

COVER PAGE

Project Title: **Puget Sound Action Agenda Implementation: Pathogens Prevention, Reduction, and Control**

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EPA Funds Requested: **\$3,000,000 (Year One), \$48,000,000 total (6 years)**

ACORN Restriction: **The applicant is not a subsidiary of the Association of Community Organizations for Reform Now (ACORN)**

RFA notification: **The applicant was notified of the RFP by the Puget Sound Partnership.**

Abstract:

This proposal will enable the Department of Health (DOH) to be the Lead Organization (LO) implementing priority activities to advance the Puget Sound Action Agenda (PSAA) in the area of pathogens prevention, reduction, and control. The primary purpose of funds received under this grant is to implement priority near-term action items identified in the PSAA. Focus areas include implementing local on-site sewage management plans, establishing sustainable local nonpoint pollution identification and correction (PIC) programs, and reducing pathogen loading by improving manure management.

DOH will manage this six-year Pathogen program in partnership with the Washington Department of Ecology (Ecology), who will supply staff expertise to participate in overall program guidance and manage activities primarily in the water clean-up, wastewater treatment, and agricultural program areas. The Pathogen program will be closely coordinated with the Toxics and Nutrients program.

PROJECT NARRATIVE

This proposal will enable the Department of Health (DOH) to act as the Lead Organization (LO) implementing priority activities to advance the Puget Sound Action Agenda (PSAA) in the area of pathogens prevention, reduction, and control. The funds received under this grant will be used to directly implement actions and for subawards to implement priority near-term action items identified in the PSAA. DOH will manage this six-year Pathogen program in partnership with the Washington Department of Ecology (Ecology). DOH serves as a lead organization and will draw on staff expertise from Ecology to participate in overall program guidance and use Ecology to manage the activities primarily in the water clean-up, wastewater treatment, and agricultural program areas. The Pathogen program will be closely coordinated with the Toxics and Nutrients program.

The Role of the DOH's Office of Shellfish and Water Protection

The mission of the Office of Shellfish and Water Protection (OSWP) is to improve the health of people in Washington State by ensuring shellfish are safe to eat, beaches are safe for swimming, and on-site sewage, greywater reuse, and reclaimed water systems are properly managed. All of these mandates are linked with goals identified in EPA's 2006-2011 Strategic Plan (Goal 2 – Clean and Safe Water, sub-objectives 2.1.2 and 2.1.3) and the 2007-2011 EPA Region 10 Strategy (“Improve water quality and enable the lifting of shellfish harvest restrictions”), as well as Puget Sound Partnership (PSP) Dashboard Indicators for shellfish beds, swimming beaches, and water quality.

DOH's Shellfish restoration program began in 1988. The goal of the restoration program is to reopen commercial and recreational shellfish beds that have been closed or degraded by pollution. The program also works to prevent the contamination and closure of shellfish beds that are open to harvest but are threatened by pollution. This work involves close partnerships with local governments, tribes, Washington State's natural resource agencies, the Puget Sound Partnership, shellfish growers, and other interests and organizations. Key activities include:

- Water quality monitoring and trend analysis;
- Notifying affected parties when conditions deteriorate and shellfish beds are threatened (“early warning system”);
- Conducting marine circulation studies and other special studies to model pollution problems and impacts;
- Surveying shoreline and upland areas to identify and fix pollution sources; and
- Helping to develop and implement shellfish protection districts and programs, closure response plans, watershed management plans, and other pollution control strategies.

DOH also jointly coordinates the Swimming BEACH Program with Ecology. The BEACH Program is a collaborative effort with local health departments, tribes, and non-governmental organizations. The goal of the program is to protect people who play at the beach by:

- Monitoring bacterial levels at popular, high risk beaches;
- Notifying the public when there is an increased risk indicated by high monitoring results or when a known pollution event such as a sewage spill occurs;

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- Identifying beaches with chronic pollution problems and working with local agencies to start clean-up activities; and
- Educating the public about the risks associated with polluted water and what each of us can to reduce that risk.

OSWP also monitors types of pathogens other than indicator bacteria that impact public health. The Biotoxin Program performs year-round monitoring of Paralytic Shellfish Poison (also known as "red tide"), and Amnesic Shellfish Poison (domoic acid) in molluscan shellfish. In the summer months, the Shellfish Program also monitors levels of a bacterium called *Vibrio parahaemolyticus* and closes harvest areas when bacteria levels are high.

Integration of climate change science into shellfish food safety policy for the protection of public health is vital. With respect to biotoxins, climate change impacts such as rising sea surface temperatures could have an undesirable effect of favoring species of marine algae that are responsible for producing harmful algal blooms (HAB). Another problem could be the lengthening of the algae growing season that generates more frequent HAB's. This could add to the biomass that decays and have an adverse impact on the dissolved oxygen levels seen in parts of Hood Canal, South Puget Sound, and off the coast of Oregon. Therefore, scientific studies to reduce knowledge gaps (predictive models) will be considered within the scope of this proposal. Water quality impacts caused by changes in weather patterns (such as frequency and intensity of storm events) are also monitored and adaptively managed as part of DOH's Conditionally Approved Growing Area management program.

DOH, in its epidemiology role, coordinates disease surveillance efforts throughout the state. Immediate closures of shellfish beds and/or swimming beaches are implemented when public health threats are identified from analysis of water and/or shellfish tissue samples, consumption of shellfish, from primary contact at Puget Sound swimming beaches, and when pollution events such as spills or floods impact water quality. Projects to expeditiously address pollution sources or pathways of contamination identified through epidemiologic investigations will be considered a high priority under this grant.

