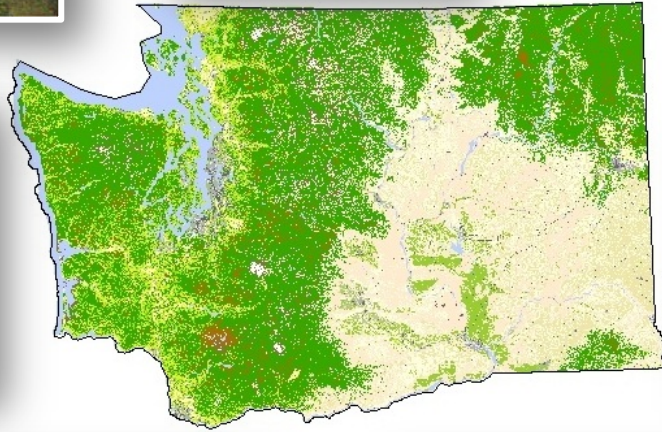


2015

Washington State Wetland Program Plan



*Prepared by the Wetland Program
Plan Interagency Work Group*

March 2015
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P.O. Box 47600
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Letters of support

Washington State Department of Natural Resources

Washington State Department of Fish and Wildlife

Washington State Department of Transportation

Washington State Department of Commerce

Washington State Conservation Commission

Puget Sound Partnership

Washington State Parks and Recreation Commission



February 26, 2015

Gordon White
Shorelands & Environmental Assistance Program Manager
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

RE: Washington State Wetland Program Plan 2014

Dear Mr White:

The Washington Department of Natural Resources (DNR) recognizes the importance of having a coordinated approach to wetland conservation. We have appreciated the opportunity to participate in the development of the Washington State Wetland Program Plan. The DNR Natural Heritage staff have been involved in this effort from the beginning of the process and are pleased to see our contributions reflected in the final product. We understand that the best hope for maintaining the state's critical wetlands lies in a coordinated effort engaging many partners.

The DNR Natural Heritage Program has a history of collaborating with the Department of Ecology (DOE) for identifying the most significant wetland resources in our state. As part of the program's responsibilities of compiling, classifying and distributing scientific information on the native ecosystems of Washington, we have recently been updating the Natural Heritage database to include the most current information on the important wetlands in the state. The DNR Natural Areas Program is dedicated to conserving Washington's native species and ecosystems, today and for future generations. The intent of the natural area system managed by DNR is to promote healthy ecosystems, protect biodiversity and encourage the knowledge of and appreciation for the natural world through research and environmental education. The natural areas system contains some of the best remaining examples of the state's natural heritage wetlands. Our work is pertinent to and has meshed well with DOE's development of the wetland program plan. We look forward to continuing to work with the department as the plan is implemented.

Sincerely,

Pene Speaks, Assistant Manager
Conservation, Recreation and Transactions Division



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 600 Capitol Way N, Olympia, WA 98501-1091 • (360) 902-2200 • TDD (360) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

March 31, 2015

Mr. Gordon White
Shorelands and Environmental Assistance Program Manager
Washington State Department of Ecology
Post Office Box 47600
Olympia, WA 98504-7600

Dear Mr. White:

The Washington State Department of Fish and Wildlife (Department) supports the goals and the work of the Washington State Wetland Program Plan (WPP). The Department has been represented on the WPP Interagency Work Group from its inception and has been involved in development of the plan from the beginning. Our needs and objectives are represented here along with other state agencies.

As described in the plan, we commit to meeting annually with the WPP Interagency Work Group to do the following:

- Review and discuss progress towards achieving the goals of the plan
- Prioritize and participate in completing the activities as appropriate
- Identify and assist with obtaining resources to implement plan actions and activities
- Integrate new developments into the Plan and update specific actions as needed

We feel that a coordinated statewide wetland program benefits Washington through more efficient and effective wetland protection and management, which has positive impacts on fish and wildlife populations.

We support the plan and appreciate the opportunity to participate in this important work.

Sincerely,

James Unsworth, Ph.D.
Director



**Washington State
Department of Transportation**

Lynn Peterson
Secretary of Transportation

Transportation Building
310 Maple Park Avenue S.E.
P.O. Box 47300
Olympia, WA 98504-7300
360-705-7000
TTY: 1-800-833-6388
www.wsdot.wa.gov

March 25, 2015

Gordon White, Program Manager
Washington State Department of Ecology
Shorelands and Environmental Assistance Program
P.O. Box 47600
Olympia, WA 98504-7600

Dear Mr. White,

The Washington State Department of Transportation (WSDOT) appreciates the opportunity to work closely with your office and other resource protection agencies on the development of the Washington State Wetland Program Plan (WPP). WSDOT representatives were involved in this effort from its inception and will continue to work with this group at its annual meetings and other state agencies involved in wetland management and protection.


WSDOT fully supports your efforts to implement this comprehensive strategy which will further the state's efforts in protecting and preserving wetlands and other aquatic resources. Our support includes your efforts to secure implementation funding from the U.S. Environmental Protection Agency.

The WPP has the potential to advance the state of wetland science in Washington by improving the knowledge of the extent, rate of change, and vulnerability of the state's wetlands. The WPP emphasizes coordination and collaboration among Washington State agencies, tribal governments, local governments and non-governmental organizations through the WPP Interagency Work Group. The WPP goals and objectives are consistent with WSDOT's Policy Statement P2038, Wetlands Protection and Preservation.

WSDOT welcomes the continued opportunity to work with the Department of Ecology and other interested parties in Washington to improve stewardship of the state's wetlands through implementing the Washington State Wetland Program Plan.

Sincerely,


Joseph J. Witczak

 Megan White, P.E., Director
Environmental Services Office

MW:ds

cc: Doug Swanson, WSDOT.

