Washington State Department of Ecology Proposal in Response to

U.S. Environmental Protection Agency, Region 10
Puget Sound Action Agenda: Ecosystem Restoration and Protection (EPA-R10-PS-1007)

a. Area of Emphasis: Toxics and Nutrients Prevention, Reduction, and Control

b. Title: Strategic Framework for the Prevention, Reduction and Control of Toxics and Nutrients

c. Contact:

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d. Abstract:

Thousands of toxic chemicals are in use today. They are in the air, water, soil, animals, fish, and our bodies. Some toxic chemicals impair development, some affect reproduction, some cause cancer, others can be devastating to fish or other species. Nutrients occur naturally in the marine and fresh waters of the Puget Sound ecosystem, but human contributions of excess nutrients can lead to lower levels of dissolved oxygen as excess algae decompose. As Lead Organization, the Department of Ecology will work with various partners to develop and implement projects in line with the toxics and nutrients strategic framework identified in this proposal. The goal of this strategy is to protect and improve both human and environmental health in the Puget Sound ecosystem and to establish prevention as the smartest, most cost effective, and healthiest approach to reducing toxic threats and nutrient impacts.

e. RFP Awareness: The Department of Ecology has applied for similar funding in previous years. The Department routinely communicates with EPA about funding opportunities.

f. Total Amount of Funding Requested: $48,000,000
- Year One Funding - $3,000,000
- Years Two through Six Funding - $45,000,000

g. Washington State Department of Ecology DUNS Number: 781347828

TECHNICAL APPROACH FOR TOXICS AND NUTRIENTS

Goal

The goal of the toxics and nutrient strategy is to protect and improve both human and environmental health in the Puget Sound ecosystem. Prevention is the smartest, most cost effective, and healthiest approach to reducing toxic threats and nutrient impacts. Thousands of toxic chemicals are in use today. They are in the air, water, soil, animals, fish, and our bodies. Some toxic chemicals impair development, some affect reproduction, some disrupt body chemistry, and some cause cancer. Some chemicals have limited impacts on humans but can be devastating to fish or other species. Nutrients occur naturally in the marine and fresh waters of the Puget Sound ecosystem, but human contributions of excess nutrients can lead to lower levels of dissolved oxygen as algae blooms and other organic matter decompose. The toxics and nutrients strategy must include activities to manage and clean up problematic levels in the environment.

As Lead Organization, Ecology will work with various partners at the federal, tribal, state, and local levels and non-governmental organizations, academia, and business to develop and implement projects in line with our strategic framework. To address toxics in the Puget Sound ecosystem we must reduce toxic chemicals in products and prevent toxic chemicals in stormwater. The nutrients approach focused on determining the extent that human sources of nutrients are affecting the Puget Sound ecosystem and how much reduction is necessary to meet water quality standards. Next, actions must be taken to reduce the loading of nutrients in a prioritized fashion. This strategic framework includes a three pronged approach to reduce toxics and nutrients from entering and impacting the Puget Sound ecosystem:

- **Prevent substances from being used in the first place**. Goal 4 of the Draft FY 2011-2015 EPA Strategic Plan, identifies “preventing pollution before it is generated” as a key element of national environment policy. Prevention program elements under this strategic framework seek ways to eliminate or dramatically reduce the use and generation of toxic substances in the first place as a key approach to preventing toxic “pollution from being introduced into the Puget Sound ecosystem” (Priority C.1 from the Action Agenda). Washington’s bans on phosphorus in detergent and copper in brake pads are examples of reducing nutrients and toxics through preventative approaches.
- **Limit or manage the amount of toxics and nutrients released into the environment.** Both the Puget Sound Action Agenda (Priorities A & C) and the Draft FY 2011-2015 EPA Strategic Plan (Goal 2 and Goal 3) call out actions to promote healthier communities and prevent releases of harmful substances. For example, Priority C.1 from the Action Agenda lists source control tactics such as education, pollution prevention, innovative technologies and technical assistance.
- **Clean up substances that have polluted air, land or water.** While prevention is the priority of the framework, Ecology and its partners recognize the importance of removing substances from the environment to stop further exposures. Priority C.5 in the Action Agenda calls for

prioritization of cleanup and remediation projects to reduce toxic loading into the Puget Sound. And Goal 3 of the Draft FY 2011-2015 EPA Strategic Plan refers to cleanup and restoration of contaminated areas.

