



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT  
Silver Spring, Maryland 20910

Ted Sturdevant, Director  
Washington Department of Ecology  
P. O. Box 47600  
Olympia, Washington 98504-7600

Dear Mr. Sturdevant:

Enclosed are the final evaluation findings for the Padilla Bay National Estuarine Research Reserve (NERR) for the period from October 2004 through September 2009.

The fundamental conclusion of this evaluation is that Washington is adhering to the programmatic requirements of the NERR system in its operation of the approved Padilla Bay NERR. This document contains four recommendations, none of which is mandatory.

We appreciate your cooperation and assistance and that of your staff during the accomplishment of this evaluation.

Sincerely,

Donna Wieting  
Acting Director

Enclosure

cc: Gordon White, Program Manager, Shorelands and Environmental Assistance Program,  
Washington Department of Ecology  
Terry Stevens, Manager, Padilla Bay NERR  
Nina Garfield, Estuarine Reserves Division, OCRM, NOAA  
Robin Elledge, Operations Manager, South Slough NERR

**FINAL EVALUATION FINDINGS**  
**PADILLA BAY NATIONAL ESTUARINE RESEARCH RESERVE**  
**October 2004 through September 2009**

June 2010



Photo credit: NOAA/Dept .of Commerce



Photo credit: NOAA/Dept. of Commerce



Photo credit: Padilla Bay NERR



Photo credit: Padilla Bay NERR



Office of Ocean and Coastal Resource Management  
National Ocean Service  
National Oceanic and Atmospheric Administration  
U.S. Department of Commerce

## TABLE OF CONTENTS

I.	EXECUTIVE SUMMARY .....	1
II.	PROGRAM REVIEW PROCEDURES .....	2
	A. Overview .....	2
	B. Document Review and Issues Development .....	2
	C. Site Visit to Padilla Bay National Estuarine Research Reserve .....	3
III.	RESERVE PROGRAM DESCRIPTION .....	4
IV.	REVIEW FINDINGS, ACCOMPLISHMENTS, AND RECOMMENDATIONS .....	6
	A. Operations and Management .....	6
	1. Administration and Staffing .....	6
	2. Management Plan .....	7
	3. Facilities and Infrastructure .....	7
	4. Coordination and Partnerships .....	9
	5. Padilla Bay Foundation Support .....	11
	6. Geographic Information System Program .....	11
	B. Research and Monitoring .....	12
	1. Research Activities .....	12
	2. Monitoring .....	15
	C. Education and Outreach .....	16
	1. Education and Outreach Programs .....	16
	2. Coastal Training Program .....	18
	D. Stewardship and Resource Management .....	19
V.	CONCLUSION .....	22
VI.	APPENDICES .....	23
	APPENDIX A. Summary of Accomplishments and Recommendations .....	23
	APPENDIX B. Response to Previous Evaluation Findings Dated 2005 .....	26
	APPENDIX C. Persons and Institutions Contacted .....	28
	APPENDIX D. Persons Attending the Public Meeting .....	29
	APPENDIX E. NOAA's Response to Written Comments .....	30

## I. EXECUTIVE SUMMARY

The Coastal Zone Management Act (CZMA) of 1972, as amended, established the National Estuarine Research Reserve System (NERRS). Sections 312 and 315 of the CZMA require the National Oceanic and Atmospheric Administration (NOAA) to conduct periodic performance reviews or evaluations of all federally approved National Estuarine Research Reserves (NERRs). The review described in this document examined the operation and management of the Padilla Bay National Estuarine Research Reserve (NERR or the Reserve) during the period from October 2004 through September 2009. The Reserve is administered by the Washington Department of Ecology.

This document describes the evaluation findings of the Director of NOAA's Office of Ocean and Coastal Resource Management (OCRM) with respect to the Padilla Bay NERR during the review period. These evaluations include discussions of major accomplishments as well as recommendations for program improvement. The fundamental conclusion of the findings is that the State of Washington is successfully implementing its federally approved NERR.

The evaluation team documented a number of Padilla Bay Reserve accomplishments during this review period. Many Reserve staff members provide significant leadership at regional and national levels and have made important contributions to those efforts. The Reserve has an extensive network of partnerships and collaborative efforts that are indicative of excellent integration and increased efficiencies for all. Its educational programs and the Coastal Training Program (CTP) are addressing climate change adaptation, and the CTP developed a climate change adaptation workshop module that is now available nationally for all the NERRs to use or adapt. The CTP has received accreditation by the American Planning Association for all of its classes; the Reserve has completed lab certification requirement for analysis of chlorophyll a; and the Reserve is certified by the state as a 'clock hour provider' for teachers needing to take classes and training to maintain their certification. The Reserve has effectively eradicated all non-native *spartina* from Reserve property.

The evaluation team also identified a few areas where the Reserve and its programming could be strengthened. The team met with three of the six Graduate Research Fellows (GRFs) the Reserve hosted during this evaluation period. All three expressed a strong interest in having more opportunities to get to know each other, get to know the Reserve staff, and to learn more about activities at the Reserve. The Reserve should promote greater integration of the GRFs into Padilla Bay NERR programs through a variety of mechanisms. The Reserve is urged to look for partners and mechanisms, such as easements, to make access to, and research on, the Bay from private tideland and upland properties easier for researchers. The Demonstration Farm (also known as the Peth Farm) currently is leased to a farmer, but its ultimate use has not been determined. The Reserve should work with the Washington Department of Fish and Wildlife (who own adjacent property whose use is also not determined) and stakeholders to complete a planning process and develop a plan for the use of the Demonstration Farm. Finally, the Reserve needs better access and location signage to assist user groups in locating the Reserve.

## II. PROGRAM REVIEW PROCEDURES

### A. OVERVIEW

The National Oceanic and Atmospheric Administration (NOAA) began its review of the Padilla Bay Reserve in July 2009. The §312 evaluation process involves four distinct components:

- An initial document review and identification of specific issues of particular concern;
- A site visit to Washington, including interviews and public meetings;
- Development of draft evaluation findings; and
- Preparation of the final evaluation findings, partly based on comments from the state regarding the content and timetables of recommendations specified in the draft document.

The recommendations made by this evaluation appear in boxes and bold type and follow the findings section where facts relevant to the recommendation are discussed. The recommendations may be of two types:

**Necessary Actions** address programmatic requirements of the CZMA's implementing regulations and of the Padilla Bay Reserve approved by NOAA. These must be carried out by the date(s) specified;

**Program Suggestions** denote actions that NOAA's Office of Ocean and Coastal Resource Management (OCRM) believes would improve the program, but which are not mandatory at this time. If no dates are indicated, the state is expected to have considered these Program Suggestions by the time of the next CZMA §312 evaluations.

A complete summary of accomplishments and recommendations is outlined in Appendix A.

Failure to address Necessary Actions may result in a future finding of non-adherence and the invoking of interim sanctions, as specified in CZMA §312(c). Program Suggestions that are reiterated in consecutive evaluations to address continuing problems may be elevated to Necessary Actions. The findings in this evaluation document will be considered by NOAA in making future financial award decisions relative to the Padilla Bay Reserve.

### B. DOCUMENT REVIEW AND ISSUES DEVELOPMENT

The evaluation team reviewed a wide variety of documents prior to the site visit, including: (1) Padilla Bay Reserve §312 evaluation findings dated 2005; (2) federally approved Environmental Impact Statement and program documents; (3) financial assistance awards and work products; (4) semi-annual performance reports; (5) official correspondence; and (6) relevant publications on natural resource management issues in Washington.

Based on this review and on discussions with OCRM, the evaluation team focused on the following issues:

- major accomplishments during the review period;
- status of Reserve staffing and needs;
- facilities development and maintenance and/or land acquisition efforts;
- status of general administration of the Reserve and management plan revisions;
- status of implementation of the Reserve's research, monitoring, and education programs;
- the manner in which the Reserve coordinates with other governmental and non-governmental organizations and programs in the state and region; and
- the manner in which the Reserve has addressed the recommendations contained in the §312 evaluation findings released in 2005. The Padilla Bay Reserve's assessment of how it has responded to each of the recommendations in the evaluation findings dated 2006 is located in Appendix B.