DEPARTMENT OF ECOLOGY

MAR 25 2015

WATER QUALITY PROGRAM



**STATE OF WASHINGTON
DEPARTMENT OF COMMERCE**

**1011 Plum Street SE • PO Box 42525 • Olympia, Washington 98504-2525 • (360) 725-4000
www.commerce.wa.gov**

Mr. Gordon White
Shorelands and Environmental Assistance Program Manager
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Dear Gordon White:

The Washington State Department of Commerce supports the goals and the work of the new Washington State Wetland Program Plan (WPP). Commerce Growth Management Services has been represented on the WPP Interagency Work Group from its inception and has been involved in development of the plan from the beginning. Our needs and objectives are represented here along with other state agencies.

This plan supports Commerce's goals of...

- Supporting state and local governments in planning to protect our shared vital wetland critical areas in Washington state.
- Supporting a coordinated approach to wetland conservation by Washington state agencies.
- Enabling a watershed or landscape-scale approach to wetlands designation and protection through comprehensive planning.

To the best of our ability we will remain engaged with the WPP Interagency Work Group in reviewing and discussing progress towards achieving the goals of the plan. We feel that a coordinated statewide wetland program benefits Washington through more efficient and effective wetland protection and management.

Sincerely,

Douglas L. Peters
Watershed Planner
Growth Management Services
Local Government & Infrastructure Division
Washington Department of Commerce



STATE OF WASHINGTON
CONSERVATION COMMISSION

PO Box 47721 • Olympia, Washington 98504-7721 • (360) 407-6200 • FAX (360) 407-6215

March 22, 2015

Mr. Gordon White
Shorelands and Environmental Assistance Program Manager
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

RE: Letter of support for Washington Wetland Program Plan

The Washington State Conservation Commission (WSCC) supports the goals and the work of the Washington State Wetland Program Plan (WPP). WSCC has been represented on the WPP Interagency Work Group from its inception and has been involved in development of the plan from the beginning.

WSCC works with the state's 45 conservation districts to help the citizens of Washington protect natural resources through the use of voluntary, incentive based programs and practices. The WPP plan recognizes voluntary programs with the goal of using a watershed perspective to increase the quantity, condition, and function of wetlands and their ecosystems through voluntary restoration and protection.

As detailed in the plan, we commit to partnering on actions and activities that name WSCC and to annual participation with the WPP Interagency Work Group to do the following:

- Review and discuss progress towards achieving the goals of the plan
- Prioritize and participate in completing the activities as appropriate
- Identify and assist with obtaining resources to implement plan actions and activities
- Integrate new developments into the Plan and update specific actions as needed

We feel that a coordinated statewide wetland program benefits Washington through more efficient and effective wetland protection and management.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mark Clark", is written over the word "Sincerely,".

Mark Clark, Executive Director
Washington State Conservation Commission

March 30, 2015

Mr. Gordon White
Shorelands and Environmental Assistance Program Manager
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mr. ~~White~~: *Gordon*

The Puget Sound Partnership supports the goals of the Washington State Wetland Program Plan (WPP). The Puget Sound Partnership has been represented on the WPP Interagency Work Group and was involved in development of the plan. This plan supports the Puget Sound Action Agenda's Strategic Initiative of "Protecting and Restoring Habitat" by providing infrastructure and support for activities that:

- Remove barriers to restoration
- Protect habitat through incentives
- Protect habitat through regulation

By increasing eligibility for designated EPA funding, the approved WPP provides a mechanism to complete a Near Term Action from the 2014-2015 Puget Sound Action Agenda, A.2.1.2: *Updated Avoidance and Minimization Guidance for Wetlands* (Ecology). Two restoration and one acquisition project from the Action Agenda's Local Recovery Actions are consistent with the WPP including: A.2.2 WC17 *Clear Creek Floodplain Restoration* and A.2.2 WC16 *Duwe'iq Stormwater Treatment Wetland and Stream Restoration* (Kitsap County and the West Central Lead Integrating Organization (LIO)), and A.2.1 WC14 *Kitsap Forest and Bay Divide Property Acquisition* (West Central LIO). In addition, several important strategies from the Action Agenda's Freshwater and Terrestrial section are addressed within the WPP.

As described in the plan, the Partnership commits to meeting annually with the WPP Interagency Work Group to do the following:

- Review and discuss progress towards achieving the goals of the plan
- Prioritize and participate in completing the activities as appropriate
- Identify and assist with obtaining resources to implement plan actions and activities
- Integrate new developments into the Plan and update specific actions as needed

We feel that a coordinated statewide wetland program not only benefits Puget Sound but all of Washington State through more efficient and effective wetland protection and management.

Sincerely,



Marc Daily
Deputy Director



Don Hoch
Director

STATE OF WASHINGTON

WASHINGTON STATE PARKS AND RECREATION COMMISSION

1111 Israel Road S.W. • P.O. Box 42650 • Olympia, WA 98504-2650 • (360) 902-8500

TDD Telecommunications Device for the Deaf: 800-833-6388

www.parks.wa.gov

February 27, 2015

Gordon White
Shorelands and Environmental Assistance Program Manager
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mr. White:

The Washington State Parks and Recreation Commission owns approximately 20,000 acres of wetlands. As a result, wetland management is a significant issue for State Parks. We believe a coordinated statewide wetland program plan is a benefit to the agency, as well as all citizens of the state.

Pursuant to its Natural Resources Policy, State Parks strives to manage its wetlands from a watershed perspective, recognizing these areas as integral parts of larger, hydrological-ecological systems. State Parks strives to ensure its actions do not contribute to a net loss in acreage or function of the state's wetlands. The agency has participated in the development of the Washington State Wetland Program Plan and supports the plan's coordinated approach to wetland protection and management.

Because we believe in the benefits of the plan, State Parks is looking forward to continuing to work with the Washington State Wetland Program Plan Interagency Working Group to:

- Review and discuss progress towards achieving the goals of the plan
- Prioritize and participate in completing the activities as appropriate
- Identify and assist with obtaining resources to implement plan actions and activities
- Integrate new developments into the Plan and update specific actions as needed

Sincerely,

A handwritten signature in blue ink that reads "Lisa Lantz".