According to a study on Puget Sound prepared by the University of Washington's Climate Impacts Group, there is considerable evidence that regional temperatures are already rising and precipitation patterns are changing. Projections suggest that sea levels will rise, snowpack is likely to melt earlier each season, and the damage from winter storms could increase. Climate change will be factored into all aspects of the six year strategy including the evaluation and selection of sub-award projects.

Strategic Framework

The strategic framework focuses on priority activities to prevent or reduce toxic substances and problematic nutrients, building on activities in both the Puget Sound Action Agenda and Draft FY 2011-2015 EPA Strategic Plan. Projects will focus on implementation activities, but may develop, refine, or strengthen existing programs, or start new work. This strategic framework identifies high level program areas, and addresses how we will perform activities identified in the RFP.

A. Scientific Investigations of Toxics and Nutrients

(1) Identify and Prioritize Sources of Toxics and Nutrients Contributing the Most and Having the Greatest Impacts on Puget Sound - Characterize Substances, Sources, Pathways and Effects – For toxics, there are troubling gaps in the available data and state of knowledge on many widely used chemicals (Draft FY 2011-2015 EPA Strategic Plan, Goal 4). Building on the results of the Puget Sound Toxics Loading Assessment and Synthesis Analysis, continued scientific work to better understand sources and transport and fate of toxics in Puget Sound will be needed (Action Agenda C.1.1.10). We need to collect data about the presence of toxic substances in products, humans, animals and the environment. To effectively address both toxic and nutrient threats, we need to understand major sources and critical pathways to the environment and humans, and use this information to focus prevention, management, and cleanup actions. For nutrients, this work will build on multiple ongoing studies. Current studies on nutrients are fully funded and are identifying and prioritizing the largest sources and pathways (wastewater treatment plants and rivers flowing into Puget Sound). These studies will determine how the different sources are impacting parts of Puget Sound. More detailed analysis will be needed for some areas, especially Whidbey Basin. By 2016, the South Puget Sound Dissolved Oxygen Study will need to be updated with current wastewater treatment plant and watershed loads (2012-2016, $4.7 million).

(2) Reduce Use and Generation of Toxics Through Development of Safer Alternatives - Conduct Alternatives Assessments – We will build a collaborative process to define elements of and finalize a method for alternative assessments. Based on the results of the Puget Sound Toxics Loading Study and Synthesis Report, we will identify chemicals or products that are good candidates for scientifically defensible assessment and work with partners to conduct

alternatives assessments. We will support safer alternatives research, promote the use of safer alternatives, and create incentives to encourage the development of safer alternatives. This aligns with statements in Goal 4 of Draft FY 2011-2015 EPA Strategic Plan, "accelerating work to identify safer alternatives," and "evaluating chemicals in use." It also aligns with items C.1.1.2 and C.1.1.4 in the Action Agenda, "promote safer chemical alternatives," "advocate for safer chemical substitutions," and "development and use of safer chemical alternatives and products" (2011-2016, $2.3 million; funding $0.38 million in the first year).

(3) Identify Other Areas of Concern – Continue modeling work being done throughout the Puget Sound by the Pacific Northwest Labs and Washington Department of Ecology. This ongoing work is fully funded (2011 – fully funded).

(4) Conduct Project-Related Monitoring of Toxics and Nutrients Entering Puget Sound - Identify Major Scientific Gaps – We will promote continued scientific work to fill gaps in our understanding of the sources, pathways, loadings and impacts of toxics and nutrients entering Puget Sound (e.g. Action Agenda action C.1.1.10). Nutrient monitoring may include aqueous point and nonpoint sources, tributaries, air deposition, and groundwater. While this work has been done for some areas of Puget Sound, additional work is necessary. With the assistance of partners, Ecology will identify the sources and pathways that most need ongoing monitoring and will pilot innovative monitoring program technologies in key areas of Puget Sound and may include remote sensing, continuous sensors, and sediment studies. The monitoring efforts also include evaluation of the public health and environmental risks (including health effects in biota) posed by pharmaceuticals, personal care products and other emerging contaminants. Monitoring of known or suspected sources will continue (2012-2016, $2.2 million).