Enteric viruses are a growing issue and are now responsible for the majority of illnesses associated with consumption of shellfish, and also impact the health of visitors to recreational beaches. At the time of this writing DOH is participating with the Food and Drug Administration (FDA) and potentially the U.S. Department of Agriculture (USDA) in conducting studies to evaluate virus loading from wastewater treatment plants, transport, persistence, and uptake of enteric viruses in shellfish, along with developing reliable viral indicators with robust and low cost test methods. These and other efforts will increase our ability to assess risk from pollution sources and inform future strategies for wastewater treatment.

Summary of Proposed Technical Approach

This proposal focuses on preventing and reducing pathogen pollution from humans (sewage) and from animal wastes associated with human activities (e.g., farm animal waste, pet waste, and surface runoff from developed lands). Primary sources of pathogen pollution include wastewater treatment plants, on-site sewage systems, combined sewer overflows, farm animals and

agricultural practices (e.g., manure spreading), boat and passenger ship discharges, and urban stormwater and other surface runoff.

The strategic framework includes the following basic sequencing of actions to address Pathogens Prevention, Reduction, and Control:

- Characterize the sources, pathways, loadings, and effects of pathogens;
- Prescribe solutions to reduce or eliminate the impacts;
- Take action to implement identified solutions; and
- Monitor the effectiveness of solutions to determine the course of future actions.

For pathogens, the initial focus areas are: implementing local on-site sewage management plans, establishing sustainable local nonpoint pollution identification and correction (PIC) programs in all Puget Sound counties, and reducing pathogen loading by improving manure management. In the first year, DOH would give priority to projects that support progress in one or more of these areas.

There are threats to Puget Sound recovery that cross jurisdictional boundaries, disciplines, and parts of the ecosystem. Lead organizations will facilitate innovative strategies and actions that resolve barriers to implementation, propose solutions, and achieve synergistic results across the ecosystem areas of emphasis defined by the EPA RFP (EPA-R10-PS-1007). Lead Organizations will review the six-year strategies for the four areas of emphasis to identify high priority cross-cutting issues. For example, both the Pathogen and Watershed proposals identify reducing polluting runoff from agricultural lands as a focus area.

With its focus on clean water, the technical approach for this proposal integrates public health and environmental protection principles and strategies. Specific elements of the work plan are detailed below (with associated PSAA action item in parentheses).

1. Preventing/Reducing Pathogen Loading From On-Site Sewage Systems (OSS)

Rationale and Objective

There are about 525,000 septic systems serving nearly 1.2 million Puget Sound basin residents. That population is expected to reach 1.9 million by 2030. Puget Sound septic systems discharge 175 million gallons of effluent into the soil every day, which flows through the soil to groundwater and surface water. These discharges contain biological and chemical contaminants that sometimes adversely impact water quality. Currently, DOH has listed more than 2600 acres in ten shellfish growing areas as closed or unclassified for shellfish harvesting primarily due to septic system failures.

DOH's 2009 Report to the Legislature lists a number of recommendations to assist local efforts to improve the overall management, use, and care of on-site sewage systems, including:

- Funding and implementing local on-site sewage management plans;
- Designating marine recovery areas (MRA), finding and fixing failing systems, and ensuring that all systems are regularly inspected and properly maintained;
- Enhancing funding programs to give system owners access to low cost loans to repair and replace their systems; and

- Enhancing education and training programs to raise awareness and to improve the practices of system owners and on-site sewage professionals.

Key Actions

- Implement educational and training programs to raise awareness and improve the practices of systems owners and on-site sewage professionals. (C.4.1 and E.4.1)
- Implement the state program for large on-site sewage systems (LOSS). (C.4.1)
- Implement local on-site sewage management plans. This can include work updating the management plans as well as a financing plan that ensures sustainable funding for the programs beyond 2017. In initial years of the work plan, priority will be given in the subwatersheds to promote the location, inspection, and repair/replacement of failing and poorly functioning systems in MRAs and, secondarily, in other environmentally sensitive areas. (C.4.1.1 and C.4.3)
- Support community wastewater planning to promote effective, decentralized wastewater management using small and cluster OSS and LOSS. (C.4.1.3)
- Research and establish utilities to expand management options for on-site sewage systems. (C.4.1.3)
- Research and develop public domain on-site sewage treatment technologies to expand treatment options. This research involves treatment for pathogen removal and nitrogen reduction and overlaps with key actions in the Toxics and Nutrients work plan. (C.4.2)
- Establish and expand innovative cost-share and low interest loan programs to help homeowners repair and replace failing on-site sewage systems. (C.4.3)

2. Preventing/Reducing Pathogen Loading From Municipal/Industrial Wastewater Treatment Plants

Rationale and Objective

Currently, more than 100 wastewater treatment plants (WWTP) discharge (on average) about 400 million gallons of treated wastewater per day into the waters of Puget Sound. While most of this discharge is treated, significant undertreated combined sewer overflows (CSO) can also enter Puget Sound during rain events. Ecology is delegated by the Environmental Protection Agency (EPA) to implement the National Pollutant Discharge Elimination System (NPDES) permit program from the Federal Clean Water Act (CWA).

Every five years Ecology updates all NPDES permits to continue their work to implement priority upgrades of municipal and industrial wastewater facilities (C.3 and C.3.1), as well as evaluate technical and programmatic solutions for CSOs to improve water quality (C.2.2.6) to better meet EPA and PSP strategic goals. In particular, facilities that are given waste load allocations will be required to upgrade their technology if they cannot meet those new waste load allocations. Paying for these large capital improvements is outside of the financial scope of this proposal. However, work to develop decision tools and effectiveness monitoring for priority upgrades are considered within the scope of this proposal.

