

# Coastal Planning in Washington State: Providing Green Shorelines Guidance for State and Local Governments in Puget Sound

A Coastal Management Fellowship project proposal  
Submitted to NOAA Coastal Services Center

By

Washington State Department of Ecology  
Shorelands and Environmental Assistance Program  
PO Box 47600, Olympia, WA 98504-7600 360-407-6000



Photo of a green shoreline at Madrona Beach in Seattle

Gordon White  
Program Manager &  
Director of the Washington  
Coastal Zone Management Program

Geoff Tallent  
Section Manager  
Shorelands Program  
Northwest Regional Office

Joe Burcar  
Shoreline Planner  
Shorelands Program  
Northwest Regional Office

**October 20, 2011**

## 1. Introduction

The Washington State Department of Ecology Shorelands and Environmental Assistance Program, with support from Washington Sea Grant, the City of Seattle, and the Lake Washington/Cedar/Sammamish Watershed are pleased to present this proposal for consideration of a NOAA Coastal Management Fellowship project for the year 2012-2014. This proposal will facilitate the state's obligation to support improved implementation of recently updated shoreline management plans within 90 cities and 12 counties bordering Puget Sound. This proposal is directed at the **Competing Uses** strategic focus of the NOAA Coastal Fellowship program, with a focus on accommodating appropriate planned shoreline development while protecting and restoring ecological functions in shoreline areas.

To ensure the long-term health of Washington's coastal waters and to support a significant update to Washington's Coastal Management Program, we need a well organized and accessible compilation of *green shorelines* tools, techniques, and strategies to inform effective management and restoration priorities throughout the region.

The Coastal Fellow will assist state and local governments, tribes and other non-regulatory interests in promoting the use of *green shoreline* approaches in coastal management efforts throughout the Puget Sound region. The term *green shorelines* is used to describe a concept that can be generally characterized as promoting the use of natural materials and techniques to support sustainable coastal development or redevelopment in a manner that enhances ecological functions within the region.

Examples of *green shoreline* techniques include:

- Retention or reestablishment of shoreline buffers to reduce water pollution and improve shoreline habitat.
- Low-impact development that retains local soils and vegetation, minimizes building footprints, and reduces stormwater.
- The substitution or replacement of a hard concrete bulkhead with a softer bioengineered solution to re-create aquatic habitat lost to past development actions; this might include beach nourishment and planting of native vegetation for erosion control.

Promoting *green shorelines* entails the use of partnerships, incentive programs, outreach, technical support, regulation, and performance monitoring. The Coastal Fellow will be exposed to all of these areas, with an opportunity to focus on specific areas aligned with his or her skills or interests. The 2012-2014 timing of this fellowship opportunity is especially exciting as there currently are a number of ongoing *green shoreline* related protection and restoration efforts upon which this fellowship will be able to build and a new set of regulatory requirements that will create a demand for green shorelines.

## 2. Background

### *Project Need*

Potential impacts associated with future development and redevelopment of existing shoreline uses presents an ongoing management challenge, but also provide an opportunity to encourage and direct new development towards more suitable, sustainable techniques.

Puget Sound is the second largest natural estuary in the United States and consists of over 2800 miles of marine shoreline. It is home to 4.4 million people, which equates to 67 percent of the state's population

and 73 percent of the state's employment<sup>1</sup>. Most of the shoreline of Puget Sound is privately owned and designated to support single-family residential uses. It is estimated<sup>2</sup> that over the last 125 years, 70 percent of Puget Sound's critical nearshore habitat like salt marsh, eelgrass beds, and estuaries have been damaged by or completely lost to development. According to a report prepared by the Puget Sound Nearshore Partnership<sup>3</sup>, more than one-third of the shorelines within the region have been armored to protect existing shoreline uses, thus contributing cumulative impacts to nearshore habitats through loss of riparian vegetation and disruption of physical shoreline processes.

Looking to the future, regional population projections<sup>4</sup> predict 40-60 percent growth in the Puget Sound within the next 25-years. This growth is anticipated to fuel increased development pressure on the shoreline and attendant loss of habitat, potential for increased water pollution, and desire for shoreline armoring. Compounding this situation, sea-level rise is anticipated<sup>5</sup> to result in more requests to armor shorelines throughout Puget Sound.