### **C. SITE VISIT TO PADILLA BAY NATIONAL ESTUARINE RESEARCH RESERVE**

Notification of the scheduled evaluation was sent to the Washington Department of Ecology, members of Washington's congressional delegation, and regional newspapers. In addition, a notice of NOAA's "Intent to Evaluate" was published in the Federal Register on July 30, 2009.

The site visit to the Padilla Bay Reserve was conducted from September 22 – 25, 2009. The evaluation team consisted of Ms. Chris McCay, Evaluation Team Leader, National Policy and Evaluation Division, OCRM; Ms. Nina Garfield, Program Specialist, Estuarine Reserves Division, OCRM; and Ms. Robin Elledge, Operations Manager, South Slough (Oregon) National Estuarine Research Reserve.

During the site visit, the evaluation team met with Padilla Bay Reserve staff, staff from the Washington Department of Ecology, coastal researchers, educators, local government staff and officials, Padilla Bay Foundation members, and non-profit organizations. Appendix C lists people and institutions contacted during this review.

As required by the CZMA, NOAA held an advertised public meeting on Wednesday, September 23, 2009, at 7:00 p.m. at the Padilla Bay National Estuarine Research Reserve Interpretive Center, 10441 Bayview-Edison Road, Mt. Vernon, Washington. The public meeting gave members of the general public the opportunity to express their opinions about the overall operation and management of the Padilla Bay Reserve. Appendix D lists individuals who registered at the meeting. NOAA's responses to written comments submitted during this evaluation are summarized in Appendix E.

The Padilla Bay Reserve staff members were crucial in setting up meetings and arranging logistics for the evaluation site visit. Their support is most gratefully acknowledged.

### III. RESERVE PROGRAM DESCRIPTION

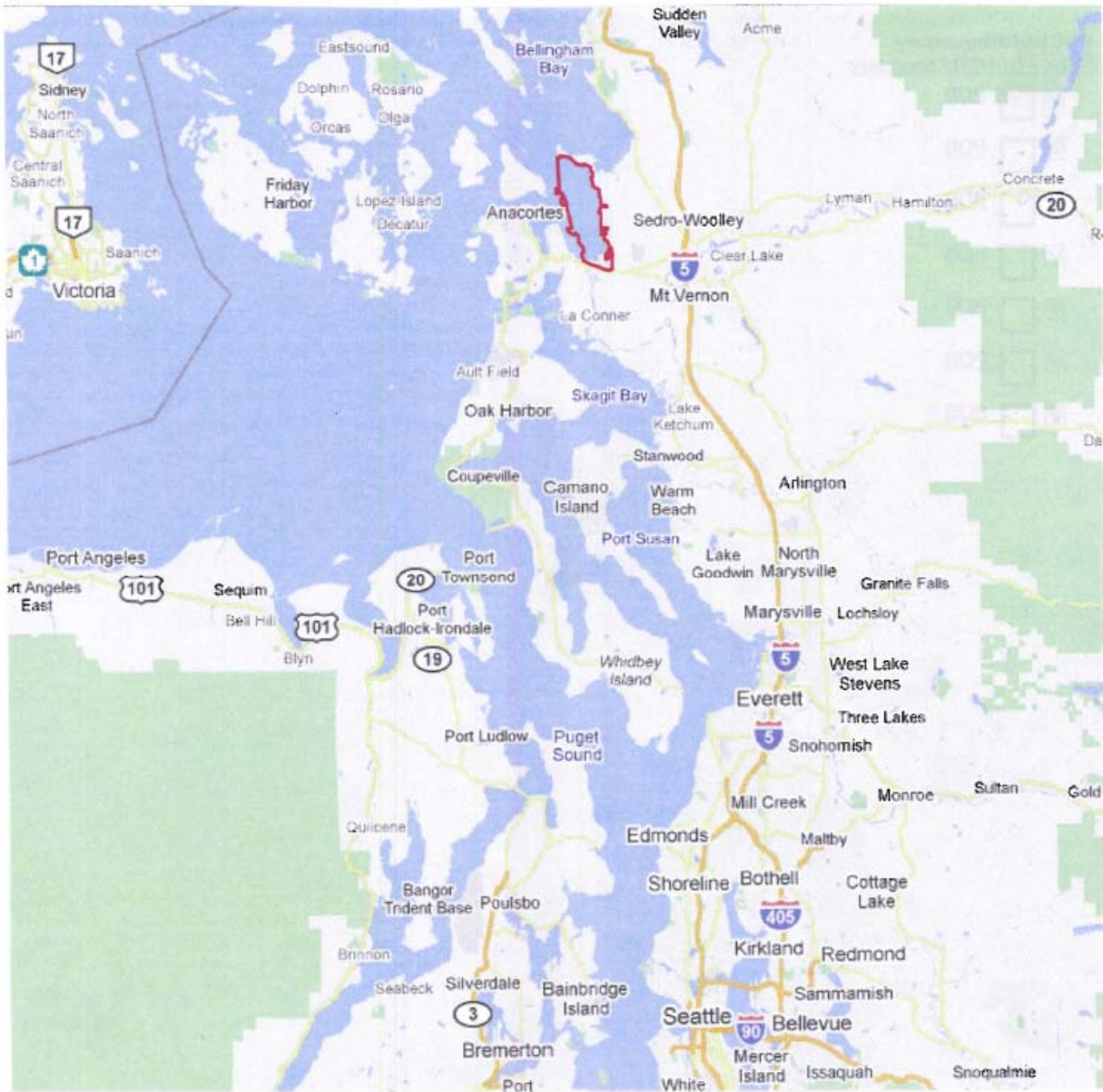
NOAA's Office of Ocean and Coastal Resource Management designated the Padilla Bay National Estuarine Research Reserve (NERR or the Reserve) in 1980. The lead agency is the Washington Department of Ecology (Ecology), Shorelands and Environmental Assistance (SEA) Program.

Padilla Bay is located north of Seattle in Skagit County, in the northern reaches of greater Puget Sound, on the southeastern fringe of the San Juan Archipelago. The Reserve boundary as proposed and adopted in 1980 contains 13,500 acres, including privately owned parcels, and over 1,700 subdivided tideland tracts. Through purchase, donations, litigation and settlement, and cooperative management with other agencies since 1980, the Reserve owns and manages approximately 12,100 acres. Hat Island was added to the Reserve in 1999, is owned by the Washington Department of Natural Resources (WDNR), and is co-managed by WDNR and the Reserve. It is a state-designated Natural Resource Conservation Area. Other state agencies own 400 acres, and the Reserve has cooperative agreements with them. The remaining acreage (half in farmland, half in tidelands) is still in private hands.

The surrounding region is part of the Skagit Valley agricultural complex, one of the most fertile regions in the world. There are two major oil refineries located at adjacent March Point and an inland marine transportation system used extensively for commerce and recreation by major urban centers in the area.

The Reserve protects one of the largest beds of eelgrass in the contiguous United States. Padilla Bay covers more than 14,000 acres of a broad, flat intertidal embayment disconnected from normal flows of the Skagit River due to diking. Habitats within the reserve are predominately aquatic, with most of its habitat dominated by eelgrass (*Zostera marina* and *Z. japonica*), with a smaller portion of its boundary including uplands, freshwater sloughs, and high salt marsh. Habitats in the Padilla Bay NERR support herring, smelt, pink and chum salmon, flatfish, Dungeness crab, ducks including black brant, eagles, shorebirds, and peregrine falcons. Mammals found in Padilla Bay include harbor seals and river otters.





**PADILLA BAY NATIONAL ESTUARINE RESEARCH RESERVE**



## **IV. REVIEW FINDINGS, ACCOMPLISHMENTS, AND RECOMMENDATIONS**

### **A. OPERATIONS AND MANAGEMENT**

#### **1. Administration and Staffing**

The Reserve has been managed by the Department of Ecology, Shorelands and Environmental Assistance (SEA) Program (the state's coastal management program) since designation. This has been a positive and effective relationship, and the integrated working partnership serves both programs, the resources, and citizens of the state, as noted throughout this document.