B. Implementation of Activities to Reduce Toxic and Nutrient Loading

Prevention Activities

(5) Build on Programs to Prevent PBTs (Persistent Bioaccumulative Toxics) and Other Chemicals of Concern from Entering Puget Sound – We will continue and enhance current efforts to phase out the use of PBTs through development of Chemical Action Plans and our existing regulatory tools. We will seek to develop innovative methods to reduce the use of PBTs and other chemicals of concern (endocrine disruptors, metals, pesticides, diesel particulates, and emerging contaminants such as pharmaceuticals, flame retardants, plasticizers, personal care products, and nanomaterials). Actions may include implementing Washington's Beyond Waste Plan (Action Agenda item C.1.1.6), Ecology's PBT Strategy (Action Agenda near term action C.1.2), and implementing or enhancing air management plans (Action Agenda near term action C.1.2.6) (2011-2016, $4 million; funding $0.4 million in the first year).

(6) Provide Education and Technical Assistance – We will work with PSP, ECO-Net, and LIOs to implement the regional public engagement work plan being developed by PSP's education and outreach team. This team will play a lead role in coordinating LIO and LO delivery of regional

and watershed messages. Understanding how LIOs can tap into and leverage existing ECO-Net capacity will be a key part of this effort. The ECB would inform and help implement the public education and outreach portion of the strategy in coordination with PSP's overall effort. This will include feedback on an integrated work plan to integrate the public awareness and engagement efforts of each LO with those of PSP's work. Our goals would include incorporating clear, consistent public health and environmental messaging about reducing toxic threats and how to control nutrients for businesses and the public. We will support programs to train professionals such as architects, landscapers, teachers, engineers and chemists and to engage volunteer citizen scientists to address toxic threats and promote green chemistry approaches. Action Agenda item C.1.1.1 specifically calls out education and technical assistance actions, "conduct focused business and citizen outreach aimed at controlling and reducing high priority chemicals, pharmaceuticals, and personal care products." And Action Agenda near term action C.1.1 states "conduct a focused outreach campaign for the public and businesses to reduce pollutants identified in toxic loading and other studies that are priority threats to Puget Sound" (2011-2016, $2.3 million; funding $0.2 million in the first year).

Management and Control Activities

(7) Fund Activities to Prevent, Reduce, and Control the Sources of Nutrients – This proposal would develop and implement programs to address low dissolved oxygen concentrations and other nutrient-related impacts in Puget Sound. Hood Canal has the lowest dissolved oxygen levels in Puget Sound and has ongoing fish kills. This proposal would create a funding source beginning in 2011 for implementation projects, with an emphasis on Hood Canal, and then evaluate their effectiveness for use throughout Puget Sound. It would create a similar funding source for South Puget Sound to conduct TMDL (or other management plan) implementation in 2014 and then move to the rest of Puget Sound. Funding can be used to reduce nitrogen loads from on-site septics, residential or agricultural fertilizer use, other agricultural sources of nitrogen, wastewater treatment plants, stormwater, or other human-caused source of nutrients. It can address marine or freshwater and nitrogen or phosphorus. All projects funded in this category must directly result in reduced nutrient loading to sensitive waters (2011-2016, $13 million; funding $0.43 million in the first year).

(8) Continue to Upgrade and Invest in Innovative Treatment and Control Technologies to Prevent, Reduce and Control the Release of Toxics and Nutrients – We will research technologies and strategies to prevent, reduce, or control the release of toxics to stormwater and other non-permitted sources. We will advance infrastructure upgrades and treatment technologies that will help control stormwater flow and improve water quality in accordance with Action Agenda item C.1.1.7, "continue to invest in technologies that reduce toxic pollutants." We will continue the transition of the region to the LID stormwater management approach by introducing LID concepts during the municipal NPDES stormwater permit process. We seek partners to provide training and technical assistance on LID approaches. We will continue to identify and promote best management practices (Action Agenda near term action C.2.3). For nutrients, both permitted and non-permitted discharges will be addressed and

technical assistance will be provided to entities in need. Ecology and others are currently evaluating nutrient removal technologies for municipal wastewater treatment plants. The effectiveness of non-proprietary technologies for removing nitrogen in septic systems needs to be evaluated (2011-2016, $4.5 million; funding $1 million in the first year).

(9) Encourage Integrated, Whole Farm Planning, Plan Implementation, and Other Actions to Reduce Surface Water, Ground Water, and Air Quality Impacts From Agriculture – Agriculture manure management will be primarily addressed through the pathogen RFP. Ecology will work closely with DOH and other partners to include nutrient management in all agriculture-related projects (2011-2016, funded through pathogen RFP).