Lisa Lantz
Stewardship Program Manager

Acknowledgements

We wish to acknowledge the generous help of the Ecology core team in guiding and shaping this plan, and for their thoughtful advice throughout the process: Lauren Driscoll, Teri Granger, Patricia Johnson, and Dana Mock. Linda Storm, cooperative agreement Project Officer for the U.S. Environmental Protection Agency, provided guidance and feedback throughout the development of the plan. A big thank you to Suzanna Stoike who was plan coordinator for the first 9 months of this project and did excellent work coordinating and writing the first draft of the plan. Special thanks go to Susan Buis for her exemplary job after taking over the reins from Suzanna and coordinating completion of the plan.

We also wish to acknowledge the dedicated work of the following agency staff who served on the Interagency Work Group and contributed to this plan in a variety of ways: Kevin Anderson (PSP), Tony Bush (WSDOT), Margen Carlson (WDFW), Sara Gage (RCO), John Gamon (WDNR), Josh Giuntoli (WSCC), Chris Hempleman (Ecology), Randy Kline (Parks), Lisa Lantz (Parks), Gretchen Lux (WSDOT), Kelly McLain (Agriculture), Dave Parks (WDNR), Doug Peters (Commerce), Tim Quinn (WDFW), Joe Rocchio (WDNR), Emily Sanford (PSP), Ron Shultz (WSCC), Pene Speaks (WDNR), Linda Storm (EPA), Doug Swanson (WSDOT), and Dave Ward (PSP).

Thank you to members of Ecology's Wetlands Technical Advisory Group for their contributions to the development of this plan: Paul S. Anderson, Donna Bunten, Alexander Callender, Caroline Corcoran, Lauren Driscoll, Gary Graff, Teri Granger, Susan Grigsby, Yolanda Holder, Tom Hruby, Andrea Jedel, Patricia Johnson, Heather Kapust, Perry Lund, Patrick McGraner, Susan Meyer, Dana Mock, David Moore, Rick Mraz, Brad Murphy, Catherine Reed, Rebecca Rothwell, Stephen Stanley, Erik Stockdale, Kate Thompson, and Amy Yahnke.

Thank you to the following individuals, as well as the agency staff listed above, for contributions which helped refine the draft plan for public review: Todd Bolster (NWIFC), Darla Boyer (Tulalip Tribes), Jeremy Freimund (Lummi Nation), Erica Marbet (Squaxin Tribe), Amy Martin (Colville Tribes), Ken Merrill (Kalispel Tribe), Ben Shumaker (Director of Planning, City of Stevenson), Todd Thorn (Colville Tribes), and George Walter (Nisqually Tribe).

We thank the following individuals for commenting on the public draft: Ann Aagaard (League of Women Voters Washington State: Shoreline and Wetlands Chair), Cindy Alia (Citizen's Alliance for Property Rights), Lynn Best (Seattle City Light), Dick Bangsund, Art Castle (Building Industry Association of Washington), Danna Dal Porto, Rene Holaday, Nancy Hoobler (Whitman Conservation District), Scott Luchessa, Shelly Nelson, Art Swannack (Whitman County Board of Commissioners), Jennifer Thomas (Water and Land Natural Resource Consulting, LLC), Heather Trim (Futurewise), and Scott Woodward.

Acronyms and Abbreviations

§401 Certification – Clean Water Act Section 401 Water Quality Certification
§404 Permit – Clean Water Act Section 404 permit
Agriculture – Washington State Department of Agriculture
CAO – Critical Areas Ordinance
Cfs – cubic feet per second
CMER – Cooperative Monitoring Evaluation and Research
Commerce – Washington State Department of Commerce
Corps – U.S. Army Corps of Engineers
CWA – Clean Water Act (Federal Water Pollution Control Act)
Ecology – Washington State Department of Ecology
EPA – U.S. Environmental Protection Agency
ESA – Endangered Species Act
GMA – Growth Management Act
HPA – Hydraulic Project Approval
LIDAR – Laser Imaging Detection and Ranging
NAIP – National Agricultural Imagery Program
NOAA – National Oceanic and Atmospheric Administration
NOAA Fisheries – National Marine Fisheries Service (formerly known as NMFS)
NRCS – Natural Resources Conservation Service
NWCA – National Wetland Condition Assessment
NWI – National Wetlands Inventory (USFWS)
ORIA – Governor’s Office for Regulatory Innovation and Assistance
Parks – Washington State Parks and Recreation Commission
PSP – Puget Sound Partnership
RCO – Washington Recreation and Conservation Office
RCW – Revised Code of Washington
SEPA – State Environmental Policy Act
SMA – Shoreline Management Act
SMP – Shoreline Master Programs
USDA – U.S. Department of Agriculture
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey
WAC – Washington Administrative Code
WDFW – Washington State Department of Fish and Wildlife
WDNR – Washington State Department of Natural Resources
WDNR-NHP – Washington State Department of Natural Resources Natural Heritage Program
WetSAG – Wetland Science Advisory Group
WPCA – Water Pollution Control Act (Washington State 90.48 RCW)
WPP – Wetland Program Plan
WSCC – Washington State Conservation Commission
WSDOT – Washington State Department of Transportation

Executive Summary

The complexity of wetland management and protection within the state necessitates close collaboration between state and federal agencies, local governments, tribal governments, and other public and private entities. Coordination is recognized as a key to the success of wetland programs. With that in mind, the Washington State Department of Ecology (Ecology) received a U.S. Environmental Protection Agency (EPA) Wetland Program Development Grant in 2013 to develop a Wetland Program Plan (WPP) for the state. A WPP is a comprehensive strategy that articulates what the state plans to focus on in its' wetland program over the next six years. Led by Ecology, the plan was developed by a collaborative group of state agencies called the WPP Interagency Work Group (WDNR, WDFW, WSDOT, Commerce, RCO, PSP, WSCC, Parks, and Agriculture), with input from local governments, tribal governments, Washington citizens, and federal agencies.