### *Coastal Management in Washington State*

The core of Washington's federally approved Coastal Zone Management (CZM) Program is the [Shoreline Management Act](#) (SMA). Enacted by the state legislature in 1971, the SMA began as a citizen initiative to address concerns over increasing and uncoordinated coastal development. The SMA's statewide policy expresses the need to protect ecological functions while encouraging public access and support for water-dependent development. Washington's coastal program relies on individual cities and counties to manage their coastal areas through targeted land use regulations, delineated in locally-developed [Shoreline Master Programs](#) (SMPs). The state provides minimum requirements, funding, guidance, and technical support for locally developed SMPs, which must be approved by the State Department of Ecology.

Washington is in the midst of a significant effort to update 260 city and county SMPs statewide by 2015. A central requirement of these updates is to manage both new development and redevelopment of existing uses in a way that results in 'no net loss of shoreline ecological functions'. The Department of Ecology and local governments are quickly moving from the planning stage to implementation of these updated Shoreline Master Programs. *Green shorelines* will play an important role in helping jurisdictions satisfy the 'no net loss of ecological function' policy goal through use of innovative and sustainable redevelopment techniques. Additional information related to shoreline management in Washington State can be accessed at: [www.ecy.wa.gov/programs/sea/shorelines/index.html](http://www.ecy.wa.gov/programs/sea/shorelines/index.html)

### *Green Shorelines Efforts*

In support of recently updated city and county shoreline management plans, the timing of this fellowship provides a unique opportunity for a NOAA Coastal Fellow to work on guidance that builds on past and present *green shorelines* efforts and provide accessible guidance to state and local governments and other interested parties that will promote *green shoreline* approaches. Several of the recent and current *green shorelines* efforts are outlined below.

---

<sup>1</sup> [http://www.ecy.wa.gov/puget\\_sound/Overview.html](http://www.ecy.wa.gov/puget_sound/Overview.html)

<sup>2</sup> [www.ecy.wa.gov/puget\\_sound/threats.html](http://www.ecy.wa.gov/puget_sound/threats.html)

<sup>3</sup> PSNRP Technical Report 2007-04 - [www.pugetsoundnearshore.org/technical\\_papers/beaches\\_bluffs.pdf](http://www.pugetsoundnearshore.org/technical_papers/beaches_bluffs.pdf)

<sup>4</sup> Puget Sound Action Team, 2007 Puget Sound Update

<sup>5</sup> USGS Scientific Investigation Report 2010-5254 - <http://pubs.usgs.gov/sir/2010/5254/>

### *Green Shorelines for watershed-based salmon recovery*

Following the 1999 listing of Chinook salmon as threatened under the federal Endangered Species Act, 27 local governments, businesses, community groups, state and federal agencies within the Lake Washington/Cedar/Sammamish Watershed, also known as Water Resource Inventory Area #8 (WRIA 8)<sup>6</sup>, began working together to develop and implement a Chinook Salmon Conservation Plan. Research supporting the plan showed that juvenile Chinook salmon heavily depend on high-quality shallow lakeshore habitat during their critical outmigration stage of their life history. However, the condition of shoreline areas of Lake Washington and Sammamish are highly developed. There is little vacant land, and about 70 percent of shoreline properties have bulkheads, rip rap, or other armoring. King County, where most of WRIA 8 is located, is the most populated area of the state. The WRIA 8 partners developed the *green shorelines* concept to encourage changes on shoreline properties. The City of Seattle developed a *green shorelines guidebook* titled *Green Shorelines: Bulkhead Alternatives for a Healthy Lake Washington*. The guidebook is intended to introduce the concept of bulkhead alternatives to property owners through photographs and drawings of shorelines with native vegetation and shallow graded beaches. The examples in the guidebook are attractive, improve access to the water and restore habitat preferred by juvenile Chinook salmon. For more information about *green shorelines* initiatives in King County, please see: [www.govlink.org/watersheds/8/action/greenshorelines/default.aspx](http://www.govlink.org/watersheds/8/action/greenshorelines/default.aspx)

### *Green Shorelines Steering Committee*

The Green Shorelines Steering Committee produced a report in May of 2010 summarizing a series of coordination meetings with staff from regional natural resource agencies, consultants, contractors, non-governmental organizations, elected officials, shoreline property owners, and anyone else who might be interested in promoting the *green shorelines* concept. Based on these meetings, the Steering Committee attempted to capture both the challenges to and opportunities for promoting *green shorelines*. The report summarizes recommendations from workshop participants and provides overall recommendations from the Green Shorelines Steering Committee. The Green Shoreline Steering Committee continues to meet, with the sponsors of this fellowship as key participants.