(10) Strengthen Authorities and Policies and Develop Decision-Making Tools – We will strengthen our authorities to deal with toxics in products and the environment. We will ensure our policies align with the state reducing toxic threats goals and principles, evaluate existing standards to assure they adequately product human health and the environment and prevent recontamination of cleanup sites, modernize our information systems, and develop decision making tools to guide our work. Emerging chemical policies, including regulation of nanomaterials need to be addressed before these materials go into widespread commerce and use, as identified in Draft FY 2011-2015 EPA Strategic Plan Goal 4. We will work with EPA on modernization of the Toxic Substances Control Act (TSCA), while simultaneously strengthening the state' ability to address toxic substances be it requiring submission of information, producer responsibility, or outright bans. In addition to Ecology's state and local partners, the Stormwater Technical Resource Center (STRC), co-managed by Washington State University and the University of Washington Tacoma along with their partners, is positioned to assist in developing tools, guidance and models to assist in decision making (2012-2016, $1.2 million).

(11) Increase Compliance and Enforcement of Environmental Laws and Standards – Goal 5 of Draft FY 2011-2015 EPA Strategic Plan, asserts that enforcement has a role in achieving the goals of this strategic framework. "Protect human health and the environment through vigorous and targeted civil and criminal enforcement. Assure compliance with environmental laws." It goes on to state, "Enforcement reduces direct human exposures to toxic chemicals and pesticides and supports long-term human health protection." Ecology's Hazardous Waste and Toxics Reduction program has noted an increase in compliance violations. Making progress towards toxics and nutrient reductions will require compliance resources both inside and outside the agency to appropriately enforce environmental laws. We will support technical assistance programs such as local source control as well as innovative cost-share and loan programs for business that prevent pollution and improve air and water quality (2012-2016, $2.2 million).

(12) Evaluate Whether Water Quality Standards are being met for Toxics and Nutrients in the Puget Sound Ecosystem – For nutrients, Ecology will use the ongoing studies to evaluate if the water quality standards are being met. Ecology will work with our partners and stakeholders

in developing the TMDLs or other mechanisms as needed to improve water quality. For toxics human health criteria, the fish consumption part of toxics water quality standards need to be evaluated and updated. Many toxics issues in Puget Sound may be successfully addressed by funding Straight-to-Implementation projects for marine or freshwater (2012-2016, $2.5 million).

Cleanup Activities

(13) Prioritize and Accelerate Remediation and Cleanup of Hazardous Waste Sites in the Puget Sound Area – Draft FY 2011-2015 EPA Strategic Plan Goal 2 and Goal 3 acknowledge the need to cleanup and restore waters in order to support healthy ecosystems and promote sustainable, healthier communities. Action Agenda near term action C.5.1 calls for continued implementation of high-priority remediation and clean-up projects. While Ecology believes we need to shift resources to prevention approaches, we also believe there must be some level of cleanup. There are several ongoing activities designed to prioritize and accelerate cleanup projects in Puget Sound. Ecology will refine prioritization criteria for cleanup to incorporate the PSP's guiding principles for ecosystem management. Ecology is also developing rule revisions to clarify cleanup requirements for sediment cleanup. However, the key challenge in the next several years will be to better align and sequence source control, cleanup, and remediation projects. This will allow us to more effectively prevent recontamination of areas where legacy contamination has been cleaned up. This will also support efforts to reduce toxic loadings, restore ecosystem processes, and implement long term stewardship, as called for in Action Agenda item C.5 (2012-2016, $0.5 million).

C. Administration, Monitoring and Adaptive Management

(14) Monitor for Effectiveness, Measure Performance, and Adapt Programs as Necessary. We will support monitoring projects that measure the effectiveness of reduction strategies and progress towards desired outputs and outcomes. Appropriate effectiveness monitoring will depend on specific health/impact metrics to measure recovery. All projects will include a performance management system that includes adaptive management, monitoring, accountability and coordinated data management. These tasks are outlined in the Action Agenda Priority E, "Build an implementation, monitoring, and accountability management system." Ecology will accomplish this work in coordination with other Lead Organizations, the Partnership/Management Conference, and other arms of the Puget Sound Partnership, aligning with the dashboard of ecosystem indicators where possible (2012-2016, $0.5 million).