The goal of the state's wetland program, established by Governor Gardner in 1989, is to achieve no overall net loss in acreage and function of Washington's remaining wetlands and to further the long-term goal to increase the quantity and quality of Washington's wetlands resource base. The plan will be used to further this goal by:

- Increasing coordination among state agencies and between state agencies, local governments, tribal governments, federal agencies, and non-governmental organizations.
- Applying for grant funding to finance actions and activities that promote the goal.
- Addressing gaps in the state wetland program.

The structure of Washington's plan is based on EPA's Core Elements Framework, which includes goals, objectives, actions, and activities centered on the four elements identified for a state wetland program. The WPP Interagency Work Group added two more elements to the plan.

The following is a list of Washington's six core elements, along with the goal and objectives for each element.

1. Regulation

Three key components to a regulatory program have been identified: a clear and comprehensive jurisdictional scope, a method to authorize impacts to aquatic resources, and a strategy to assure compliance. Washington has a well established regulatory program that addresses these components through four levels of government: local, state, federal, and tribal. Coordination among these governments is critical to improve wetland management and reduce redundancy for project proponents.

Goal: To increase protection at the landscape and site scale by avoiding, minimizing, and where there are unavoidable impacts, ensuring adequate compensation for wetland loss.

Objectives:

1. Promote efficient and consistent administration of regulatory activities through coordination among state and federal agencies and support to local governments.
2. Increase wetland protection and reduce wetland impacts through better application of avoidance and minimization practices.
3. Develop successful compensatory mitigation strategies for unavoidable wetland impacts.
4. Evaluate the state regulatory program and state regulated activities to ensure adequate protection of wetlands at the landscape and site scale.

2. Voluntary Restoration and Protection

Much of the restoration and conservation work in the state is being performed by non-profit organizations, community groups, and interested landowners through various grant programs. Most of these programs encourage or require partnerships or collaboration to achieve conservation goals. There is a significant opportunity to enhance the state's role in helping voluntary wetland protection efforts and to foster and support coordination of the restoration and protection efforts in the state.

Goal: From a watershed perspective, increase the quantity, condition, and function of wetlands and their ecosystems through voluntary restoration and protection.

Objectives:

1. Clearly and consistently define restoration and protection goals throughout the state using a multi-scale watershed approach.
2. Protect against the loss of wetland area, restore wetland acres, and improve wetland condition and function.
3. Evaluate progress over time, and modify practices as appropriate.

3. Monitoring and Assessment

Washington State currently does not have a coordinated wetland monitoring or assessment program. Collaboration with entities involved in these activities, as well as with those who use wetland information, is critical to development of a state-wide, long-term monitoring and assessment program. In response, a work group has been established and is currently working toward developing a strategy for the state.

Goal #1: To establish the extent and types of wetlands, their level of function and condition, to detect changes and stressors, and to characterize trends over time to inform better decision making.

Objectives:

1. Develop and maintain a coordinated monitoring and assessment strategy relevant to the goal.
2. Build upon current monitoring and assessment efforts to address monitoring questions.

Goal #2: To evaluate the effectiveness of each of the six core elements and the effectiveness of the Wetland Program Plan as a whole.

Objective:

Develop a system for evaluating the Wetland Program Plan for effectiveness in all core elements.

4. Water Quality Standards

Washington has designated beneficial uses and anti-degradation policies for waters of the state, including wetlands. To date, narrative standards have been adequate for protecting wetland resources and beneficial uses. Therefore, at this time, there are no proposed changes to the standards. In the future the state may explore avenues to improve water quality standards for wetlands.

5. Outreach and Education

Public support for protecting the environment is vital for protecting, maintaining, and enhancing our wetland resources. The state has long recognized the importance of outreach and education regarding wetlands, both directly through teaching opportunities and indirectly through technical assistance. Outreach and education is particularly critical in communities with wetlands that are facing pressure from development.

Goal: Directly engage with identified key stakeholders to foster Washington State citizens who understand the role that wetlands play in the landscape, and as a result, value and protect wetlands.

Targeted Audiences and Outcomes:

1. Landowners recognize, value, and protect wetlands on their property.
2. State and local decision makers understand and make decisions that reflect the value of wetland ecosystem services, and the costs associated with loss of wetland functions.
3. Local government permit and technical staff protect wetland ecosystem services using the latest scientific information consistently to advise applicants according to state laws, jurisdictions, and statutes.

6. Sustainable Financing

A critical component of the success of any wetland program is adequate and consistent funding. A fundamental and challenging part of program development is securing the necessary financial resources to implement the Wetland Program Plan. Many of the actions and activities identified in the plan can only be carried out when funding is obtained.

Goal: To provide stable and consistent funding for implementation of the wetland plan.

Objective: Build capacity and resources within the program.

The plan also includes:

- Background on wetland management in Washington, including agencies involved and regulatory and non-regulatory methods.
- Current status of the state’s wetland program, its strengths and challenges.
- Opportunities for collaboration within state resource agencies and with federal, tribal, and other public and private entities.

We acknowledge that, being a comprehensive plan, not all activities and actions will be accomplished in the six-year time frame specified by the EPA. The WPP Interagency Work Group, convened to develop the plan, will therefore assist in identifying actions on which to focus, as well as obtaining resources to implement them. On a yearly basis, this work group will also review progress toward achieving the goals and objectives of this plan, as well as re-assess priorities for the coming year. Periodic review will help maintain the momentum for task completion and encourage agencies to be accountable to their commitments. The plan will be updated as actions are accomplished and new ones are established. The ability to implement actions in this plan depends on adequate funding.



Photo courtesy of Aaron Barna

In developing this wetland program plan, we acknowledge the importance of our wetland resources. Washington is home to many diverse wetlands throughout the state. These wetlands offer unique and valuable characteristics that are critical to a healthy economy and environment. Wetlands provide irreplaceable services like flood management, erosion control, pollution reduction, and aquifer recharge. They serve as essential habitat for fish, wildlife, and plants, including state and federal endangered and threatened species. Additionally, wetlands provide excellent recreational, cultural, and educational opportunities that increase the quality of life for Washington citizens.