Everyone with whom the evaluation team met spoke highly of the staff's professionalism, dedication, and knowledge. The Reserve plays a network coordination role in regional efforts, many of which are discussed elsewhere in these findings, and that role is recognized by its many partners. Staff members have leadership roles at both regional and national levels. The Reserve and its education staff hosted the NERRS Education Coordinators meeting in 2005. The Education Coordinator served as founding chair of the KEEP (K-12 Environmental Education Program) Work Group, was principal author of the KEEP description documents, and is currently a member of the NERRS distance learning work group. Another education program staff member serves on the NERRS climate change work group. The Coastal Training Program (CTP) coordinator is the chair of the NERRS national climate training workgroup and serves on the CTP marketing workgroup and oversight committee. The Reserve manager serves on the SEA Program's coastal management team. The GIS specialist is a member of the NERRS national habitat mapping and change plan technical committee and serves on the Northwest Straits Marine Conservation Initiative science team. Assuming all of these roles is indicative of the value the staff places on NERR systemwide efforts and in turn provides significant contributions to those efforts.

Reserve staff hosted the Northwest GIS User's Conference at Padilla Bay in 2005 and 2007. During the development of the Puget Sound Partnership, staff served on the Puget Sound Monitoring Consortium, Puget Sound Partnership's science and research planning workshop, and the Whidbey Basin management and research priorities workgroup. During this evaluation period staff members gave numerous presentations and posters at a variety of regional and national meetings and conferences.

Padilla Bay Reserve has faced and continues to face the same national and state economic downturns and challenges that other reserves do. It was able to maintain a level and slightly increased budget from 2005 through 2007, but beginning in 2008, state revenues declined rapidly, and state operational funds for the reserve (and all state agencies) were faced with a series of steep cuts. Two education FTE positions had been funded with Section 306 monies from the state's coastal management program, but with the loss of that funding, one position was cut, and the second was moved to funds the Reserve receives from the NOAA B-WET (Bay

Watershed Education and Training) Program. The Reserve expects to lose funding for another position and face reductions in maintenance support, travel, and other budget areas in the upcoming fiscal year. The Reserve has been able to maintain almost all positions and programming because of diverse funding strategies – it has over 27 funding sources – and the support it receives from the Padilla Bay Foundation and the Department of Ecology. However, the tasks involved in maintaining such a large number of funding sources do create an administrative burden on staff and are a major portion of the manager’s workload. The Americorps program sponsored by Ecology has provided three full time equivalent positions each year from 2005-2009. These positions assist with general operations, research/monitoring, and education and allowed additional work to be accomplished in all areas.

**ACCOMPLISHMENT: The Padilla Bay Reserve has effectively maintained its staff positions and full programming in the face of economic decline and has provided well-respected and knowledgeable leadership at regional and national levels.**

## 2. Management Plan

The last evaluation findings dated August 2005 included a Necessary Action that required the Reserve to complete revisions to its management plan. The Reserve has since completed and printed its revised management plan and posted it on the Reserve’s website.

Throughout the management plan, there are numerous references to the collaboration and coordination role the Reserve will continue to maintain with a variety of agencies and partnerships. The management plan provides a framework to direct the activities of the Reserve. It identifies goals and objectives that are long term strategies and actions that are shorter term tasks to be accomplished in two-five years. Although the revised plan is less than two years old, the Reserve is conducting activities according to the plan, as is noted in sections of this findings document following this section.

## 3. Facilities and Infrastructure

The Breazeale family, who had lived in the Bay View area since before the 1900’s and operated a dairy farm on Padilla Bay, was instrumental in the fight to keep the mud flats of Padilla Bay undeveloped. Edna Breazeale was the last family member to live on the farm. In 1973 she arranged a life-tenancy for the property and donated the 64 acres of land to the state of Washington. The land was transferred to the Department of Ecology in the early 1980s and became part of the Reserve when it was designated in 1982. Edna Breazeale continued to live in the farm house until her death in 1987. The farmhouse then became part of the Reserve’s facilities.

During this evaluation period the Reserve dedicated a significant amount of time and resources to the design, bidding, financial management, and construction of several facilities at the Reserve, including the remodeling and expansion of the Breazeale Interpretive Center,

construction of the new laboratory, remodeling of the barn with the addition of solar panels, construction of a guest house, and the remodeling of the Breazeale House.

Until the new lab was completed, research, monitoring, and field science support were carried out in a semi-remodeled portion of the barn. Completion of the new laboratory has enabled growth of the NERRS system-wide monitoring program, the Reserve and regional research demands, and services for graduate research fellows. The new guest house can accommodate 16 residents, who used to be accommodated in the barn. The barn, in turn, has been modified to provide earthquake stability, improved storage capacity, upgraded maintenance areas, and a day-use area for visiting researchers and staff. It has also been fitted with a 112-panel photovoltaic solar generation system on the roof that provides electrical consumption offsets to the Reserve's demand and costs. This is part of the Reserve's ongoing efforts begun before this evaluation period to make the campus sustainable, both to benefit the Reserve and to serve as a model and educational opportunity for the region. In fact, some architects and engineers visit the Reserve to see and discuss with staff the sustainability aspects of the campus.

Given these factors, as well as the Reserve's involvement in climate change education (discussed in Section C. Education and Outreach) and its Coastal Training Program course in planning for climate change (discussed in Section C Education and Outreach; Coastal Training Program), an opportunity exists to use the Reserve facilities as a lab setting to offer some formal training or seminar, perhaps through the Coastal Training Program, for architects, contractors, and others interested in learning how to incorporate "green" and energy efficient elements into both new and existing building design, construction, and renovation.

The Reserve has also begun a remodel of new aquaria and exhibits for the Interpretive Center, expansion of the parking lot, construction of a boat garage, and renovation of the boat ramp. The Department of Ecology has actively supported the Reserve in facilities development and maintenance.

**ACCOMPLISHMENT: The Reserve's new and enhanced facilities and infrastructure are well designed and built to meet all program needs, and sustainability components are integrated throughout the entire campus.**

The only area for improvement noted by numerous people with whom the team met is that better signage is needed to provide direction and access to the Reserve. The evaluation team also noted that there was little, if any, directional signage from major roadways and gateway points.

**PROGRAM SUGGESTION: The Department of Ecology and the Reserve should design and install directional access signage from major roads and gateway points to assist user groups in locating the Reserve.**

#### 4. Coordination and Partnerships

Padilla Bay Reserve places a high priority on coordination and partnerships with a wide range of entities. Many of the results of these partnerships and program coordination are discussed throughout these findings.

One of the Reserve's strongest partnerships is with the Ecology SEA program, which is the state's coastal management program. The primary audience of the Reserve's CTP is shoreline planners. Shoreline development permits are processed by local governments, which also make decisions about the permits. The coastal management program then approves, approves with conditions, or denies a permit. Thus, local governments and the coastal management program both benefit from well-trained local government shoreline planners.

The Reserve provides GIS training and develops products for the coastal management program. Reserve staff also review Coastal and Estuarine Land Conservation Program applications at the state level. SEA program staff review the Padilla Bay Research Assistantship and Graduate Research Fellowship applications and refer students and projects to both of these programs. Reserve research staff participated with other scientists from a variety of units within the SEA Program on the SEA Technical team and the SEA QA/QC Implementation Workgroup. Reserve research staff participated with other SEA and Ecology staff on the Sea Lettuce Panel and workgroup, helping to understand the problem of the accumulation and decay of sea lettuce on beaches, applying Reserve research to the problem, and helping communities deal with rotting sea lettuce and its odor on their beaches. During this evaluation period the coastal management program provided funding for two Reserve positions – a watershed coordinator (position was subsequently not funded) and an education and outreach specialist, who coordinates volunteer Stream Team monitoring (discussion below).

Another strong partnership exists between the Reserve and the Northwest Straits Marine Conservation Initiative (NW Straits Initiative). The NW Straits Initiative was created by congressionally directed funding in 1998 to restore and protect the NW Straits' marine resources. The Northwest Straits region includes the marine waters, nearshore areas, and shorelines of the San Juan Islands, the U.S. side of the Strait of Juan de Fuca, and northern Puget Sound reaching from the southern border of Snohomish County to the Canadian border, thus encompassing all of Padilla Bay NERR. The NW Straits Initiative is housed at the Padilla Bay Reserve, and the Reserve manager provides administrative oversight for the Initiative's budget and staff.