TIMELINE AND SEQUENCE

Part of the framework includes a basic sequencing of actions to address toxics and nutrients:

- Characterize the sources, pathways, loadings and environmental and human health effects of toxics and nutrients;
- Prescribe solutions to reduce the impacts;
- Take action by implementing identified solutions; and,

- Monitor the effectiveness of solutions so that future plans can be modified to improve actions taken.

For toxics, initial focus areas are: **alternatives assessment**, **PBTs**, and **stormwater**. Investment in safer alternatives assessment gets us closest to our goal of preventing toxic threats in the first place; we know PBTs are an ongoing problem and have already identified reduction strategies for three chemicals through Chemical Action Plans; and we know stormwater is a major pathway for toxics and nutrients entering the Sound. In the first year, Ecology would give priority to projects that support progress in one or all of these areas. For example, if the Toxic Loadings study points to a certain PBT in stormwater, Ecology would give priority to projects that address both. Projects in other areas would be incorporated over time using the four-step process outlined above (characterize, prescribe, implement, monitor).

For nutrients, funding in the first year is focused on **implementation** in areas with known problems (such as Hood Canal), **education**, and **technical assistance**. Over the six years of the grant, all parts of the nutrients strategy would be funded, with over half the funds going to implementing projects that will reduce nutrients.

YEAR ONE:

- Quickly conduct a process to develop project selection criteria and solicit and select projects that advance an alternatives assessment methodology, reduce use, release or loading of PBTs, control stormwater, reduce nutrient loading, advance education, and provide technical assistance. Begin work on projects.
- Establish performance measurement and effectiveness monitoring criteria for selected year one projects.
- Review results of Toxics Loading Study synthesis report and Puget Sound Dissolved Oxygen Model and incorporate findings into overall strategic framework.
- Establish process and criteria for selecting projects in following years.

YEAR TWO:

- Launch new projects, again giving priority to projects that advance alternatives assessments methodology, reduce PBTs, control stormwater, and implementation of actions to reduce nutrient loading.
- Assess existing data to identify gaps in our knowledge of toxic pathways, particularly with regard to emerging contaminants. This includes data gaps related to the presence of toxic chemicals in key biota and associated impacts.
- Conduct an alternatives assessment.
- Complete a CAP and begin implementing key recommendations.
- Review results of the South Puget Sound Dissolved Oxygen Study and incorporate findings into overall strategic framework.
- Incorporate projects that address other areas of the strategy. Explore broader outcome measures. Expand technical assistance programs.
- Review results from previous year and adapt projects as necessary.

YEARS THREE, FOUR, FIVE, and SIX:

- Incorporate projects that address other areas of the strategy. Introduce educational projects that include STORM. Analyze stormwater data and research technologies to reduce impacts. Pilot stormwater project. Include stormwater education component. Introduce projects to address emerging contaminants. Work on stormwater retrofit projects. Develop legislative strategies.
- Update Puget Sound evaluation of toxics in biota.
- Review results from previous year and adapt projects as necessary.

TIMELINE

Calendar Year Timeline	1 Q '11	2 Q '11	3 Q '11	4 Q '11	1 Q '12	2 Q '12	3 Q '12	4 Q '12	2013	2014	2015	2016
Finalize Project Scope with EPA-January 2011	x											
Develop and Launch Single Point of Access	x	x										
Adaptive Management Target Setting	x	x	x	x								
Advisory Council-Formation and Operations	x	x	x	x	x	x	x	x	x	x	x	x
Develop Strategy for 2012 - 2016		x	x	x								
Solicit Project Proposals for First Year --Toxics: Alternatives Assessment (#2), PBTs (#5), and Stormwater (#8) --Nutrients: Implementation (#7), Education (#6), and Technical Assistance (#8)	x											
Year 1 Project Selection		x										
Year 1 Funds Available			x	x	x	x	x	x	x	x	x	x
Year 1 Closeout												x
Develop Subaward Process for 2012-2016		x	x	x								
Solicit Project Proposals for 2012-2016				x	x			x	x	x	x	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
Monitorning/Closeout Report to EPA										x	x	x
Reconform Investments to 2011 Action Agenda								x				

OUTPUTS AND OUTCOMES

All projects funded under the strategic framework outlined above will be linked to specific outputs and outcomes. Where possible, linkages will also be made to the Puget Sound Partnership's dashboard of ecosystem indicators and the EPA's Strategic Measures outlined in Draft FY 2011-2015 EPA Strategic Plan. Data collected will inform the Puget Sound Management Conference's performance management system.