Key Actions

- In partnership among state agencies, tribes, EPA, and local governments, develop and implement a strategy to reduce and eliminate pathogen impacts on shellfish growing

areas and swimming beaches from waste-water treatment plants, sewage collection systems, and stormwater outfalls. (C.1)

- Investigate and invest in technologies that reduce pathogens. (C.3.4)
- Conduct priority scientific investigations to address key gaps in understanding the Puget Sound ecosystem and how it is influenced by management actions. (PSAA Priority D)

3. Implementing Watershed-Based Clean-Up and Management Approaches

Rationale and Objective

Watershed pollution identification and correction involves the coordinated work of many state and local agencies. Ecology implements a *Total Maximum Daily Load* (TMDL) process as established by Section 303(d) of the CWA. Ecology is also the delegated agency responsible for developing the state plan to address nonpoint pollution under section 319 of the CWA. Ecology will continue its work implementing municipal stormwater NPDES phase 1 and 2 permits to reduce these stormwater discharges (C.2.2.1) and to establish a regional coordinated monitoring program for stormwater, working with the Monitoring Consortium of the Stormwater Work Group (2.3.1).

DOH conducts pollution source surveys in all commercial shellfish growing areas on a periodic basis. DOH identifies and evaluates point and nonpoint pollution sources in cooperation with local health departments, tribes, and Ecology. When pollution problems are found, pollution control agencies are notified.

A priority under this proposal will be to implement comprehensive and sustainable local pollution identification and correction (PIC) programs. These programs will coordinate local entities to address all sources of pollution, have ongoing monitoring and an enforcement component, and a financing plan that ensures sustainable funding for the programs beyond 2017. The state regulatory agencies will provide technical and regulatory resources to help local programs move toward successful reduction of pollution. Lessons learned from different local experiences will be documented and exported more broadly as part of the adaptive management process throughout the grant period.

Key Actions

- Develop and implement sustainable and coordinated local PIC programs, using the Kitsap PIC program as a model template. (C.1.3)
- Develop and carry out other targeted surface runoff and stormwater strategies that directly protect and restore Puget Sound shellfish beds and swimming beaches.(C.2.2.3)
- Investigate pollution loadings, pathways, and effects on marine and fresh waters, especially in areas that are sensitive to pathogen and nutrient pollution. (C.4.1.2)
- Increase the number of swimming beaches in the Puget Sound area being monitored to protect swimmers from disease-causing pathogens. Monitor beaches having high use and at high risk of pathogen contamination. (C.6.1) Notify the public when pollution events occur (C.6.2), identify sources, and conduct clean-up activities.
- Conduct priority scientific investigations to address key gaps in understanding the Puget Sound ecosystem and how it is influenced by management actions (PSAA Priority D).

4. Preventing/Reducing Pathogen Loading From Rural/Agricultural Areas And Livestock Facilities

Rationale and Objective

The National Water Quality Inventory reported that agricultural nonpoint source (NPS) pollution was the leading source of water quality impacts on surveyed rivers and lakes, the second largest source of impairments to wetlands, and a major contributor to contamination of surveyed estuaries and ground water. Agricultural activities that cause NPS pollution include poorly located or managed animal feeding operations, overgrazing, plowing too often or at the wrong time, and improper, excessive, or poorly timed application of pesticides, irrigation water, and fertilizer. Livestock manure management in the Puget Sound Region has primarily focused on licensed dairies under the state dairy nutrient management act, concentrated animal feeding operations (CAFO) covered under NPDES permits, and non-dairy livestock operations through various Ecology, county, shellfish district, and conservation district programs of education, incentive based assistance, and compliance. A combination of voluntary, incentive, and regulatory approaches are envisioned to reduce pathogen loading from agricultural sources.

Key Actions

- Identify and fund the implementation of best management practices (BMP) to address pathogen loading and meet state water quality standards. (C.2.2)
- Fund and implement voluntary incentive, stewardship, and technical assistance programs for rural unincorporated landowners, hobby farms, working farms, and nurseries. (C.2.3.2)
- Engage Conservation Commission, National Resource Conservation Service (NRCS), EPA, and agricultural and conservation districts to improve farm plan implementation to achieve state water quality standards. (D.3)
- Develop a strategy to address the misapplication of manure by third party applicators. (D.3)
- Update the state CAFO Permit. Provide increased technical assistance for permit implementation. (D.4)
- Improve regulatory field presence to get dischargers under permit or to fix problems. (D.5)
- Fund follow-up monitoring of installed BMPs to evaluate their effectiveness over time. This monitoring is necessary to assure that the BMPs are achieving the expected results, to apply adaptive management to correct problems that may still exist, and to improve accountability of funds spent on the BMPs. (E.3)

5. Preventing/Reducing Pathogen Loading From Commercial and/or Recreational Vessels

Rationale and Objective

Commercial and recreational boating is prevalent in Puget Sound and these activities can contribute to water quality problems. In accordance with the National Shellfish Sanitation Program (NSSP), shellfish harvest can be restricted by the number and location of boats, not water sample results. Marine toilets provide limited or no treatment and their discharge can

reach shellfish quickly with little dilution. Because the discharges are sporadic, water samples rarely capture boating waste impacts, as marine water in shellfish areas is usually sampled only once every 60 days.