The Initiative carries out projects and activities that are driven by sound science, local priorities, community-based decisions, and the ability to measure results. It provides guidance and resources to seven locally-established Marine Resources Committees (MRCs) (one per county within the NW Straits region), which set local priorities and design marine restoration and protection projects, provide stewardship information to local residents, and work in coordination with their local elected officials. In addition to supporting the MRCs, the NW Straits Initiative Commission also manages marine conservation projects on the regional scale.

The Reserve's management plan discusses the operational partnership it has with the NW Straits Initiative and the many opportunities that exist for joint programming and projects, including

education, habitat restoration, scientific study, and monitoring. At the time of the site visit, the Reserve's GIS coordinator, who is partially supported by NW Straits Initiative funding, was combining a habitat suitability model for forage fish spawning beaches and a dataset of surveyed forage fish spawning sites. This NW Straits regionwide project is being used to identify suitable habitat where survey data is sparse, provide a tool for identification and prioritization of potential restoration sites, and analyze forage fish protection policies and strategies. The Reserve has produced maps for each of the seven Northwest Straits counties.

The Skagit Conservation District (SCD) and the Reserve have had a long and productive partnership. The SCD focuses on soil, water, and forests and provides voluntary, incentive-based options that support working landscapes while protecting and enhancing natural resources. To do this the SCD provides education, conservation, and technical assistance. It has created a Stream Team using volunteers to conduct water quality monitoring (a Storm Team conducts monitoring during rain events). The Reserve trains the volunteers and provides lab space for them. The Stream Team uses 64 volunteers drawn from throughout the County and monitors at stations in No Name Slough, Joe Leary Slough, and Bayview drainage, which consists primarily of ditches. The Reserve is able to identify 'hot spots' from the Stream Team data, and the volunteers often directly contact the county commissioners with that information. The Reserve and the SCD are jointly serving on the environmental technical committee for Skagit County's Floodplain Management Plan.

Washington Sea Grant and the Reserve work closely together as well. The Reserve manager sits on Washington Sea Grant's Advisory Committee. In recognition of the collaboration between the two, a coastal resources specialist from Washington Sea Grant's Marine Advisory Service works from an office at the Reserve three days per week. The Reserve provides a point of access to the resources of the Department of Ecology, while Sea Grant provides access to the resources of the University of Washington. Sea Grant serves on the Reserve's Coastal Training Program (CTP) Advisory Committee and was involved in the CTP "Planning for Climate Change" workshop. Sea Grant provided \$25,000 to support the Reserve's teacher training efforts that are also being funded through the B-WET program funding. This effort is further discussed under the "Education and Outreach" section that follows. During this evaluation period, Sea Grant and the Department of Ecology collaborated on research and management requirements for a geoduck aquaculture program.

Through a partnership with the State Health Department, the results of Storm Team monitoring are submitted to the Health Department. Shellfish growers now voluntarily close their fisheries based on these results, because they lose fewer shellfish than they would if they harvested first and then had to throw away shellfish after a closure has been announced.

All of these partnerships have helped the Reserve to establish positive relationships with local land owners and stakeholders in the county and state and have had ecological and socioeconomic benefits.

**ACCOMPLISHMENT: The Reserve's strong partnerships are indicative of excellent integration and increased efficiencies through collaborative planning of its programs and highlight the staff expertise within local, regional, and state management structures.**

## 5. Padilla Bay Foundation Support

The Padilla Bay Foundation is a membership-based non-profit organization formed in 1987. Its mission is to help preserve the Padilla Bay estuary through support of the Padilla Bay NERR. The Foundation has been particularly generous through financial support for a variety of activities and programs at the Reserve. It has purchased education equipment and provides funding for displays at the Interpretive Center. Most recently it provided partial funding for a large buoy originally built for the open ocean to be modified and deployed at the deep water Gong site in Padilla Bay, thus enabling water quality data collection to resume at the site. The GIS program was able to purchase photogrammetry suite software through the Foundation.

The Foundation has raised funds in excess of \$200,000 during this evaluation period for construction match and for furniture and fixtures for the guest house and for the meeting room and kitchen in the Interpretive Center expansion. The Foundation financially supports a speaker series at the Reserve, generally hosting about 25 speakers per year on subjects of interest (climate change, for example) to an audience that sometimes exceeds 90 attendees. It also hosts an annual environmental presentation funded by the Smith-Aguero Trust.

The Foundation provides scholarships for selected Washington Conservation Corps students at the Reserve and funding for interns and assistants conducting research into the ecology of Padilla Bay and Puget Sound.

The Foundation has provided lab equipment for the Reserve through funding from court-imposed penalties for water quality violations. The equipment is also used for Storm Team water quality monitoring. The Foundation has been chosen twice through a competitive process for this funding. Should it receive these monies again, the Foundation is considering funding a position to serve as a coordinator of various monitoring programs and to analyze and synthesize data collected. The evaluation team agrees that this would be a good use of such funding.

**ACCOMPLISHMENT: During this evaluation period, the Padilla Bay Foundation has been particularly generous in its support of the Reserve's mission and programs by providing funding, equipment, scholarships for Washington Conservation Corps students at the Reserve, and for interns and assistants conducting research at Padilla Bay.**

## 6. Geographic Information System (GIS) Program

Padilla Bay Reserve's GIS program is a strong, key component in all of the Reserve's programs, and it serves many partners as well. It is responsible for data acquisition, data maintenance, archiving, networking with the GIS community, and support to all sectors with mapping and GPS needs. In April 2005 the GIS facility moved into the new lab building. In May 2006 it joined the Department of Ecology network, and a shared drive accessible by all staff was established for GIS data and projects.

As part of the NERRS habitat mapping and change plan, the Reserve is developing its habitat map for long-term change. The GIS program created numerous maps for the Reserve's



management plan; created emergency equipment maps for each building and area calculations of mowed and maintenance areas; black brant migration pattern maps; and a heron camera wireless connection map. For the CTP, the GIS program created a map of telemetered IOOS sites in Alaska, Canada, Washington, Oregon, and California.

Stewardship assistants are trained in GPS and map-making to map creosote, thistle, blackberry, *Spartina*, and other invasives. Hat Island inventories are made each year using a GPS and digital photos. The photos are linked to their respective GPS locations in the GIS database. A standard grid of points is generated and uploaded to the GPS to assist in inventorying invasive thistle on the densely forested island.

The Reserve has done GIS work for the Skagit Conservation District. For the No Name Slough watershed characterization, the Reserve created a variety of maps that the District used to develop restoration alternatives, feasibility, and prioritization. For the Samish Watershed characterization project, the Reserve created maps of the watershed with a focus on the identification of protected or conserved lands and land use change from commercial farming to hobby farms and duck hunting areas. The watershed is home to commercial shellfish beds that are often closed by high fecal coliform contamination.

For the Department of Ecology watershed characterizations project, the Reserve developed GIS data layers, applied analysis and produced maps for identification of sub-basin wetland protection, restoration, or development for five coastal watersheds. Local governments can use the characterization information to support the development of local shoreline master plans and critical area ordinances.

As discussed earlier in these findings under the “Coordination and Partnership” section, the Reserve’s GIS program, with funding support from the NW Straits Initiative, is combining a habitat suitability model for forage fish spawning beaches and a dataset of surveyed forage fish spawning sites to produce maps for seven counties.

<p><b>ACCOMPLISHMENT: The Reserve’s GIS program provides significant assistance and leadership to county, regional, and state officials and staff. It has developed an impressive array of products and services to support all program sectors in the Reserve as well.</b></p>
---

## **B. RESEARCH AND MONITORING**

### **1. Research Activities**

According to the Reserve’s management plan (June 2008), the Reserve’s research is focused on issues surrounding the following topics:

- Eelgrass
- Faunal communities associated with eelgrass
- Non-native species and their roles and impacts
- Stewardship issues for which research is needed to make appropriate management decisions

- Watershed-estuary interactions, including agriculture-estuary interactions
- Contaminants and nutrients
- Species of special concern, such as salmon, Dungeness crab, herring, and scoters

During this evaluation period, more than 20 visiting scientists to Padilla Bay conducted research in the Bay themselves or with students, gave seminars at the Reserve, or worked with Reserve staff on research projects. Several CICEET (Cooperative Institute for Coastal and Estuarine Environmental Technology) proposals were developed and submitted as joint proposals from the Reserve and other institutions. One joint CICEET proposal was funded to develop a hydrodynamic model of Whidbey Basin, including Padilla Bay, with links to models in areas of estuarine restoration and to models of juvenile salmon movement through estuaries. It is still ongoing.