Toxics Outputs:

- Prioritized list of activities that clearly identifies projects to prevent, reduce, and control the major sources of toxics (especially PBTs) entering Puget Sound. This list would be synchronized

with high priority sediment cleanup projects to prevent/minimize recontamination of those areas. Completion of high priority chemical action plans (CAPs).
- Identification of the scientific data gaps in our understanding of the sources, pathways, loadings, and impacts from toxics and the research and resources needed to fill those gaps.
- A public education and outreach program to prevent, reduce, and control toxics from entering Puget Sound and minimize impacts to public health and the environment.
- Identified new or improved treatment and control technologies or strategies to prevent, reduce, and control the release of toxics.
- Expanded program to encourage the development of safer alternatives for products that contain or release toxics and programs that promote green chemistry. Completion of high priority alternatives assessments.
- Increased number of businesses adopting best management practices to reduce stormwater flow.
- 6-year strategy on how to reduce toxics loadings to Puget Sound, including project prioritization schemes and sub-award selection criteria.

Nutrient Outputs:
- Identification and prioritization of the major nitrogen-contributing sources and how much they need to be reduced to meet water quality standards.
- Identification of areas where water quality standards for nutrients are not being met in Puget Sound and activities needed to achieve standards.
- Identification of nitrogen and phosphorus sources in the watersheds that cause problems in freshwater or lead to problems in the marine water.
- Identification of efficient monitoring techniques and improved certainty in quantifying nutrient sources, transport, and fate in the Puget Sound ecosystem.
- Approve non-proprietary technologies for removing nitrogen in septic systems.
- A public education and outreach program to reduce nutrients from entering Puget Sound.
- 6-year strategy on how to reduce nutrient loadings to Puget Sound, including project prioritization schemes and sub-award selection criteria.

Toxics Outcomes:
- Improved human health.
- Altered behavior by consumers, communities, municipalities, and businesses with respect to reduced toxics use and increased use of safer alternatives, ultimately improving public health and the environment. (Link to PSP's Dashboard Indicator under development, Sound Behavior Index).
- Reduced quantity of high priority toxics entering the Puget Sound ecosystem.
- Improved function and productivity of the Puget Sound ecosystem.
- Increased jobs and economic development opportunities through green chemistry research and development.
- Decreased toxics in fish; specifically, Pacific herring, English sole and a salmon (PSP Dashboard Indicator). Improved biota health.

- Decreased toxics in sediment. Improved health of sediments with respect to 1) concentrations of toxics, 2) degree of toxicity, and 3) community structure of sediment-dwelling organisms. (PSP Dashboard Indicator).
- Improved compliance at regulated hazardous waste facilities.
- Reduced number of consumer goods containing toxic materials sold in Washington State.

Nutrient Outcomes:

- Reduced quantity of nutrients entering Puget Sound that impact the environment and human health.
- Increase dissolved oxygen concentrations (note: given year-to-year variability, identifying an improving trend will be difficult in the short time-frame of the project).
- Increased use of nitrogen-removing septic systems and decrease loading of nitrogen from septic systems.
- Reduced nitrogen and phosphorus loading from agriculture.
- Altered behavior by consumers, communities, and businesses with respect to nutrient use.
- By spending money more wisely, greater reductions in nutrient loading will be achieved with the available funds.

LEADERSHIP STRATEGY

A. 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 allow the 2-year benchmarks to be established, and the actions and strategies needed to achieve the benchmarks can then be identified. By using the Open Standards, this work can be accomplished in the revision of the Action Agenda in 2011. These targets will address 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 is the establishment of an adaptive management system to measure 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 and its requirements of grantees, and 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 both direct outputs and if the direct outputs are helping make progress toward the 2020 ecosystem targets. 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.

B. 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 will immediately establish a lead-staff coordinating team, including PSP staff, which will carry forward the highly collaborative and transparent process employed 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 of partners to oversee implementation of the strategy. 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, Local Integrating Organizations, 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 on implementation of the six-year strategy, including near-term priorities (ECB and entire Management Conference).
- Consulting on criteria for sub awards (Management Conference and LIOs).
- Providing final review of proposed annual investments designed to implement strategy (Leadership Council).
- Playing 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).
- Participating in adaptive management analysis and recommendations (Leadership Council and Science Panel).