The Green Shorelines Steering Committee report can be found at:  
[www.govlink.org/watersheds/8/action/greenshorelines/GreenShorelinesWorkshopReport.pdf](http://www.govlink.org/watersheds/8/action/greenshorelines/GreenShorelinesWorkshopReport.pdf)

### *Green Shores for Homes*

The City of Seattle, Washington Sea Grant, San Juan County, and Islands Trust<sup>7</sup> are partnering on a 4-year “Green Shores for Homes” grant from the Environmental Protection Agency’s Puget Sound Watershed Management Assistance Program. The project will focus on both freshwater and marine shorelines and will create a ratings and incentive system to promote sustainable coastal development, similar to use of the LEED™ system for green building certification. The overall goal of the project is to encourage and accelerate adoption of sustainable green building and development practices that can be verified through 3<sup>rd</sup> party certification. The Green Shores for Homes project will help to satisfy the following recommendations from the Green Shorelines Steering Committee Report: (1) *Identification of Sites Appropriate for Green Shoreline Approaches*, (2) *Providing Technical Assistance to Homeowners*, and (3) *Coordination with Industry Design Standards and Best Practices*.

For more information about the Green Shores for Homes project, please see  
[www.wsg.washington.edu/communications/seastar/stories/a\\_11.html](http://www.wsg.washington.edu/communications/seastar/stories/a_11.html)

---

<sup>6</sup> Washington State natural resource agencies divided the state into 62 major Watershed Resource Inventory Areas (WRIA).

<sup>7</sup> Islands Trust is a planning agency for the Gulf Islands of British Columbia.

### ***WDFW Marine Shoreline Design Guidance***

The Washington Department of Fish And Wildlife (WDFW) has recently begun to develop guidance related to a variety of alternative erosion control approaches for Puget Sound marine shorelines, including such measures as beach nourishment, vegetation, and the use of anchored logs. This project will evaluate a number of existing projects and will focus on design guidance for the technical community. Upon completion, this Marine Shoreline Design Guidance will help to satisfy following recommendations from the Green Shorelines Steering Committee Report: (1) *Providing Technical Assistance to Homeowners*, and (2) *Provide and Monitor Demonstration Projects*. Most of all, the design guidance will provide contractors and consultants with an important tool supporting consideration of softer shoreline protection alternatives.

For more information related to WDFW guidance for Puget Sound Marine Shorelines, please see: [http://pubs.usgs.gov/sir/2010/5254/pdf/sir20105254\\_chap21.pdf](http://pubs.usgs.gov/sir/2010/5254/pdf/sir20105254_chap21.pdf)

### **3. Project Description**

The Fellowship project provides a unique opportunity for a motivated Fellow to be a part of ongoing efforts within Puget Sound to promote *green shorelines*. Guidance produced through this Fellowship is intended to assist state agencies, local governments, and other interested parties in prioritizing and then promoting appropriate *green shoreline approaches* to improve the ecological health of Puget Sound. Depending on the skills and specific interests of the Fellow, this guidance could include: definition of categories or types of *green shoreline* approaches, informative examples, regulatory tools, incentives, education and outreach topics, evaluation of similar efforts in other regions, or development of a method to measuring program success.

### **4. Goals and Objectives**

The goal of this project is to assist state and local partners in developing guidance to help promote appropriate *green shoreline* approaches for Puget Sound. Working with Ecology and the advisory group to accomplish this goal, the Fellow will seek to meet the following objectives:

**Objective 1:** Identify and assemble information on green shorelines or similar efforts being considered or implemented in Washington and by other states or regions around the country;

**Objective 2:** With the support of the state, local governments and interested parties, prioritize *green shorelines* guidance needs;

**Objective 3:** Work with partners to develop guidance to promote appropriate *green shoreline* approaches in Puget Sound.