Some other examples of research being conducted at the Reserve during this evaluation period include, but are not limited to, the projects summarized below being conducted by Graduate Research Fellows and Padilla Bay NERR Research Assistantship recipients:

- **Sediment Accretion in Eelgrasses:** This research will contribute to an existing computer model of *Zostera* growth and modify an existing relative elevation model of Padilla Bay mudflats. The development of these models will be used to investigate the effects of sea level rise, elevation gain, and sedimentation rates on the maintenance of Padilla Bay seagrass beds. Further application of these models may be used to predict how environmental alterations, such as floodwater diversions, eutrophication, and proposed management plans may alter seagrass habitat.

- **Habitat for Scoters:** Scoters are diving ducks and depend on availability of food sources on the sediment surface. To identify mechanisms sustaining diving duck populations within estuarine ecosystems, this research will (1) compare seasonal changes in scoter prey depletion, foraging parameters, and scoter distributions at two research areas, one with a hard-mixed substrate (Penn Cove), and one with soft-bottom eelgrass beds (Padilla Bay) and (2) examine a possible shift of scoter foraging profitability from hard-mixed substrate in mid-winter to soft-bottom eelgrass habitat in late winter to early spring.

- **Impact of Climate Change on Mussel Bed Communities:** Mussel beds are home to hundreds of epifaunal species. Organisms inhabiting the intertidal zone must withstand pounding waves, temperature extremes, and air exposure as the tides move in and out. While mussel beds can withstand the changing tides, global climate change may cause damage to these diverse ecosystems. If current carbon dioxide emission trends continue, it is possible that mussels will remain smaller for longer periods of time and be less able to protect associated epifauna (organisms which live among the mussels) from temperature extremes, which may also increase due to global climate change. This research will show how mussel size and mussel bed temperature impact epifaunal communities.

Padilla Bay Reserve invests in the future of estuarine research through its support of graduate student researchers. During this five-year evaluation period, 10 graduate students were supported by Padilla Bay Research Assistantships in Estuarine Science and Coastal Zone

Management. The assistantships provide \$5,000 over 18 months to each student. The 10 students were Ph.D. and M.S. candidates in eight departments from three area universities. These assistantships were funded from a variety of sources, particularly the Padilla Bay Foundation and Tesoro Oil Company. All applications were reviewed by the Padilla Bay Research Advisory Committee and other scientists, and assistance and orientation were provided to assist their research in Padilla Bay.

Six graduate students also have been active in research in Padilla Bay as NERRS Graduate Research Fellows (GRFs) during this evaluation period. The Reserve's Research Advisory Committee reviewed project proposals, and the Reserve provided orientation and assistance during their research. During the evaluation site visit, the evaluation team met with three GRFs. One of them had been able to participate in the OCRM Estuarine Reserves Division's first national introduction to the GRF program (offered in a Web-Ex format); the other two had not. All three agreed that a national introduction would always be very helpful and urged that it be continued.

**ACCOMPLISHMENT: Padilla Bay NERR addresses key research priorities by providing significant assistance and resources to numerous graduate students through both the NERRS Graduate Research Fellowship program and the Reserve's Research Assistantships in Estuarine Science and Coastal Zone Management.**

The three GRFs also expressed a strong interest in having more opportunities to get to know each other, to get to know the other Reserve staff, and to learn more about activities at the Reserve. As part of the site visit, the GRFs made presentations on their research to the team and to the Reserve staff. The GRFs and attending staff said the experience was a positive learning experience for all and hoped to continue it. The current GRFs were also not aware of all of the System-wide Monitoring Program (SWMP) data from the Reserve that was available for their use.

**PROGRAM SUGGESTION: Padilla Bay Reserve should promote greater integration of the GRFs into the Reserve's programs: 1) look for opportunities to encourage camaraderie among its GRFs; 2) promote SWMP data and use more effectively to the GRFs; 3) have GRFs give regular periodic updates and presentations on their research to the other Reserve staff; and 4) promote greater integration of the GRFs into Reserve programs.**

One issue raised by the GRFs that is an issue for some other researchers was access to and research in the numerous tideland tracts. Getting to the Bay often requires crossing upland private properties and using and crossing private tidelands in order to conduct research on suitable sites. While it is acknowledged that attempts to work with landowners have been made, it is sometimes a difficult and time-consuming task for Reserve staff. The Reserve staff and the evaluation team discussed the possibility of the acquisition of access easements from property owners around the Bay as one way to address this issue. The same concern was discussed with the Padilla Bay Foundation, which perhaps could partner with the Skagit Land Trust in an effort to acquire easements. Any endeavor to accomplish ease of access should thoughtfully assess the need, the potential impacts, and where the access should be sited.

**PROGRAM SUGGESTION: The Reserve should seek partners and mechanisms, such as easements, to make access to, and research on, the Bay from private tideland and upland properties easier for researchers.**

The previous evaluation findings dated August 2005 included a Necessary Action requiring completion of the Reserve's site profile. That has been accomplished.

## 2. Monitoring

The Reserve's System-wide Monitoring Program (SWMP) is in full compliance with NERR SWMP requirements. This includes water quality monitoring with datasondes at four sites (a deep water Bay site ("Gong"), Bayview, Ploeg Channel, and Joe Leary estuary (the marsh/saltwater side of Joe Leary Slough). The Joe Leary estuary site replaced the freshwater site at Joe Leary after 14 years, because the freshwater side of the slough filled with sediment, occasionally covering the probes. The slough is periodically dredged, at which time sediment disturbance covered the probes, with further data being lost. Three of the sites are telemetered so that real-time data is transmitted to the Visitor Center for viewing as well as to the NERRS Centralized Data Management Office. Compliance with the NERR SWMP requirements also includes monitoring of nutrients above the minimum at four sites and monitoring weather at the Padilla Demonstration Farm.

The Reserve began new biological monitoring in Padilla Bay during this evaluation period. Rates of settlement of barnacles at the water quality sites are being measured in a project initiated in coordination with the Smithsonian Institution and the West Coast Invasives project. Zooplankton monitoring at the water quality sites was initiated with a Reserve GRF and is now being carried out by Reserve staff. Monitoring of rocky intertidal communities on Hat and Saddlebag Islands in Padilla Bay has been initiated in coordination with MARINE, a west coast rocky intertidal monitoring consortium and is being carried out by Reserve staff.

At the time of the site visit, the Reserve had almost completed the requirements to receive state lab accreditation for chlorophyll a analysis. This accreditation would then enable the Reserve to be accredited for other sampling parameters as well, which will save thousands of dollars when samples no longer have to be sent to the University of Washington.

**ACCOMPLISHMENT: The Reserve's System-wide Monitoring Program exceeds minimum requirements for nutrient monitoring, and the Reserve has completed lab certification requirements for analysis of chlorophyll a.**

The Reserve also benefits from volunteer monitoring programs, and in turn the Reserve trains the volunteers and provides lab space for them. The Stream Team and Storm Team water quality monitoring were discussed in the "Coordination and Partnerships" section. Monitoring for the

non-native green crab and baseline saltmarsh monitoring are conducted as part of the Reserve's stewardship activities.