The last comprehensive survey of impacts of sewage disposal by recreational boats was done by DOH in 1989. Since that time many pumpout facilities have been constructed, but there has been no comprehensive review to evaluate how well they are being used or maintained. The overall increase in boats in Puget Sound, combined with limited numbers of pump out stations, lack of marine sanitation device (MSD) treatment monitoring requirements, and the authority to discharge 3 miles from shore contribute to the problem. For these and other reasons, the Action Agenda has identified petitioning EPA to establish Puget Sound as a No Discharge Zone for commercial and/or recreational vessels as a priority near-term action item. (C.1.5)

Key Actions

- Complete a draft petition to EPA for the no-discharge zone status in Puget Sound. (C.1.2.5) The assessment to support the petition will require:
 - Surveys of vessel usage to identify which areas of the Puget Sound are most at risk and in need of no-discharge zones; and
 - Surveys to evaluate impacts of sewage disposal by recreational vessels, and the status of pumpout facilities in Puget Sound.
- Construction of new pumpout stations and maintenance/repair/upgrade of existing ones in high priority locations.
- Outreach and extension activities to educate boat owners on proper sewage disposal methods. (E.4)

6. Improve Implementation, Monitoring, And Accountability Management Systems

Rationale and Objective

This proposal supports PSP's strategic vision to continue the refinement of an integrated monitoring program to support the Action Agenda. In the first year DOH will scope improvements to existing Office of Shellfish and Water Protection (OSWP) information technology(IT), mapping, and website applications to meet the PSP vision and also for sharing data among state and local agencies, stakeholders, and the general public. Implementation of improvements would be phased over the life of the grant, depending on priorities and funding. Increased functionality of IT applications will provide decision support tools (status and trend analysis, analysis of significance) to both measure impacts of projects and to inform future activities through the adaptive management process. Funding priority will be given to local projects that support a more flexible, distributed data model that prioritizes data sharing and integration.

Key Actions

- Upgrade the OSWP IT applications for managing, analyzing, and reporting water quality data and determining classification of the state's shellfish growing areas. (D.3)
- Enhance website to improve data visualization methods to inform decision makers, stakeholders, and general public. (D.3)
- Improve data collection and integration from local jurisdictions, tribes, and nongovernmental groups. (D.3.2 and D.3.4)

Outputs and Outcomes

All projects implemented under the proposed technical approach section outlined above will be linked to specific outputs and outcomes. Data collected will inform the Puget Sound Management Conference's performance management system.

Outputs

- 6 year strategy to prevent, reduce and control pathogens entering Puget Sound – year one, with adaptive management revisions throughout grant period.
- Revised near-term action item list recommendations to PSP for Action Agenda update.
- Puget Sound counties will have onsite sewage system programs that provide a coordinated, systematic way to identify, inspect, and repair or replace (as needed) failing or poorly functioning onsite sewage systems.
 - Improvements are made to local operations and maintenance (O&M) program elements (e.g., data reporting/management, funding mechanisms, homeowner education, and compliance/enforcement).
 - O&M programs include emphasis on locating, inspecting, and repairing systems in MRAs.
- Public domain OSS treatment technologies are developed, evaluated, and/or approved for use in the state.
- Public education and outreach programs are implemented to prevent, reduce, and control pathogen loadings to Puget Sound.
- A strategy document is developed to reduce or eliminate pathogen loading from high risk outfalls.
- Innovative wastewater treatment technologies are evaluated and approved.
- Scientific investigations provide decision tools for priority upgrades (modeling, alternative futures analysis, etc.).
- PIC programs perform evaluations in priority areas.
- Technical and financial assistance for development of comprehensive local PIC programs will be provided.
- Swimming beaches with identified bacteria problems are cleaned up.
- Outreach/Technical Assistance programs for manure management BMPs are implemented.
- The state CAFO Permit is updated. A strategy to address manure management is developed.
- Effectiveness monitoring reports are completed for areas implementing BMPs.
- A survey of vessel usage is performed to identify priority areas.
- A survey to evaluate impacts of sewage by recreational/commercial vessels is performed.
- A survey is done on the status of pumpout facilities in Puget Sound, and pumpout stations are constructed/repared in priority areas.
- A No Discharge Zone Petition, if warranted, is developed and submitted to EPA.
- A statement of work and project plan are developed for enhancements to OSWP IT applications.

- OSWP IT applications are enhanced to better analyze trends and measure impacts of specific actions .
- The website is improved to enhance data visualization methods to inform decision makers, stakeholders, and the general public.

Outcomes

Significant progress towards the outcomes identified above will also demonstrate progress towards the goals and objectives outlined in EPA's 2006-2011 Strategic Plan and the 2007-2011 EPA Region 10 Strategy to protect human health and water quality in the Puget Sound Basin, as well as the following PSP Dashboard Indicators and related sub-indicators:

- Acres of shellfish bed growing areas reopened.
- Reduction in acres of shellfish growing areas at risk of downgrade, as determined in the DOH annual shellfish update.
- Percent of core beaches meeting water quality standards during swim season.
- Reduction in pathogen aspects of Marine Water Quality index (perhaps using the DOH Fecal Pollution Index (FPI) in shellfish growing areas as a proxy).
- Reduction in pathogen aspects of Freshwater Water Quality index.

