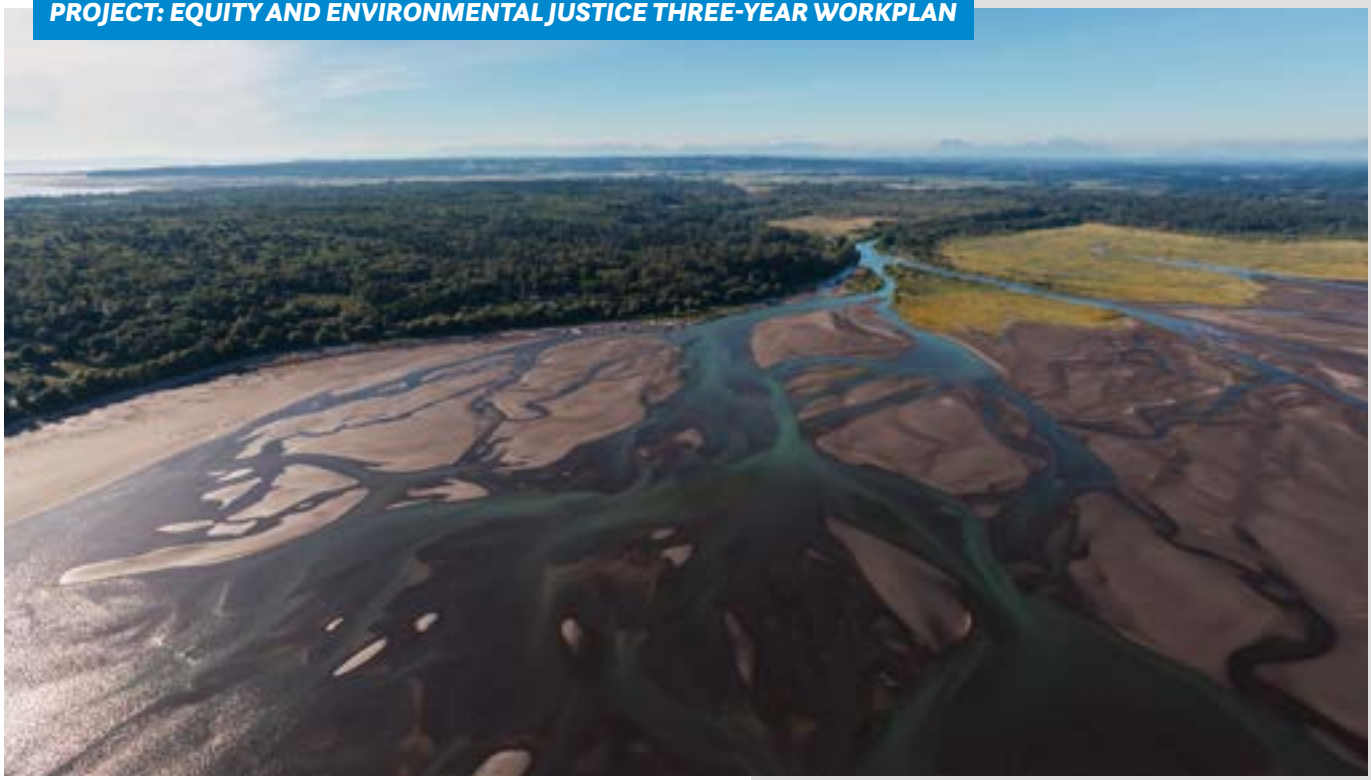
South Central Local Integrating Organization (LIO) centers equity and environmental justice in ongoing regional planning.

The South Central LIO Equity and Environmental Justice project is part of a three-year work plan to integrate equity into ecosystem recovery and stormwater management work within the South Central LIO region, resulting in more equitable projects, programs, and outcomes. The project equips regional practitioners with the tools to build stormwater and ecosystem recovery programs that integrate equity and environmental justice and maximize partnerships with community organizations.

Project Contact: Megan Lee
South Central LIO EEJ Project Lead

Mary Ann Rozance, SC
LIO Coordinator

PROJECT: EQUITY AND ENVIRONMENTAL JUSTICE THREE-YEAR WORKPLAN



KEY ACCOMPLISHMENTS

- Completed an equity and environmental justice (EEJ) Assessment via document review, interviews, and workshops with South Central LIO members to identify opportunities to improve EEJ integration across projects and programs operated by LIO member organizations.
- Hosted an interactive equity and environmental justice workshop for South Central LIO members, focused on how to engage and build meaningful relationships with community-based organizations.
- Key steps are being taken to developing resources (e.g., a comprehensive toolkit, trainings, language translation guidance, etc.) to support building meaningful connections between South Central LIO members organizations and the communities they serve.

WHY IS THIS IMPORTANT?

- **Centers equity and environmental justice.** The three-year work plan intends to make progress toward more equitable projects, programs, and outcomes–specifically in regard to ecosystem recovery and stormwater management.
- **Supports community organizations.** Once the project is complete, the South Central LIO and its member organizations will be equipped to better work with community-based organizations on ecosystem recovery and stormwater projects and programs.

PROJECT PARTNERS

- King County
- Puget Sound Partnership
- South Central LIO
- South Central LIO member organizations

PROJECT FUNDING

- Puget Sound Partnership

RELATED VITAL SIGNS

Good Governance

RELATED ACTION AGENDA STRATEGIES

- 10 **Stormwater Runoff and Legacy Contamination**
- 23 **Good Governance**
- B **Strategic Leadership and Collaboration**