Washington State Wetland Program Plan Framework

The Washington State Department of Ecology (Ecology) received a 2013 Wetland Program Development Grant from the U.S. Environmental Protection Agency (EPA) to develop a wetland program plan (the plan) for the state. The purpose of the plan is to develop a coordinated wetland management and protection program and identify priorities for future work. The plan reflects accomplishments from past statewide planning efforts:

- State Wetland Integration Strategy (1994)
- Mitigation that Works Forum report (2008)
- Puget Sound Action Agenda (2008 and 2012-2013)

It identifies continuing and new strategies to help conserve, restore, and protect wetland resources. A key aspect of this plan's development involved collaboration with many state agencies and input from tribal governments, local governments, federal agencies, and Washington citizens.

This comprehensive plan outlines Washington's wetland program for a six-year timeframe. It addresses priority goals and objectives outlined in EPA's Core Elements Framework.¹ This framework outlines and defines four core elements that should be addressed when building a comprehensive wetland program:

- Regulation
- Voluntary Restoration and Protection
- Monitoring and Assessment
- Water Quality Standards for Wetlands.

Washington State's plan includes two additional elements deemed critical to the success of the program as a whole:

- Education and Outreach
- Sustainable Financing.

This program plan also provides a description of the process used to develop the plan, background on Washington wetlands, the current status of the state's wetland program, and describes what the state strives to accomplish. The plan also:

- Identifies opportunities for collaboration within state resource agencies and with federal, tribal, and other public and private entities
- Addresses gaps within elements of the current wetland program

¹ See http://water.epa.gov/grants_funding/wetlands/cefintro.cfm.

- Outlines objectives, actions, and activities for each core element
- Identifies leadership for each action to move the state toward achieving our state goal:

To achieve no overall net loss in acreage and function of Washington’s remaining wetlands and to further the long-term goal to increase the quantity and quality of Washington’s wetlands resource base²

The goal, objectives, actions, and activities identified for each core element are contained within tables at the end of each element chapter.

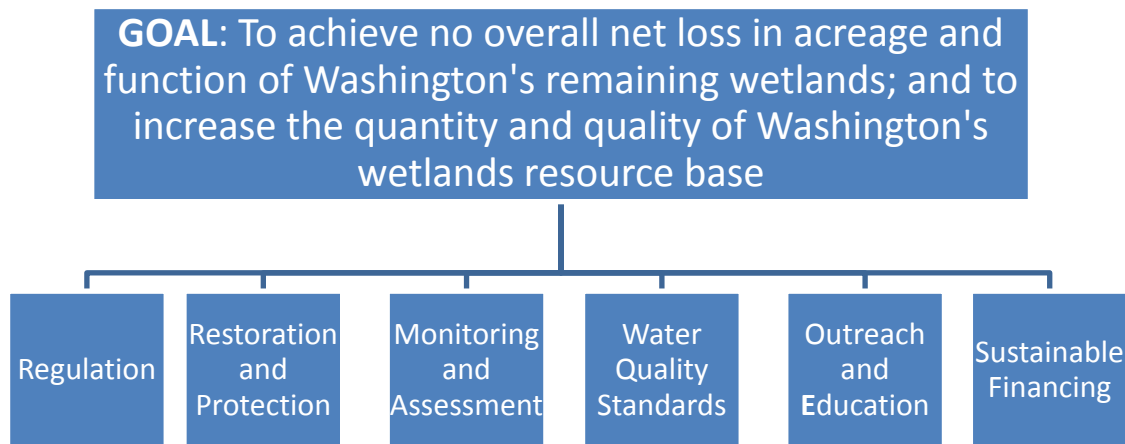


Figure 1. The six core elements addressed in the plan are key to achieving the goal

The development process

An important aspect of the development of the WPP from its inception was collaboration by state agencies that manage wetlands, review by other stakeholders, and the commitment to coordinate implementation of the plan amongst the participating agencies. The following is a description of the process used and the participation solicited in the development of the WPP.

After Ecology received the Wetland Program Development Grant in 2013, a coordinator was hired to manage the process and convene the WPP Interagency Working Group. The members of the interagency group are:

- Department of Ecology
- Department of Natural Resources
- Department of Fish and Wildlife
- Department of Transportation

² In 1989, Governor Booth Gardner signed Executive Order 89-10 establishing a statewide goal regarding wetlands protection. *It is the interim goal...to achieve no overall net loss in acreage and function of Washington's remaining wetlands base. It is further the long-term goal to increase the quantity and quality of Washington's wetlands resource base.*

- State Conservation Commission
- Department of Commerce
- Puget Sound Partnership
- Recreation and Conservation Office
- Department of Agriculture
- Parks and Recreation Commission

A representative from the EPA also participated on the working group.

The WPP Interagency Work Group started meeting in August 2013. Their goal was to craft a wetland plan to meet state objectives, directives, and needs. In preparation for the development of the WPP, Ecology and EPA met to develop a baseline assessment of the state's wetland program. Representatives from the agencies worked from the core element menu, selecting and modifying EPA's objectives, actions, and activities as appropriate to suit state needs. Small working groups met regularly to identify specific details needed for each of the six core elements.

Ecology developed an outreach plan to solicit input and review of the plan from a wide variety of Washington State entities. The coordinator gave presentations and solicited feedback at tribal staff meetings, a regional Conservation District directors' meeting, and regional forums of local government planners. Announcements and articles about the draft plan were placed in planning e-newsletters by the Department of Commerce.

Tribal government staff provided invaluable input that greatly improved the tribal wetland management section of the plan. In the spring of 2014, Ecology invited tribal input from all 29 federally recognized tribes and the six tribes with usual and accustomed areas in the state. Emails and letters were sent to tribal chairs and natural resource directors of the 35 tribes informing them of the plan's development and offering an opportunity for government to government consultation.

The plan was released for public comment in December 2014, submitted for EPA approval in February 2015, and the final version released in March 2015. The WPP Interagency Work Group will meet yearly to review progress, re-evaluate priorities, and make changes to the plan as needed.