Leadership Strategy

1. Adaptive Management

Science and adaptive management will guide our proposed six-year strategy in order to achieve significant progress toward the goal of recovering Puget Sound by 2020, as measured against quantitative 2020 ecosystem targets for the PSP dashboard indicators that represent the health of Puget Sound's ecosystem components. Establishing clear, strong targets is the essential first step in scaling our work to match the magnitude of the problem. Once set, targets that address both cumulative and synergistic effects will allow the 2-year benchmarks to be established, and the actions and strategies needed to achieve the targets can then be identified. By using the Open Standards, this work can be accomplished in the revision of the Action Agenda in 2011. The targets will address the goals and objectives in EPA's 2006-11 Strategic Plan.

Adaptive management is the cycle of exploration, action, evaluation, and adjustment that links science and policy. It is a vital element of the Puget Sound Partnerships *Strategic Science Plan (2010)* and to ongoing revisions of the Action Agenda and the Puget Sound Partnership's performance management system. It will be key to the recovery of Puget Sound. One of the first work products of our six-year strategy will be the adaptive management system that we will establish for measuring progress on outputs and outcomes. We will use interim results from the six-year strategy to work with the Partnership to adaptively manage the Action Agenda. The subaward criteria will include this adaptive management system as a requirement of grantees. A performance audit will be conducted in the final year of the strategy.

The adaptive management strategy will include a significant investment in performance audits at the end of the six-year strategy to determine if funded programs are achieving direct outputs and if the direct outputs are helping make progress toward the 2020 ecosystem targets. Programs that

operate Sound-wide will be solicited as a six-year operating plan that includes a plan for on-going financial sustainability after five years. Subawards will include an end-of-program evaluation that either supports accessing other funding sources or supports a decision to redirect resources to higher priority or more promising approaches.

2. Strategic Coordination, Partnership, and Advice

Coordination with the Puget Sound Partnership Management Conference, other lead organizations, local integrating organizations, lead entities, and other strategic partners is essential to achieving the outcomes of the six-year strategy. We propose three areas of coordination. First, the state agency lead organizations (which term includes agencies that are “co-leads”) will immediately establish a lead-staff coordinating team, including PSP staff, which will carry forward the highly collaborative and transparent process used to develop the four proposals. Potential state agency lead organizations have agreed to a common, coordinated leadership strategy to develop, implement, and adaptively manage the six-year strategies across the four areas of emphasis in a collaborative fashion with governmental and non-governmental entities. It will be critical that this group establish a common work plan for integrating and aligning our work. For example, one of the first tasks will be to review the final work plans negotiated with EPA to identify cross-cutting actions that meet multiple objectives beyond just one area of emphasis. The actions would likely be prioritized for early support by subaward criteria. This work will ensure that there is no overlap or duplication of efforts with activities already funded by the federal government.

Second, lead organizations will establish a core group to oversee implementation of the strategy. We envision a close implementation partnership with the Department of Natural Resources (DNR) in developing strategies for reducing or eliminating pathogen impacts from high threat outfalls and commercial and/or recreational vessels, two key actions in achieving the goals of this strategy. DNR, as the manager for state-owned aquatic lands, has a lead role for permitting and managing leases for outfalls and boat moorage. DNR is also the co-manager, along with the tribes, for commercial subtidal geoduck harvest in the state.

Third, we recognize an ongoing need to seek strategic advice from a broad diversity of partners including, but not limited to: other Lead Organizations; the Puget Sound Partnership, Ecosystem Coordination Board (ECB), Local Integrating Organizations (LIO), and other parts of the Management Conference; and the many organizations that have indicated an interest in this proposal thus far.

Likely advisory functions include (with the likely partners), but are not limited to:

- Providing ongoing feedback to the implementation of the six-year strategy, including near-term priorities (ECB and entire Management Conference);
- Consulting on criteria for direct and competitive sub awards (Management Conference and LIOs);
- Providing final review of proposed annual investments designed to implement strategy (Leadership Council);
- Playing a central role in integrating and implementing the public awareness and engagement efforts of the LOs and PSP (ECB and LIOs);

- Assessing progress in achieving outcomes as they align with Action Agenda benchmarks/indicators and as they integrate across the four RFPs (Science Panel, ECB); and
- Participating in adaptive management analysis and recommendations (Leadership Council and Science Panel).

3. Public Coordination with PSP on Public and Stakeholder Involvement and Stewardship

This element has two basic components: (1) public and stakeholder involvement (i.e., transparency) process around the Action Agenda and respective lead organization work areas; and (2) coordination with the Partnership's awareness and stewardship programs focused on citizen best management practices. We will closely coordinate with the Partnership as they implement both the public and stakeholder involvement and stewardship programs. We will contribute information and expertise for marine and nearshore ecosystem components.

4. Coordination with Local Governments

Local governments are a key strategic partner in protecting and restoring Puget Sound. Many have devoted enormous energy and resources to overcoming barriers to progress. They are indispensable partners and must be supported in their work to enforce local land use, health, and water quality regulatory programs, many of which are key to protecting and restoring Puget Sound. Their education, outreach, and public engagement programs have advanced work in many areas of Puget Sound recovery. We will engage local governments through many avenues to gain the benefit of the knowledge and work to protect and restore Puget Sound.

5. Coordination with Tribal Governments

Puget Sound is part of a larger transboundary ecosystem which includes Puget Sound, Georgia Basin, and the Strait of Juan de Fuca, referred to together as the *Salish Sea* and which is the ancestral home of numerous Indian Tribes and First Nations, most of whom share the Coast Salish culture extant in this region for thousands of years. Tribes' critical role in the stewardship of the *Salish Sea* region spans distant as well as recent history. The economic and cultural well-being of tribes is directly linked to the health of their homelands and the natural systems supporting their resource base. Tribes in the Puget Sound Basin have knowledge, data and on-the-ground experience of their watersheds which could enrich the Lead Organizations ability to develop and implement the six-year strategy. They have the experience and capability to implement protection and restoration projects in their watersheds. The goal is to integrate tribal knowledge and resources effectively into the six-year strategies.