**ACCOMPLISHMENT: Reserve staff members provide training for Stream Team and Storm Team water quality monitoring volunteers and provide lab space for their use.**

## C. EDUCATION AND OUTREACH

### 1. Education and Outreach

The Reserve's management plan (June 2008) notes that recent surveys indicate that Washington state citizens are mostly unaware of the problems affecting Puget Sound, and citizens' roles in causing and repairing the problems. The Reserve is working closely with the Puget Sound Partnership and other organizations to inform and involve citizens in creating a healthy Puget Sound. To that end, the Reserve's education, interpretation, and outreach activities are designed to meet several objectives:

- GIS and stewardship program tools and projects will be integrated into educational and interpretive programming;
- enhance people's ability and willingness to make informed decisions and take responsible actions that affect coastal communities and ecosystems;
- target audiences will gain substantial knowledge and awareness of estuaries and coastal systems and make informed decisions;
- programs will be evaluated and needs assessments conducted;
- educational tools and resources will be updated;
- Padilla Bay NERR education program staff will be involved in regional planning and decision-making regarding the direction and content of Puget Sound education efforts.

The depth and breadth of the educational programs at Padilla Bay Reserve were apparent to the evaluation team. The Reserve has an impressive array of educational programs and educational partnerships that reach students, teachers, volunteers, and the general public. The programs focus on estuaries, watersheds, and how decisions affect these coastal ecosystems. The remodeled and expanded Brazeale Interpretive Center is an excellent facility in which to offer classroom programs in concert with field experiences. School group programs are offered for specific grade levels, and other public/family and adult programs are offered as well. During the five years covered by this evaluation period, the Reserve's educational programs reached approximately 36,500 people. The programs are always booked to capacity, and requests and registrants frequently have to be turned away. A needs assessment and evaluation of all these programs as called for in the Reserve's management plan will help to establish the impact of these activities and provide additional direction to increase their effectiveness.

In addition to the programs offered at the Reserve, the staff has developed curricula at three grade levels – K-3 (Level I), 4-8 (Level II), and high school (Level III) – for teachers or others to use in the classroom. They are intended to complement a visit to Padilla Bay, but are also appropriate for students studying estuaries anywhere in Washington State. All three focus on

Padilla Bay as the example with a focus on eelgrass and mud flat habitats. The Reserve received a grant from the Russell Family Foundation in 2004 for curriculum development, which is being continued with a NOAA B-WET (Bay Watershed Education and Training) Program grant the Reserve received in 2008. The B-WET grant also provides funding for teacher training and evaluation in addition to curriculum development.

In Washington State, teachers need to accumulate professional credits to maintain teacher certification. This can be in the form of college credits or “clock hours.” Ten clock hours are the equivalent of one college credit. The State Office of Public Instruction allows organizations to register and become a clock hour provider. Padilla Bay Reserve is a certified clock hour provider through the teacher training and workshops it offers. This certification requires a professional review committee to review and pre-approve each class the Reserve wants to offer for clock hours to meet content and quality standards.

Teachers with whom the evaluation team met praised the Reserve staff and its programs, particularly the flexibility of staff to open facilities early, for example, because of the timing of the tides, and for staff’s preparedness and the delivery of information.

Every high school student in the state is required to complete a “culminating” project (e.g., a thesis, study, or project). With a grant from the Puget Sound Partnership to the Padilla Bay Foundation, the Reserve is working to develop a network of mentors and connections with schools to connect students to projects that help improve the health of Puget Sound.

In 2006 a video camera was set up to take live video in the heron colony near Anacortes. Since that time “Heron Cam” live video is seen in the Interpretive Center. The Reserve’s website has a link to Heron Cam as well.

The Reserve was a live host site in 2004, 2006, and 2009 for EstuaryLive. It is one of the sponsors of the annual “Storming the Sound” conference for environmental educators in the north Puget Sound region. (The other partners in sponsoring include Deception Pass State Park, North Cascades National Park, Skagit County and the Skagit Conservation Education Association.) This one-day event began in 2000, and every year registration has been full at 130 people, with a waiting list. This event has been so successful that the organization “People for Puget Sound” now organizes a “Storming the Central Sound” and “Storming the South Sound.”

**ACCOMPLISHMENT: The Reserve has established itself as an important and credible resource for teachers, thereby ensuring educational programming for the public and non-formal groups contributes to increased literacy. Its curriculum development and program reach has expanded with the addition of B-WET funding, for example, and it continues to provide popular educational programs for K-12 students and other groups at the Interpretive Center.**

Padilla Bay Reserve is addressing climate change education through several new programs. “Climate Stewards” is a new adult education and volunteer program. Citizens receive 36 hours of training about climate change, and then provide 36 hours of volunteer service to reduce the



carbon footprint at home, work, or in their communities. “Cool Schools” is a program in which students learn how to decrease the carbon footprint in schools. Middle school and high school teachers receive training to introduce them to the Cool School Challenge and how it can be used to engage students in effective strategies to reduce carbon dioxide emissions, and then the classes carry out a challenge. The “Skagit Cool Community Campaign” is a project the Reserve co-sponsors, in which the participants learn a variety of ways to lower their carbon footprints and reap benefits from neighbors helping neighbors to save money, find commuter alternatives, share tools, weatherize, and more.

**ACCOMPLISHMENT: The Reserve is addressing climate change education with new programs to engage students, teachers, and interested members of the public.**

## 2. Coastal Training Program

Padilla Bay Reserve’s Coastal Training Program (CTP) offers practical, science-based training to professionals who make decisions about coastal management. The Coastal Training Program targets shoreline planners: city and county shoreline planning and permitting staff; consultants who advise local governments and private clients in planning issues; staff from state regulatory agencies who advise local planners, process permit applications, and enforce environmental regulations, and tribal biologists and resource managers who manage aquatic lands. All of Washington’s coastal counties and cities are required to periodically update and implement their shoreline master plans, and the CTP offers many classes to assist them in this effort. The CTP is based on a ‘course catalog’ model. As classes are developed, they are offered on a regular basis until the demand diminishes. Generally one or two new classes are added each year. Classes have been developed and taught by Ecology staff, state and local agencies, consultants, and Padilla Bay Reserve staff. During this evaluation period, the CTP offered 95 classes with 152 days of training for 2,848 participants.

The Reserve is justifiably proud that it has received accreditation by the American Planning Association for all of its CTP classes, so these class credits can be used by planners towards maintaining their own certification. In addition, the CTP has regularly exceeded several of the required minimum standards for training programs in the NERRS performance measurement system.

A more recent course CTP offering, “Planning for Climate Change,” began with a grant from NOAA’s Coastal Services Center to create a climate change adaptation workshop that could be customized by other reserves and other coastal managers. The workshop was created and piloted by the Reserve, Washington Sea Grant, King County, and the University of Washington’s Climate Impacts Group (a Regional Integrated Sciences and Assessments (RISA) program funded by NOAA’s Climate Program Office). The training covers current climate change research findings and anticipated impacts and primarily focuses on actions that can be taken to prepare and adapt to the anticipated impacts. The partners held two pilot workshops at different locations in Washington, which received positive feedback.

The Reserve continues to offer the course through its CTP. It has also placed all the workshop materials – agenda, PowerPoint presentations, and streaming video of each of the two pilot workshop sessions – on the NERRS national website for use by other reserves. A reserve can closely follow these materials or adapt them to develop its own needs assessment and use local case studies and local scientists. About ten reserves are now offering climate change workshops based upon Padilla Bay Reserve’s CTP climate change workshop model.

**ACCOMPLISHMENT: The Padilla Bay Reserve’s Coastal Training Program has received accreditation by the American Planning Association for all of its classes. It has developed a climate change adaptation workshop module that is now available nationally for all the NERRs to use or adapt.**

#### **D. STEWARDSHIP AND RESOURCE MANAGEMENT**

The Reserve’s 2008 management plan outlines the protection, conservation, and restoration objectives for stewardship and natural resource management at Padilla Bay NERR:

- Reserve lands and habitat will be protected through acquisition or easement
- manage and improve Reserve habitats and resources
- take cooperative and proactive measures to insure long-term integrity of resources
- stewardship and monitoring data will become the basis for informed resource management decisions
- GIS applications and tools will improve stewardship capabilities
- improve exhibits and outreach initiatives to support Reserve programs
- Engage citizens in stewardship activities
- restoration will be based on sound science and thorough environmental evaluation and assessment techniques
- restoration will involve collaboration with multiple partners
- manage or cooperate in restoration projects in the Reserve and throughout the watershed.