Depending on the skills and interest of the Fellow, this guidance may focus on one or more of the following themes; (1) Incentives (regulatory or non-regulatory) to promote *green shoreline* approaches, (2) Evaluation or monitoring to determine the effectiveness of *green shoreline* approaches in achieving anticipated goals, (3) Identification of outreach strategies and/or coordination opportunities to help guide agencies and interested parties through development of this *green shoreline* initiative.

**Objective 4:** Work with partners to prepare and disseminate outreach materials related to *green shorelines* guidance. This could take many forms, including a written report, social media or web site or targeted outreach materials.

## 5. Milestones and Outcomes

### **Spring 2012**

Ecology to participate in NOAA Coastal Fellowship matching workshop and selection event.

### **June or July 2012**

Ecology will encourage and financially contribute to a pre-fellowship planning visit to introduce the Fellow to the geographic area, work environment and key project partners.

Once in place, the following tasks represent milestones and outcomes for the 2013-2014 fellowship:

Task	Focus	Milestones	Timeline
1	Fellow Orientation: <ul style="list-style-type: none"> <li>Finalize project focus</li> <li>Complete detailed work plan</li> </ul>	Multiple meetings with project partners and advisory group to discuss and agree on project focus/work-plan.	August – October 2012
2	Information gathering, research review, expert identification	Document contacts, develop and share with advisory group research plan/timeline.	November 2012 – April 2013
3	Project Analysis Produce draft document	Produce draft Guidance outline or document in consultation with advisory group. Prepare and present at the 2013 Coastal Zone Conference.	March – July 2013
4	Project review and revision	Implement plan to obtain formal review in coordination with advisory group and other interested parties.	August 2013 – February 2014
5	Outreach	Depending on final project focus, solicit feedback on guidance from a broader audience independent of advisory group.	March – April 2014
6	Finalize guidance	Finalize guidance document including an outreach strategy to promote the report. Prepare and present at the 2014 Coastal Society Conference.	May – July 2014
7	Finalize project	Prepare final report documenting the project.	August 2014

The Fellow will be encouraged to attend relevant coordination meetings, trainings or other opportunities to gain exposure and understanding of how government and non-governmental organizations work on regional coastal management and restoration efforts. When opportunities come about, the Fellow will be encouraged to present work to a variety of regional audiences that could include; city or county shoreline planner forums, agency trainings, or non-profit group focused on restoration.

## 6. Fellow Mentoring

Joe Burcar, Regional Shoreline Planner, will serve as the principle mentor for the Coastal Management Fellow. Joe is an experienced mentor to graduate students and has over 12-years of coastal management experience with both local and state agencies. Joe was an early leader in *green shorelines* as a member of the Lake Washington Green Shorelines Steering Committee and has also researched and presented on the topic at multiple regional and national conferences.

Geoff Tallent, Shorelands Program Regional Section Manager, will serve as the management mentor for the Coastal Management Fellow. Geoff is an experienced mentor and manager, oversees the development of over 80 city and county coastal land use plans, and is directly involved in *green shoreline* efforts. Geoff was the 2011 recipient of the Governor's Award for Distinguished Leadership in Management.

The Coastal Fellow will be based out of the state coastal program's regional office in the Seattle area (Bellevue, WA). The regional office is responsible for the first wave of city and county Shoreline Master Program updates and is the first area of the state to widely implement *green shoreline* approaches as part of recently updated shoreline management efforts. The regional office is also in close proximity to the cosponsors of this fellowship – City of Seattle, King County, and Washington Sea Grant – and the advisory committee members from those organizations.

The location in the regional office will give the Coastal Management Fellow a chance to work closely with coastal planners and technical experts working on the front line. The Fellow will be able to take advantage of the Department of Ecology's close relationships with city and county officials, the development community, and local NGOs. The regional office also offers a chance to get out in the field and see existing shoreline development and *green shorelines* examples first hand.

The following key Ecology staff will participate in the Fellowship as advisory group members, providing technical guidance:

Hugh Shipman is a Coastal Geologist with Ecology. Hugh is nationally recognized as a leading authority in assessment of shoreline armoring and sea-level-rise impacts in Puget Sound. Hugh was the lead author of a 2010 [USGS Scientific Investigation Report](#) summarizing the proceedings of a 2009 scientific workshop focused on Puget Sound shorelines and the impacts of armoring.