C. Pubic Engagement, Outreach, Education, Stewardship and Communications: Collaboration with PSP

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.

D. 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 indispensible 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.

E. Coordination with Tribes

Puget Sound is part of a larger trans-boundary 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.

F. 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, NOAA, USFWS, USGS, 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. 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 PSP. Consistent with the proposed leadership structure, the LOs, co-leads and PSP would work to prioritize investments in each area of emphasis in consultation with the ECB.

G. Coordination with Canada

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

H. Funding Strategy and Subaward Projects

The subaward process proposed by Ecology 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, as well as a single application point.
- 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 work plans and priorities, as local priorities for implementing the Action Agenda are refined and identified as part of the work to be completed by LIOs through the EPA grant awarded to the Puget Sound Partnership to manage the Action Agenda.
- 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 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. 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 within a given area of emphasis. Such awards will focus particularly on actions 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. Activities funded through sub-awards will also assure that education and outreach activities are coordinated with the Puget Sound Partnership and will assure that all activities include some outreach and education component. Demonstration projects or studies that are funded will be required to include a dissemination component that assures the knowledge that is produced is communicated effectively; is useful to end users. The communications strategy will also ensure that the scientific and analytical information produced informs the on-going public conversation about Puget Sound.

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.

I. Cross-Cutting Issues: Actions that Cross RFP Areas of Emphasis

There are threats to Puget Sound recovery that cross jurisdictional boundaries, disciplines, and parts of the ecosystem. As a result, 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).

- Seek proposals from watersheds or jurisdictions that will implement solutions that address cross-cutting issues comprehensively. Lead Organizations will compare the six year strategies for the four areas of emphasis to identify high priority cross-cutting issues. Examples include (a) identifying and addressing critical connections among nearshore ecosystem processes and water and sediment quality (e.g., priority coastal inlets that may increasingly receive contaminated water from developing watersheds; (b) developing a comprehensive strategy to address the water quality and habitat impact of outfalls; and (c) Funding a network of effective advocates for Puget Sound recovery.
- Leverage additional funding through partnering with sister agencies to enact a state comprehensive sustainable funding strategy and with private entities, such as the Puget Sound Foundation. Lead organizations will work others to identify the appropriate amount of funding to designate for this purpose, based on the nexus of the six year strategies and the objectives of potential investors.

FINANCIAL MANAGEMENT SYSTEMS

The Department of Ecology uses an integrated, centralized financial management system model. Each year, Ecology successfully manages $550 million dollars in grants and contracts in Washington State ($83,029,619 in federal project expenditures in the fiscal year ending June 30, 2010), along with a $500 million loan portfolio.

Fast and accurate – Washington State ranked Best in Nation for ARRA. The national ARRA process tested the financial management capabilities of every state agency involved. Washington State was #1 in the country for the speed, accuracy, and completeness of our work.

Project and information management. Successful financial management is accomplished through active sub-grant management and support, and through stable, well-maintained information systems. We have actively managed sub-grants since the mid-1980's, without significant audit findings. Budgeting and accounting are conducted through centralized statewide systems. (http://www.ofm.wa.gov/isd/sysdefinitions.asp) Integrated with the statewide systems are agency systems tailored to specific functions. Ecology manages and tracks payments on loans and

contracts using our Contracts and Grants Payable system, a stable agency system with updates to run on a contemporary platform. With well-designed systems and experienced, well-trained staff, Ecology can not only award grants and contracts with confidence, but also detect and resolve potential problems early.

Field presence. Our regional and field office staff watch projects start and develop, confirm performance on-the-ground, and help us take corrective action early where needed. Our good working relationships with sub-grantees allow us to collaborate quickly to respond to unforeseen challenges, and ensure successful results within guidelines.

Reliable management of matching funds. Ecology's reliable financial systems have been designed and refined to budget, account for, and track the non-federal match linked to each federal fund source and sub-grantee project. Experienced staff understand federal match requirements, and are alert to any potential double-counting.

Accurate & Verifiable Distribution of Labor Costs. Within the agency, our time management system accurately distributes labor costs according to how time is actually spent. This positive time management system records the actual time employees spend on different projects. It provides a solid, accurate basis for the proper distribution of direct labor costs and the allocation of indirect overhead costs.