In 1974, the Boldt Decision reaffirmed specific Tribes' treaty-protected fishing rights and more recent federal court rulings upholding treaty-reserved shellfish harvest rights confirmed these Tribes as natural resource managers. The unique legal status of Tribes and presence of tribally reserved rights and cultural interests throughout the state creates a special relationship between Tribes and the state agencies responsible for managing and protecting the natural resources of the state. The foundation of the tribal co-management, government-to-government practice has substantial precedence and is the outcome from implementation of treaties, the U.S. v. Washington court decisions, and numerous subsequent decisions. The 1989 Centennial Accord between the federally recognized Indian Tribes in Washington State and the State of Washington

commits the parties to a government-to-government approach to address issues of mutual concern.

Tribes have consistently demonstrated their commitment and ability to be competent and professional natural resource managers. Tribal homelands are the rivers and shorelines of this state and so tribes have an inextricable link with its water resources. EPA, Washington State, Tribes and Tribal consortia, local governments, and nonprofit organizations have partnered for over 20 years to protect and restore Puget Sound through the Clean Water Act (CWA) National Estuary Program. Effective coordination of state/tribal expertise will clearly help develop programs that will be far more appropriate and efficient than either could develop alone. The Lead Organizations commit to work within a cooperative management process with tribes to develop and implement the six-year strategies.

6. Coordination with Federal Partners

Federal Partners represented on the Puget Sound Federal Caucus have been participating in many Puget Sound protection and restoration programs for many years, and our strategy seeks to leverage and increase their important contributions. Relationships with EPA (National Estuary Program, among others), the US Army Corps of Engineers (PSNERP), NOAA (Community Restoration, among others), as well as the US Fish and Wildlife Service, Federal Emergency Management Agency, NRCS, and many others will be essential for progress. Aligning many federal programs with the goals of the Action Agenda has been an important piece of work by the Federal Caucus. We anticipate working with the Caucus to achieve improved alignment in programs that touch the health of the Puget Sound nearshore and marine environments. The Puget Sound Recovery Act of 2010 (S. 2739) is currently being considered by Congress. Should the legislation become law, it would direct future federal funding in accordance with an annual priority list compiled by the PSP. Consistent with the proposed leadership structure, the LOs, co-leads, and the PSP would work to prioritize investments in each area of emphasis in consultation with the ECB.

7. Coordination with Canada

Please see page 200 of the 2009 Action Agenda for a discussion of coordination with Canada.

Funding Strategy and Subaward Projects

The proposed subaward process is intended to efficiently provide funding to projects that most effectively and/or efficiently implement the priorities articulated in this proposal and demonstrate progress, in an adaptive management framework, toward 2020 ecosystem targets and interim benchmarks. The subaward process will include a process to competitively solicit proposals in each of the strategic areas of investment described in the Technical Approach section of this proposal. The overall process will include tracking and measuring progress toward achieving the expected outputs and outcomes. Although we would expect to formulate the specific steps of the review process during the post-award conversations with EPA, the competitive process will:

- Solicit proposals for innovative and ambitious actions that are consistent with the strategies and priorities described in our technical approach. Regardless of the type of

action (programmatic or policy improvements, on-the-ground work, or scientific and technical studies), proposals will be judged on their ability to resolve long-standing barriers to implementation and to produce outputs and outcomes that advance achievement of 2020 ecosystem targets and interim benchmarks. Proposals will be expected to demonstrate these features through a logic model. Lead organizations will coordinate with both the Science Panel and the Puget Sound Institute to assure that our collective efforts to advance applied science and technical studies are complementary.

- Be coordinated with other Lead Organizations across ecosystem categories to provide an efficient, coordinated process for making and managing competitive subawards and to ensure no duplication. Lead organizations will administer the competitive subaward processes collectively to assure such efficiency and coordination.
- Identify important criteria by which subaward decisions will be made, noting especially criteria that are applicable across the ecosystem categories. These criteria will be developed and vetted through coordination with the Management Conference, including Local Integrating Organizations (LIOs) where they have been established.
- Understand both regional and local priorities and create meaningful involvement for LIOs. The nature of LIO involvement may change throughout the six-year strategy as they become established and develop detailed workplans and priorities at the local level.
- Involve technical and policy review to ensure that actions proposed for funding are consistent with the Action Agenda, Open Standards, and achieving 2020 targets and benchmarks.
- Where possible and consistent with our priorities and areas of investment, use and/or enhance existing contracting mechanisms. Lead Organizations will attempt to set deadlines to avoid conflicts with existing, major grant processes such as those related to the Salmon Recovery Funding Board, Washington Wildlife and Recreation Program, Centennial Clean Water Fund, Estuary and Salmon Restoration Program, or Aquatic Lands Enhancement Account.

Lead organizations are committed to creating a seamless process that facilitates the ability of applicants to apply for funds easily and develop crosscutting proposals. A seamless process will also reduce duplication of work in contract administration, monitoring, and reporting requirements for both applicants and the lead organizations. DOH will use existing contracting systems and procedures to make and manage subawards. However, we will coordinate with other lead organizations and the Puget Sound Partnership to jointly create a single application point. This single application point will assure that potential applicants can easily access and monitor funding opportunities. Lead organizations will also jointly create a coordinated and unified timeline to facilitate the ability to package proposals that fund crosscutting activities.