Erik Stockdale is a Senior Wetlands Scientist and unit supervisor with Ecology. Erik provides technical assistance to state and local agencies in wetland ecology, management and regulations. Among other tasks, Erik is a primary author of a guidance publication related to identification of the jurisdictional high water mark for marine and fresh waters of Washington State.

Stephen Stanley is a Senior Ecologist with Ecology. Stephen has been instrumental in leading investigations and producing technical guidance ranging from creation of landscape assessment tools to identification of wetland functional assessment methods.

Principle external partners who will serve in the advisory group include the following:

[Sea Grant of Washington](#) Coastal Resources Specialist, Katrina Hoffman is actively involved in the Green Shores for Homes effort described above. Washington Sea Grant has provided a letter of support for this Fellowship application and will serve as a valuable advisor to the Coastal Fellow.

[City of Seattle](#) Senior Planner, Margaret Glowacki is currently leading development of the City's Shoreline Master Program update and is also actively engaged with the Green Shores for Homes effort. Margaret will serve as a valuable local government resource for this Fellowship project.

[Lake Washington/Cedar/Sammamish Watershed - WRIA 8](#) Annette Frahm is the Green Shorelines Outreach Coordinator for the Lake Washington/Cedar/Sammamish Watershed (WRIA 8). Annette has been working in environmental marketing and communications for more than 25 years. She wrote an outreach and education strategy for WRIA 8 to address gaps in implementation of the Salmon Conservation Plan. The strategy highlighted *green shorelines* as a continuing priority.

[Washington State Governor's Office of Regulatory Assistance](#) (ORA) Zelma Ziemann is a Regional Lead for the Governor's Office of Regulatory Assistance in the Northwest Region. ORA provides permit assistance, multi-agency facilitation and coordination within a variety of regulatory sectors. Zelma has 20 years of experience in environmental permitting. For the past two years, she has been working with partner agencies in WRIA 8 regarding *green shorelines* efforts.

## 7. Project Partners

This project is intended to be highly interactive including direct collaboration with a variety of regional partners. In addition to the advisory committee describe above (external mentors), Ecology could foresee facilitating partnerships as a component of this fellowship with the following entities:

- Local government partners involved in implementation of Shoreline Master Programs. Fellow natural resource state agencies, which could include the Washington Department of Natural Resources, Washington Department of Fish and Wildlife, Washington State Parks & Recreation or the Puget Sound Partnership.
- Non-regulatory groups such as a Washington State University Extension Office, local county Beach Watchers, or Shore Stewards organization.
- Federal natural resource agencies and regional Native American tribal entities.

## 8. Cost Share Description

The Department of Ecology will contribute both in-kind support and \$15,000 non-federal cash match from the Department's state budget. The Coastal Management Fellow will be a member of the Department of Ecology's Shorelands and Environmental Assistance program and will have access to all equipment and services available to fellow agency staff, including office space, supplies, telephone, personal computer, software, remote calling card, fax, and internet and e-mail access. Agency vehicles will be available for work-related use. In addition, Ecology will provide funds for necessary regional travel, training opportunities, and purchases of data products and software. Office administrative, publishing support and computer staff are available as well as a GIS and cartography center. Ecology's Core Training Program offers over 30 different training classes that will be available to the Coastal Fellow.

Further amenities available at Ecology's [Northwest Regional Office](#) include nearby walking trails, park areas, and easy access to regional public transportation. Ecology will also provide a transit pass for work and personal use that covers buses, van pool fares, light rail, and commuter trains within the region. The regional office is located 10 miles from downtown Seattle. The Fellow can live in or near Seattle, with easy access to urban amenities and excellent outdoor recreation opportunities.

## 9. Strategic Focus Area

The project described in this proposal is intended to address Strategic Focus Area I - ***Competing Uses*** including ***"Projects related to the marine and land use planning process and framework."***

The Fellow's work will help improve coastal management and related land use planning throughout Puget Sound by focusing on opportunities to integrate and promote the use of green infrastructure to ensure protection and enhancement of regional ecosystem services.

## Appendix – Letters of Support