Financial Management for Results – Environmental Outcomes. Ecology incorporates environmental outcome monitoring and reporting within the scope of our sub-grantee project agreements. Sub-grantees continue to conduct monitoring and report results for a minimum of three years after project funding is closed.

PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

A. Past Projects

Revitalizing the Puget Sound Estuary Program (X-96028501) - Since 2006, this EPA grant provided nearly $2.5 million to the Washington Department of Ecology (Ecology) to accelerate and improve efforts to address the health of Puget Sound to help address issues in the Puget Sound such as: support planning through the Puget Sound Partnership development of the Puget Sound Management Plan; enhance public information and participation; provide grants to Puget Sound watershed areas to assist with integration of the existing salmon recovery, land use, and water quality efforts; and, advance science to improve understanding of pollution effects on the Puget Sound ecosystem. This grant contains 6 tasks and 12 sub-tasks. Each of these was a sub-award. Sub-awards involve several elements within Ecology, WDFW, Northwest Indian Fisheries Commission, NOAA, EPA, and private contractors. Semiannual progress reports were developed and submitted on time to EPA. To date, expected outputs and outcomes have been achieved for all tasks and sub-tasks except for tasks which continue to 6/30/2011. Each sub-award has an appointed project manager and Ecology designated a single point of contact to successfully manage, monitor, track and report to EPA. Added support is provided by a budget planner, fiscal office oversight, and quarterly reviews. Adequate and timely progress reports contain detailed discussions of each project, outputs, outcomes, and fiscal status of federal funds including status of match funding.

Puget Sound Estuary Program 2008-2009 Cooperative Agreement Enhancement (CE-96074401-3) - This grant provided a total of $ 7,347,209 for the purpose of developing source control strategies for toxics and nutrients entering Puget Sound. This project required complex technical work including sampling over large geographic area, laboratory and data analyses, and resultant detailed reports. Sub-awards involved several elements within Ecology, WDFW, EPA, US FWS, NOAA, and several private contractors. Semiannual progress reports were consistently developed and submitted on time to EPA. EPA designated the reports as models of grant reporting. To date, all expected outputs and outcomes have been achieved for tasks # 3, # 4, and sub-task 2H, while the remainder continues through 6/30/2011.

319 Nonpoint Source Program Grant for FFY 2009 and FFY 2010 (C-900044906-0) - Section 319 nonpoint source grant from EPA in the amount of $7,437,000 is provided for two years and is used to help implement the state's nonpoint program.

B. Organizational Experience. The Washington State Department of Ecology has consistently demonstrated the managerial, technical, administrative, legal, contractual, fiscal, and information systems capabilities needed to successfully achieve the objectives of this proposal. We have demonstrated a strong and successful record with sub-awards and federally funded projects. Ecology is ready to proceed with this grant to improve the waters of Puget Sound.

C. Staff Expertise, Qualifications, or Knowledge. Ecology staff and project managers have been leaders in the fields of nutrient, pathogen, and toxics removal and treatment, statewide NPDES permit policy and management, and NPDES permit implementation. Other staff working on these projects deal directly with development and implementation of dangerous waste regulations, and with NPDES, water rights, and water quality policy and procedure development. The Department of Ecology has the scientific, technical, administrative, and project management expertise to successfully manage this grant and its sub-awards. Andrew Kolosseus manages outreach and regulatory issues for the South Puget Sound Dissolved Oxygen Study and the Puget Sound Dissolved Oxygen Model. He has 11 years of experience on large projects for Ecology's Water Quality Program. Carol Kraege has worked in solid waste, toxics cleanup, and multi-media regulation of some of the state's largest industries. Carol is the toxics policy coordinator, working on toxics in products, PBTs, TSCA reform, stormwater runoff, and other issues. Mindy Roberts manages the Puget Sound and South Puget Sound DO modeling efforts as well as the surface water toxics loads to Puget Sound. Ecology will manage this program in partnership with Department of Health, who will provide assistance with on-site sewage issues and toxics-related human health assessments.

MATCH – The Department of Ecology has identified state dollars as the required match for year one of the toxics and nutrients proposal. The state match for this federal grant in the amount of $3 million will come from current appropriations for facilities projects from Ecology's Stormwater capital project, funded through the State Building Construction Account. These nonfederal matching funds are now committed to this proposal and they have not been previously used to provide nonfederal match for any other federal financial assistance grant or project.