Technical terms used in this plan are printed in *italics* the first time and are defined in the glossary at the end of the document.

Timeframe

We acknowledge that, being a comprehensive plan, not all activities and actions contained in this document can realistically be accomplished in the six-year time frame specified by EPA. The WPP Interagency Work Group, convened to develop the plan, will therefore prioritize and

participate in completing the activities as appropriate. They will also identify and assist with obtaining resources to implement plan actions and activities. See the implementation schedule towards the end of the document.

Periodic plan review

The WPP Interagency Work Group will meet annually to review and discuss progress towards achieving the goals of this interagency wetland program plan. This review will be in coordination with tribal governments and local governments. Periodic review will help maintain the momentum for task completion and encourage agencies to be accountable to their commitments. The group will assist in prioritizing, identifying, and obtaining resources to implement plan actions. Developments on and adjustments to the specific actions of this plan will be updated as needed and in coordination with the relevant agency staff. The plan will be reviewed in alignment with state and federal funding cycles. The group will work together on *wetland*-related issues as they arise and any member of the group may ask for the group to meet as needed. Updates to the plan will be posted on the Wetland Program Plan webpage at <http://www.ecy.wa.gov/programs/sea/wetlands/ProgramPlan.html>.

In 2019, Ecology and the Interagency Work Group will meet with the EPA for a mid-plan review. Ecology will work with the Interagency Work Group beginning in 2019 to update the plan for the next planning cycle. The updated plan will be submitted to the EPA in 2020 so that it may be approved before this plan expires in 2021.



Photo credit: Ecology

Wetlands in Washington

Washington is home to many ecologically diverse wetlands throughout the state. Briefly, wetlands are lands where saturation with water determines soil development and the kinds of plant and animal communities that live there.³ Each wetland system offers unique and valuable characteristics that are critical to a healthy environment and economy. These ecosystems offer irreplaceable services like flood management, erosion control, pollution reduction, and aquifer recharge, and serve as essential habitat for hundreds of wildlife, fish, and plant species, including state and federal endangered and threatened species. In addition, wetlands provide excellent recreational, cultural, and educational opportunities that increase the quality of life for Washingtonians.

Over the past century in Washington State, like in many other states throughout the nation, wetlands were undervalued for their role in the landscape. As a result, Washington has experienced substantial degradation and loss of wetlands due to development, land-use changes, and *watershed* degradation among other threats. As of 1990, USGS identified over 930,000 acres of wetlands in Washington. As of 2015, there is no current estimate of wetland acreage in the state and establishing an accurate baseline of wetland location and extent is a high priority.

In the more recent past, Washington has protected and managed these resources for their ecological and societal values. In 1990, Governor Booth Gardner signed Executive Order 90-04 that directed Ecology and several other resource agencies to use their existing authorities to protect wetlands. Since that time, important steps have been taken to build a wetland protection program including regulation, planning, conservation, and *restoration* programs. The continued pressure of growth on these fragile ecosystems necessitates strategic planning and cooperation between all entities with a role to play in the management of Washington's wetlands.

Wetland management in Washington State

The complexity of wetland protection and management within the state necessitates close coordination between state and federal agencies, local governments, tribal governments, and other public and private entities. Often, multiple agencies are involved in the regulation of wetlands. Non-regulatory efforts often involve several organizations, including those who provide funding or incentives, complete work in the field, manage wetlands, and provide technical assistance.

³ See EPA's wetlands web page: <http://water.epa.gov/lawsregs/guidance/wetlands/definitions.cfm>.

The following describes the roles of the governing authorities and organizations involved in wetland management in Washington. Federal, state, and local wetland regulations can vary in how they apply to different types of wetlands and different types of activities that can impact wetlands. Some types of wetlands or wetlands of a certain size are specifically exempted under some laws. Certain activities, such as forestry or agriculture, are exempted under some laws. In some cases, all levels of government may have jurisdiction over a particular wetland. However, in general, the US Army Corps of Engineers (Corps) is the agency charged with regulatory protection of wetlands at the federal level. Ecology is the primary state agency with jurisdiction over wetlands. City and county governments have jurisdiction at the local level. Tribal governments play an important role in wetland regulation when projects affect reservation land, cultural resources, traditional cultural properties, or tribal usual and accustomed areas.



Photo courtesy of Brian Walsh

For more detailed information on wetland-related laws, see Appendix B. Also the Regulatory section of this plan contains a summary of these laws.

For quick reference, the webpage for the Washington Wetland Program Plan has a matrix that outlines the current state and federal wetland activities and programs discussed in the plan. This matrix will be updated as time allows. The webpage link is <http://www.ecy.wa.gov/programs/sea/wetlands/ProgramPlan.html>.

The role of state government

Wetlands in Washington are protected and managed through multiple state laws, which define regulatory and non-regulatory authority, and are administered by several state agencies. See the Regulatory section for a list of state laws and a summary of the state's wetland protection program. State management decisions have impacts on watershed and *landscape scales* that transcend jurisdictional boundaries. State resource agencies strive for consistent and compatible management of wetlands across the landscape; with the understanding that alignment of federal, tribal, state, and local goals will produce more positive environmental outcomes. The state seeks ways to foster partnerships that result in positive and beneficial outcomes for tribal and non-tribal communities across the state.⁴

⁴ To read more on state and tribal partnerships, see Ecology's Centennial Accord Implementation Plan: <http://www.goia.wa.gov/govtogo/pdf/department%20of%20ecology.pdf>.

In addition, state agencies provide technical assistance and develop tools that support decision-making at all levels of government, including the local level, to encourage actions that protect wetlands under the Growth Management Act (GMA) and Shoreline Management Act (SMA). In regard to data gathering, state agencies are involved with providing critical information such as wetland location and type, the identification of wetlands of conservation value, and how wetlands are affected by forest practices, for example.