Many reserves conduct or accomplish programs or activities related to land acquisition, enforcement, restoration, restoration science, technical advice and support, and community education under the general rubric of stewardship and resource management. Because Padilla Bay Reserve has so successfully integrated its research and education components, elements of stewardship and resource management are identifiable in almost all of its activities and programs, as can be seen in the discussions above.

Many of the Reserve’s stewardship activities include an active volunteer component. During this evaluation period, 72 volunteers spent 1,425 hours involved in projects. The stewardship sector collected four years of baseline emergent salt marsh data and in 2008 implemented a broader marine invasive species monitoring program. Under this program, strandline surveys were conducted and no new invasive species were identified on the shorelines that were surveyed. The Reserve continually monitors for non-native crab but has not found any.

The Reserve has actively and successfully reduced and almost eliminated all non-native *Spartina*. In 2005 there were 17 acres of *Spartina*; in 2009 there was approximately .002 acre. This non-native/noxious weed will require ongoing vigilance from the Reserve because there are seed sources outside of Reserve boundaries.

With the assistance of a consultant, the stewardship coordinator has developed an upland habitat management plan for the 64 upland acres within the Reserve's boundaries. Several tasks in the plan involve the control and/or removal of upland non-native plants and noxious weeds, including shiny geranium, English ivy, reed canarygrass, and Canadian thistle. As part of the upland habitat management plan, approximately one acre of Himalayan and evergreen blackberry were removed over a two-year period and replanted with native species. This is improving the diversity of plants in the forest edge and re-establishing habitat for native birds and mammals along one section of the Reserve's upland trail.

Hat Island is owned by the Washington Department of Natural Resources (WDNR), and is co-managed by WDNR and the Reserve. It is a state-designated Natural Resource Conservation Area, which means public access is allowed but camping is not. The island is accessible only by boat. The Reserve makes at least one trip annually to Hat Island to document use of the island, document wildlife, check on posted signs to make sure they are still in place, take photos, and pick up trash at the most likely boat access point. Staff has attempted to do some thistle control, but areas where most of the thistle appears are very steep and rocky and the interior of the island is very difficult to traverse. At this time the Reserve does not have sufficient resources to attempt further thistle control.

Other, but not all, stewardship activities carried out in this evaluation period include:

- In 2009 the Reserve developed and offered a series of stewardship workshops for the general public: *Amazing Water*, *The Wonder of Wetlands*, *Landscaping with Native Plants*, *Aliens in Our Midst* (non-native species), and *Friendly Forests: Life Support on Earth*.
- The Reserve published its first Conservation and Restoration Plan progress report in March 2009, addressing progress made toward the goals and objectives in the Final Conservation and Restoration Plan (November 2007) for the Reserve.
- The Reserve continues to remove creosote logs. Creosote logs and treated lumber were surveyed on Padilla Bay shorelines in 2003 and removal efforts took place in 2004-2005. A re-survey was done in 2007, and logs are now being removed from selected locations along the shoreline and in salt marshes as identified in the re-survey.

**ACCOMPLISHMENT: Padilla Bay Reserve conducts a wide range of stewardship activities, including a new series of stewardship workshops and the development of an upland habitat management plan, and has effectively eradicated non-native *spartina* from Reserve property.**

In 1994 the Reserve acquired the 100-acre Peth Farm, also referred to as the Demonstration Farm, with NOAA funding. Because agriculture is a major industry in the Skagit River delta and is also a source of non-point pollution, the original intent was to develop an operational plan for

the Farm, outlining an approach for developing solutions to non-point pollution from agricultural crop production. The Farm would serve as a real-life laboratory for local demonstration, education, and research, with a focus on minimizing agricultural non-point pollution impacts to water quality. The Farm is currently leased, and the farmer is asked to keep a cover crop on the land in winter and/or to plant vegetated buffer strips along ditches, in keeping with the original intent.

The Washington Department of Fish and Wildlife (WDFW) has acquired approximately 250 acres on two sides of the Demonstration Farm. The WDFW would like the Demonstration Farm property included in whatever management/habitat/restoration enhancement plan is developed for the WDFW acreage. Local farmers would prefer that the Demonstration Farm remain in agriculture.

The 2008 management plan indicates that the Reserve will work with the WDFW and others to review feasibilities for various restoration alternatives on agricultural land in the Reserve. The Stewardship Coordinator facilitated a series of meetings during this evaluation period that included the WDFW, Ducks Unlimited (under contract to the WDFW), the Reserve, Diking District 12, the Western Washington Agriculture Association, and the Washington Agriculture Institute to develop options for enhancement and restoration of the total acreage. Four alternatives have been proposed: 1) no action (leave in agriculture); 2) freshwater wetlands with agricultural rotation; 3) freshwater wetlands with agricultural rotation and restoration to estuary habitat; and 4) restoration to estuary habitat. No decision had been reached at the time of the issuance of these final findings.

**PROGRAM SUGGESTION: OCRM urges Padilla Bay NERR, working with the Washington Department of Fish and Wildlife and local stakeholders, to complete the planning process and develop an operational or management plan for the Demonstration Farm, consistent with the purposes of the Reserve.**

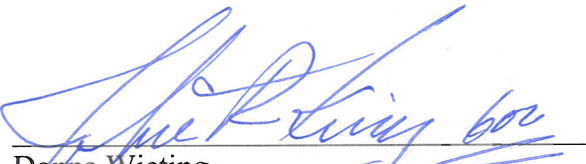
## V. CONCLUSION

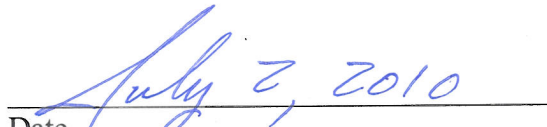
For the reasons stated herein, I find that the State of Washington is adhering to the programmatic requirements of the Coastal Zone Management Act and the regulations of the National Estuarine Research Reserve System in the operation of its approved Padilla Bay National Estuarine Research Reserve.

The Padilla Bay Reserve has made notable progress in: Administration and Staffing; Facilities and Infrastructure; Coordination and Partnerships; Padilla Bay Foundation Support; Geographic Information System Program; Research Activities; Monitoring; Education and Outreach; Coastal Training Program; and Stewardship.

These evaluation findings also contain four (4) recommendations. All of the recommendations are in the form of Program Suggestions. There are no Necessary Actions. The Program Suggestions should be addressed before the next regularly-scheduled program evaluation, but they are not mandatory at this time. Program Suggestions that must be repeated in subsequent evaluations may be elevated to Necessary Actions. Summary tables of program accomplishments and recommendations are provided in Section VI.

This is a programmatic evaluation of the Padilla Bay National Estuarine Research Reserve that may have implications regarding the state's financial assistance awards. However, it does not make any judgment about or replace any financial audits.

  
\_\_\_\_\_  
Donna Wieting  
Acting Director, Office of Ocean and Coastal  
Resource Management

  
\_\_\_\_\_  
Date

## VI. APPENDICES

### Appendix A. Summary of Accomplishments and Recommendations

The evaluation team documented a number of the Washington Department of Ecology Shorelands and Environmental Assistance Program and Reserve’s accomplishments during the review period. These include:

Issue Area	Accomplishment
Administration and Staffing	The Padilla Bay Reserve has effectively maintained its staff positions and full programming in the face of economic decline and has provided well-respected and knowledgeable leadership at regional and national levels.
Facilities and Infrastructure	The Reserve’s new and enhanced facilities and infrastructure are well designed and built to meet all program needs, and sustainability components are integrated throughout the entire campus.
Coordination and Partnerships	The Reserve’s strong partnerships are indicative of excellent integration and increased efficiencies through collaborative planning of its programs and highlight the staff expertise within local, regional, and state management structures.
Padilla Bay Foundation Support	During this evaluation period, the Padilla Bay Foundation has been particularly generous in its support of the Reserve’s mission and programs by providing funding, equipment, scholarships for Washington Conservation Corps students at the Reserve, and for interns and assistants conducting research at Padilla Bay.
Geographic Information System Program	The Reserve’s GIS program provides significant assistance and leadership to county, regional, and state officials and staff. It has developed an impressive array of products and services to support all program sectors in the Reserve as well.
Research Activities	Padilla Bay NERR addresses key research priorities by providing significant assistance and resources to numerous graduate students through both the NERRS Graduate Research Fellowship program and the Reserve’s Research Assistantships in Estuarine Science and Coastal Zone Management.