The subaward process may also include direct (non-competitive) contracts with other entities where we have indicated so within a given area of emphasis in this proposal, particularly as is consistent with the “Lead Agency” and “Partners” that are specified in the “Near-term action implementation responsibilities” table of the Action Agenda. State agencies have committed to providing a transparent rationale for any decisions that result in direct contracts with other entities that explains why the work should be performed by the entity named.

We will structure subaward contracts as “deliverables based” contracts that link financial reimbursement to a demonstration of meeting major project milestones and deliverables. This

method has been used extensively by several agencies, including as a fundamental component of the administration of the Estuary and Salmon Restoration Program (ESRP). This contracting method engages lead organizations and subawardees in up-front thinking to define the milestones and deliverables that the contract will result in, creates clear points of consultation between Lead Organizations and subawardees, and assures that dollars spent achieve project milestones and outputs. It provides an opportunity to coordinate among and leverage results of relevant subaward projects. In addition, all subaward contracts will include provisions to ensure implementation is monitored and that lessons learned can be disseminated among subawardees, the Management Conference, and other interested parties, as well as be used to adaptively manage the Action Agenda. Some or all contracts will be the subject of effectiveness monitoring as well, according to the needs identified by the adaptive management component of this proposal. Subaward contracts will also embody any of the other requirements of subawards, including, for example, any monitoring, education, or outreach activities.

Funds will be administered via the most efficient means possible either directly from DOH or from Ecology or other partner agency. DOH subawards to local health jurisdictions will be handled through an existing Consolidated Contract (ConCon). The ConCon is an efficient way to capture and process certain activities between Department of Health (DOH) and each of the 12 Local Health Jurisdictions (LHJ's) in the Puget Sound Basin. Statements of work and budget sources for many different programs are consolidated into one master contract process reducing the number of separate contracts between DOH and the LHJ's. ConCon is a systematic approach to interagency contracting combining many program activities and funding sources into one master agreement. Specific work and changes are handled through scheduled amendments that occur every three months for all 12 LHJ's.

Timeline

YEAR ONE:

- Establish the process and criteria for selecting pathogen prevention, reduction, and control actions in years two through six.
- Implement existing on-site sewage management plans in each Puget Sound county.
- Quickly conduct a process to solicit, select, and fund the identification and correction of pathogen sources in marine recovery areas, shellfish protection districts, and core swimming beaches.
- Support coordinated efforts by local, state, and federal agencies to develop strategies to improve manure management by all animal feeding operations to achieve state water quality standards.
- Begin developing strategies for counties to establish and fund comprehensive PIC programs.
- Begin surveys to evaluate impacts of sewage disposal by recreational and commercial vessels and the status of pumpout facilities in high priority areas like Hood Canal.
- Develop scope of work and project plan for enhancements to the DOH shellfish water quality database and other mapping and website applications to meet the Puget Sound Partnership vision for sharing data among state and local agencies, stakeholders, and the public.
- Conduct baseline water quality monitoring where needed.

YEAR TWO:

- Review results (includes effectiveness monitoring) and continue and adapt Year 1 actions as needed.
- Expand opportunities and programs for on-site sewage system owners to access low-cost loans to fix their systems. Innovative projects and public/private partnerships will be considered.
- Develop a strategy to implement upgrades of wastewater treatment plants, sewage collection systems, and stormwater outfalls to reduce and eliminate pathogen impacts on shellfish growing areas and swimming beaches.
- Begin implementation strategies to establish PIC programs.
- Review and apply manure management strategies to ensure discharges from animal feeding operations meet state water quality standards.
- Start the assessment for Petitions for No Discharge Zones in Puget Sound. This includes evaluation of pumpout stations, vessel usage in Puget Sound, and identification of areas in Puget Sound that would be covered by No Discharge Zones.
- Fund construction of new pumpout stations and maintenance/repair/upgrade of existing ones in high priority locations.

YEARS THREE, FOUR, FIVE, AND SIX:

- Incorporate projects that address other areas of the strategy. Develop model programs for on-site sewage educational and training programs that raise awareness of system owners and on-site sewage professionals. Investigate wastewater treatment plant technologies that reduce pathogens. Develop draft petitions for no discharge zone status and develop a strategy to fund new pumpout stations and maintenance of existing stations.
- Review results from previous years and adapt actions as needed.

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Timeline/Activities Matrix

Calendar Year Timeline	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	2013	2014	2015	2016
	'11	'11	'11	'11	'12	'12	'12	'12				
Finalize Project Scope with EPA - January 2011	x											
Develop and Launch Single Point of Access	x	x										
Adaptive Management Target Setting Advisory Council - Formation and Operations	x	x	x	x								
Develop strategy for 2012-2016			x	x	x	x	x	x	x	x	x	x
Solicit Proposals for First Year - On-site sewage management plan implementation - PIC projects in MRAs, SPDs, and core swimming beaches - Manure management strategies - Strategies to establish comprehensive PIC programs - Surveys of vessel sewage impacts and disposal options - Baseline monitoring where needed - Scoping of DOH database and website improvements	x											
Year 1 Project Selection		x										
Year 1 Funds Available			x	x	x							
Year 1 Closeout					x							
Develop Subaward Process for 2012-2016			x	x								
Solicit Proposals for 2012-2016					x							
Project Selection for 2012-2016					x				x	x	x	x
Subaward Funds Available						x	x	x	x	x	x	x
Annual Monitoring Reports					x			x	x	x	x	x
Monitoring/Closeout Report to EPA							x		x	x	x	x