The primary state agencies involved in wetland protection and management include the Washington Departments of Agriculture, Commerce, Ecology, Fish and Wildlife, Natural Resources, and Transportation. For a list of State agencies and their role in wetlands protection and management, see Appendix A. As explained in the next paragraph, two state statutes require local governments to identify and protect critical areas, one of which is wetlands.

The role of local governments

In Washington State, local governments are empowered to oversee land use and development. They also hold decision-making authority regarding wetland protection through the GMA. Under GMA, local governments are responsible for designating and protecting wetlands by adopting Critical Areas Ordinances and are encouraged to augment regulatory protection with incentives for voluntary conservation. Local governments develop comprehensive land-use plans that ensure future growth meets the needs of the community while protecting natural resources and the environment. These plans often include provisions for wetlands and aquatic resources. Shorelines and their associated wetlands are protected through locally administered Shoreline Master Programs under the SMA. See a description of the SMA and GMA in the Regulatory section.

The role of federal government

Several federal agencies play a significant role in management of our Nation's waters and Washington wetlands. These agencies, including EPA⁵, National Oceanic and Atmospheric Administration - Fisheries, Corps, and U.S. Fish and Wildlife Service among others, administer regulatory programs that help protect wetlands and aquatic resources, and are a source for technical tools and funding resources. Agencies such as the U.S. Forest Service and National Park Service protect and manage wetlands which occur on federally-owned lands, often in the headwaters of most major watersheds in the state. Other agencies with land management responsibilities which may include wetlands are the Bureau of Land Management and the Bureau of Reclamation. The Natural Resource Conservation Service provides funding and technical assistance to landowners with wetlands. These agencies work in coordination and under different authorities related to their overall mission. For a list of federal agencies and their role in wetlands protection and management, see Appendix C.

⁵ See the U.S. EPA's web page: <http://water.epa.gov/type/wetlands/index.cfm>.

The role of tribal governments

There are 29 federally recognized Indian tribes in Washington State whose governments manage natural resources on reservations and nearby federal trust lands. They also have interests in off-reservation wetlands that provide habitat, material, and cultural resources. See the map at the end of this section for reservation boundaries.

Five tribal governments⁶ in Washington State have completed wetland program plans that have been approved by the EPA. Several other tribes are currently developing their wetland plans. Other tribal governments have wetland management programs in place but have elected not to develop a Wetland Program Plan or seek approval by the EPA. A number of tribal governments have, or are currently pursuing, EPA delegation under the Clean Water Act section §303 and §401, and other programs.



Photo credit: Ecology

Many tribes have treaty-reserved rights to harvest and manage various natural resources such as salmon, shellfish, and plants. Those rights are predicated on productive habitats and good water quality, which are often inextricably linked with wetlands. Salmon are a keystone species for Washington's Tribes, critical to their livelihood and culture. Washington has several salmonid species listed as threatened and endangered under the Endangered Species Act. Wetlands provide vital habitat during parts of their life cycle, so it is critical for their recovery that wetlands are protected and restored. Wetlands also provide critical habitat for other culturally significant animals such as beaver and moose. In addition, there are several tribes on the state's borders with cultural and natural resource interests in Washington. Tribal

governments contribute to the management, regulation, assessment, and conservation of these natural resources. Tribal treaty rights and cultural resource values associated with wetlands are an important consideration for land managers throughout the state.

⁶ As of March 2015, WA tribes with completed plans include the Confederated Tribes of the Colville Reservation, the Kalispel Tribe, the Port Gamble S'klallam Tribe, the Stillaguamish Tribe, and the Tulalip Tribes. See the U.S. EPA's web page for approved plans in Region 10: <http://water.epa.gov/type/wetlands/wpp.cfm>.

Wetlands provide many important cultural functions and values to tribes and tribal members, as well as economic, ecological, and cultural functions valued by all Washington citizens. Wetlands and the specific places where they occur can be culturally important to tribes for many reasons, including spiritual, ceremonial, archaeological, and historic significance. They are habitat for traditionally valuable plants, for example cedar, camas, wapato, spatterdock, bulrush, cattail, skunk cabbage, lady fern, and willow, among many more. These plants are used as food, fiber, medicine, tools, and other purposes.⁷

Wetlands are visited by the same families across generations and so become unique and irreplaceable features in a tribe's spiritual and ecological landscape. Culturally significant *wetland types* include salt marshes, bogs and fens, wet meadows or wet camas prairies, and forested wetlands, among others. Many Washington tribes have treaty guaranteed rights to hunting, fishing, and gathering resources in their usual and accustomed areas, beyond reservation boundaries⁸. Many wetlands support treaty reserved or protected rights and species. Ecology is interested in working with tribal governments to explore ways to include cultural values in wetland management programs.

Synergy between tribal, state, and local governments is important to the successful management of resources, from fish to timber to wetlands, across the state. Wetlands within reservations or on tribal lands may be managed by tribal governments in cooperation with the EPA, Corps, the Bureau of Indian Affairs, and various landowners. On reservations and on tribal trust lands, tribal regulations and/or federal regulations apply (see descriptions of federal regulations in the next section).

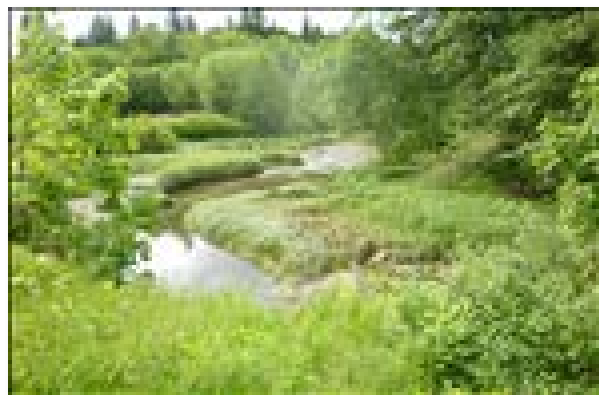


Photo credit: Ecology

Washington's Treaty Tribes have constitutionally protected, federally adjudicated, treaty-reserved rights to harvest and manage natural resources in their usual and accustomed areas. For those tribes, their resource management rights extend beyond their territorial reservation boundaries. Non-treaty tribes may also have federally reserved rights to harvest natural resources and therefore have a strong interest in ensuring that resource management actions beyond their territorial reservation boundaries do not harm such rights. In an effort to ensure that their reserved rights are protected, many tribes review all activities that have the potential to affect trust resources via local, state, and federal environmental review and permitting processes. For example, tribes may review §404 permits, §401 certifications, and State Environmental Policy Act (SEPA) or National Environmental Policy Act reviews, and then provide state and federal agencies with comments and direction to ensure that proposed projects and attending mitigation are protective of their reserved rights and resources and do

⁷ *Plants of the Pacific Northwest Coast*. eds. Pojar, J. and Mackinnon, A. ©1994 Lone Pine Press, Vancouver, B.C.