Monitoring	The Reserve’s System-wide Monitoring Program exceeds minimum requirements for nutrient monitoring, and the Reserve has completed lab certification requirements for analysis of chlorophyll a.
Monitoring	Reserve staff members provide training for Stream Team and Storm Team water quality monitoring volunteers and provide lab space for their use.
Education and Outreach	The Reserve has established itself as an important and credible resource for teachers, thereby ensuring educational programming for the public and non-formal groups contributes to increased literacy. Its curriculum development and program reach has expanded with the addition of B-WET funding, for example, and it continues to provide popular educational programs for K-12 students and other groups at the Interpretive Center.
Education and Outreach	The Reserve is addressing climate change education with new programs to engage students, teachers, and interested members of the public.
Coastal Training Program	The Padilla Bay Reserve’s Coastal Training Program has received accreditation by the American Planning Association for all of its classes. It has developed a climate change adaptation workshop module that is now available nationally for all the NERRs to use or adapt.
Stewardship	Padilla Bay Reserve conducts a wide range of stewardship activities, including a new series of stewardship workshops and the development of an upland habitat management plan, and has effectively eradicated non-native <i>spartina</i> from Reserve property.

In addition to the accomplishments listed above, the evaluation team identified several areas where the program could be strengthened. Recommendations are in the forms of Program Suggestions and Necessary Actions. Areas for improvement include:

<b>Issue Area</b>	<b>Recommendation</b>
Facilities and Infrastructure	PROGRAM SUGGESTION: The Department of Ecology and the Reserve should design and install directional access signage from major roads and gateway points to assist user groups in locating the Reserve.

<p>Research Activities</p>	<p><b>PROGRAM SUGGESTION:</b> Padilla Bay Reserve should promote greater integration of the GRFs into the Reserve’s programs: 1) look for opportunities to encourage camaraderie among its GRFs; 2) promote SWMP data and use more effectively to the GRFs; 3) have GRFs give regular periodic updates and presentations on their research to the other Reserve staff; and 4) promote greater integration of the GRFs into Reserve programs.</p>
<p>Research Activities</p>	<p><b>PROGRAM SUGGESTION:</b> The Reserve should seek partners and mechanisms, such as easements, to make access to the Bay from, and research on, private tideland and upland properties easier for researchers.</p>
<p>Stewardship and Resource Management</p>	<p><b>PROGRAM SUGGESTION:</b> OCRM urges Padilla Bay NERR, working with the Washington Department of Fish and Wildlife and local stakeholders, to complete the planning process and develop an operational or management plan for the Demonstration Farm, consistent with the purposes of the Reserve.</p>

## **Appendix B. State's Response to Previous (2005) Evaluation Findings**

**Necessary Action:** Reserve staff must complete the process of revising the Reserve's Management Plan. Reserve staff must work with OCRM's Estuarine Reserves Division to develop a mutually agreeable timeline to finalize the revised Management Plan. This timeline must be developed within three months of issuance of these final findings. The Management Plan must be completed within the timeline.

**Response:** Plan completed, printed, now on-line at [www.padillabay.gov](http://www.padillabay.gov).

**Necessary Action:** Reserve staff must complete the Reserve's Site Profile. Reserve staff must work with OCRM's Estuarine Reserves Division to develop a mutually agreeable timeline to complete the Site Profile. This timeline must be developed within three months of issuance of these final findings. The Site Profile must be completed within the timeline.

**Response:** A working draft was submitted to ERD in January 2008 and final draft submitted to ERD to (sic) January 2009. The Profile is revised as per ERD comments and is nearly ready for submittal to ERD for final approval and printing.

**Program Suggestion:** Once the new facilities have been completed, the education program may wish to consider additional recruiting strategies to ensure that traditionally underserved audiences are being reached.

**Response:** In 2005 we hired a temporary staff member with Spanish language skills who did special outreach to the local Spanish speaking community. This resulted in special programs for over 150 citizens. Some groups still come, even though we have not had applicants with Spanish skills. This year [2009] we hired an AmeriCorps member with Spanish language skills. We translated our site brochure into Spanish in 2007.

**Program Suggestion:** PBNERR may wish to consider ways to increase interactions between its research and education programs to allow the education program to integrate the Reserve's outstanding research capabilities into its curriculum.

**Response:**

**Research staff assisting in education tasks and programs:** Examples include research staff assistance in the Estuary Live programs that were hosted at Padilla Bay, Estuaries Day, High School Envirothon, helping with the adult volunteer Stream Team field sampling and laboratory, maintaining exhibits, sending confirmation letters to teachers, and providing vessel support when needed for education staff.

**Education staff assisting in research and monitoring tasks and activities:** Examples include education staff collecting water samples and making field measurements, conducting water depth

and flow monitoring in No Name Slough, assisting visiting students and researchers in the field, and providing assistance on vessels when needed.

Research staff presenting research and monitoring to audiences for purposes of education (and in coordination with education staff or to education staff: Examples include presentations on estuaries to teachers involved in curriculum development, to Sound Waters participants, to Minorities in Marine Science Undergraduate Program (MIMSUP) at Western Washington University, and Padilla Bay Research Assistants and Graduate Research Fellows presenting their work to Padilla Bay staff including education staff.

Joint projects with education and research & monitoring staff: Examples include creating and updating posters on research for the general public in the aquarium room, articles on research in Padilla Bay written for the Padilla Bay Newsletter, creating PDF files of Padilla Bay Technical Reports and Reprints and making them available on the internet, revising the research and monitoring page on the Padilla Bay web page and working together in developing new aquariums and displays.

## **Appendix C. Persons and Institutions Contacted**

### Washington Department of Ecology

Gordon White, Manager, Shorelands and Environmental Assistance Program/Coastal Management Program

Carrie Byron, Coastal Planner, Coastal Management Program

Stephen Fry, Director of Facilities

Brian Lynn, Section Manager, Shorelands and Environmental Assistance Program/Coastal Management Program

Ginny Broadhurst, Director, Northwest Straits Initiative

### Padilla Bay National Estuarine Research Reserve

Terry Stevens, Reserve Manager

Dr. Doug Bulthuis, Research Coordinator

Alex Alexander, Education Coordinator

Cathy Angell, Coastal Training Program Coordinator

Sharon Riggs, Stewardship Coordinator

Heath Bohlman, SWMP Specialist and Watercraft Manager

Nicole Burnett, SWMP Specialist and Lab Manager

Mark Olson, Facilities Services Coordinator

Suzanne Shull, Biogeographic Data Specialist

Susan Wood, Education and Outreach Specialist

Michael Hannam, NERRS Graduate Research Fellow

Emily Howe, NERRS Graduate Research Fellow

Jessica Silver, NERRS Graduate Research Fellow

### Padilla Bay Foundation

Tom Richards, President (at the time of the site visit)

Kay Reinhardt, Administrative Officer

### State Agencies

John Garrett, Biologist, Washington Department of Fish and Wildlife

### Local Government Representatives

Ken Dahlstedt, Commissioner, Skagit County

Carolyn Kelly, Director, Skagit Conservation District

Kristi Carpenter, Education-Outreach Specialist, Skagit Conservation District

### Academic/Educational Representatives

Penny Dalton, Director, Washington Sea Grant

Pete Granger, Assistant Director, Washington Sea Grant

Katrina Hoffman, Coastal Resources Specialist, Washington Sea Grant

Gene Myers, Assoc. Professor, Western Washington University Dept. of Environmental Studies

Mare´ Sullivan, Bellview Christian High School

Connie Regan, Ebenezer Christian School

## **Appendix D. Persons Attending the Public Meeting**

The public meeting was held on Wednesday, September 23, 2009, at 7:00 p.m. at the Padilla Bay National Estuarine Research Reserve Interpretive Center, 10441 Bayview-Edison Road, Mt. Vernon, Washington. No members of the public attended the meeting.



## **Appendix E. NOAA's Response to Written Comments**

NOAA received no written comments regarding the management or administration of Padilla Bay National Estuarine Research Reserve.