Financial Management Systems

The State of Washington requires that all state agencies including the Washington State Department of Health enter their financial information into the Agency Financial Reporting System (AFRS), the authorized central state accounting system. This system is managed by the Washington State Office of Financial Management (OFM). Washington law charges OFM to develop and prescribe all state accounting and administrative policies and publish these in the State's Administrative and Accounting Manual (SAAM). AFRS is fully compliant with all Generally Accepted Accounting Principles (GAAP) and Government Accountability Standards Board (GASB) rules and provides detailed ledgers, organizational, object, and revenue codes in a chart of accounts used by DOH for recording all financial transactions. The Department follows all State Accounting Policies and is audited annually by the Washington State Auditor. An indirect rate cost plan agreement is submitted each year to the Department of Interior business negotiators for review and approval. The current indirect rate is 22.2% on allowable costs.

The Department of Health's financial management system allows for the accurate, current, and complete disclosure of the financial results of financially assisted activities in accordance with the financial reporting requirements of the grant or subgrant. The accounting records adequately identify the source and application of funds provided. These records also contain information pertaining to grant or subgrant awards and authorizations, obligations, unobligated balances, assets, liabilities, outlays or expenditures, and income. Effective control and accountability is maintained for all grant and subgrant cash, real and personal property, and other assets. We also adequately safeguard all such property and assure that it is used solely for authorized purposes.

DOH has also adopted policies and procedures related to contracts, travel, and purchasing that align with the State Administrative and Accounting Manual governing the appropriate use and rules for managing state funds (<http://www.ofm.wa.gov/policy/default.asp>). Applicable OMB cost principles, agency program regulations, and the terms of grant and subgrant agreements will be followed in determining the reasonableness, allowability, and allocability of costs. Accounting records will be supported by such source documentation as cancelled checks, paid bills, payrolls, time and attendance records, contract and subgrant award documents, etc. Procedures for minimizing the time elapsing between the transfer of funds from the U.S. Treasury and disbursement by grantees and subgrantees will be followed whenever advance payment procedures are used.

MATCH

The Department of Health has identified state dollars as the required match for year one of the pathogens proposal. The DOH match for this federal grant in the amount of \$2.5 million will come from current appropriations for Office of Shellfish and Water Protection programs on shellfish protection and on-site sewage management, with the balance of required match (\$0.5 million) coming from the Department of Ecology's FP 11055- Onsite Septic Repair Financial Assistance Program (Centennial). These nonfederal matching funds will be committed to this proposal and they have not been previously used to provide nonfederal match for any other federal financial assistance grant or project. (Note: Ecology will assign a code to this funding match subsequent to approval of grant by EPA.)

Programmatic Capability and Past Performance

Past performance in successfully completing and managing Federal grants

The DOH, Division of Environmental Health has successfully completed and managed many Federal grants and Cooperative Agreements from various federal agencies, including EPA and the Centers for Disease Control and Prevention.

Five recent/current Federal grants managed by the Division of Environmental Health include:

- EPA Grant number K1-97004903(-04, 05), Indoor Radon, managed by Eileen Kramer in the Office of Radiation Protection.
- EPA Grant number I-00045904 (-05), Wellhead and Source Water Protection, managed by Kristin Bettridge in the Office of Drinking Water.
- EPA Grant number WP-96042101, Water Protection Coordination, managed by Kristin Bettridge in the Office of Drinking Water.

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- CDC, Agency for Toxic Substances and Disease Registry, Cooperative Agreement number 5-U61-TS090081, Program to Conduct and Coordinate Site-Specific Activities, managed by Dan Alexanian in the Office of Toxic/Chemical Hazards and Site Assessment.
- CDC, National Center for Environmental Health, Cooperative Agreement number 5-U38-EH000179, Environmental Public Health Tracking Network, managed by Glen Patrick, Office of Environmental Epidemiology.

History of meeting reporting requirements

We have successfully completed all agreements and met all reporting requirements on all Federal grants and cooperative agreements. This includes, where applicable, submitting acceptable final technical reports and adequate and timely reporting on progress towards achieving expected outputs and outcomes.

Technical experience

The following staff from DOH's Office of Shellfish and Water Protection will have responsibilities for initial efforts with this proposal:

John Eliasson, Health Services Consultant, will be the lead for evaluation and approval of new OSS treatment technologies. John has a BS in environmental health from the University of Washington and is a Registered Sanitarian.

Stuart Glasoe, Wastewater Section Manager, will assist with issues associated with on-site sewage systems and other nonpoint pollution issues. Stuart has a Masters degree in Regional Planning and Bachelors degrees in environmental science and earth science.

Lynn Schneider, Health Services Consultant, is the project manager and technical lead for pass through funds to local health jurisdictions for on-site sewage management plan implementation. Lynn has a BS in environmental chemistry from The Evergreen State College.

Lawrence Sullivan, Public Health Advisor, will be the technical lead for local pollution identification and correction (PIC) programs and the investigation of nonpoint pollution loading in marine and fresh waters. Lawrence has a MS in physical geography from Oregon State University.

Mark Toy, Environmental Engineer, will be technical lead for point source pollution. Mark is licensed as a Professional Engineer and Registered Sanitarian with Masters degrees in Public Health and Civil Engineering.

DOH will be assisted as needed by Ecology staff with appropriate expertise and experience in the areas of nonpoint source pollution, NPDES permits, and No Discharge Zone efforts.

Attachments

- A. Legal Authorities
- B. Detailed Budget
- C. Logic Model