⁸ Language from the Boldt decision, reference *Washington v. Fishing Vessel Assn.* 443 U.S. 658 (1979).

not impede access to their usual and accustomed areas. Tribes are also often engaged in review of proposed actions to ensure that projects do not disturb or alter cultural and historical sites and resources.

Within reservations and other lands reserved or held in trust by the United States for federally recognized Native American tribes, tribal governments may have adopted regulations intended to protect wetlands. These regulations will vary with each tribe, depending upon tribal resources, ownership characteristics of their reservation, CWA authorities delegated by the EPA to the tribe, and individual tribes' authorities, natural resource codes, and management structure. Tribal regulations protecting wetlands may include water quality standards, water resources protection codes, hydraulic project approvals or other environmental permits, land use, zoning, shoreline management, cultural resource protection, or other codes. Within a reservation or on other lands within Indian Country⁹, project proponents should contact the tribal department or departments administering water protection codes to understand the tribal, and in some cases federal, regulations applicable to their activities.

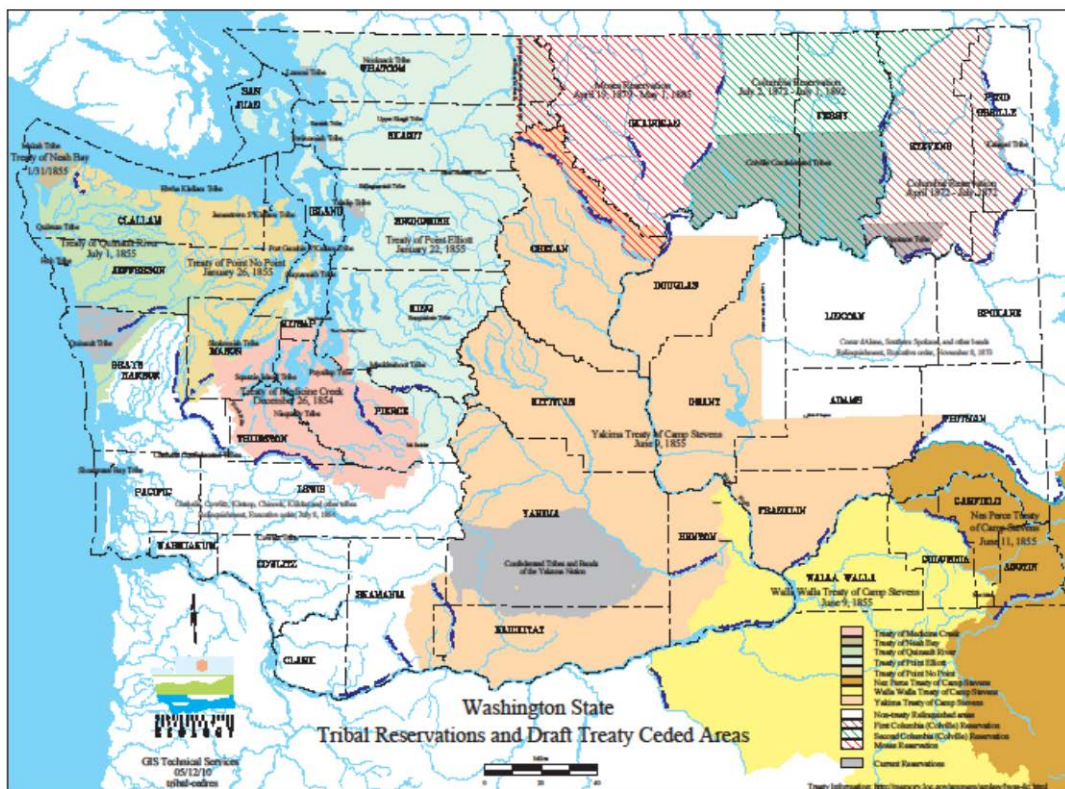


Figure 2. Map of Washington State Tribal Reservations and Draft Treaty Ceded Area.
 Map from http://goia.wa.gov/tribal_gov/documents/Tribal_Cedres.pdf.

⁹ For a definition of Indian Country, see <http://www.law.cornell.edu/uscode/text/18/1151>.

The Big Picture for Long-Term Management

Building from the past

There were two major planning efforts in the past that provide direction and context for developing this plan: the *State Wetland Integration Strategy* (SWIS, 1994)¹⁰ and the *Making Mitigation Work* report (2008)¹¹. These guiding documents have shaped the state's wetland program and demonstrate the importance and value of long-term planning and agency coordination.

The goal of the SWIS was to *develop and implement a more effective, efficient, and coordinated system to better protect the wetland resources of Washington State*. Six workgroups were created to focus on specific wetland issues and develop recommendations for improving wetland management statewide. Those focus areas were: regulatory reform, economics, planning and public process, education, non-regulatory methods, and technical aspects of wetlands protection.

A total of 47 recommendations were developed by the six work groups. These recommendations required a variety of actions for implementation. Some included the development of legislative or administrative rules or local government activities, and most required action by state or federal agencies. SWIS participants included local, state, and federal agencies, tribal governments and tribal interests, agricultural interests, private businesses, and environmental organizations.

The SWIS has served as a guiding document to Ecology staff for over 15 years. Based on a survey of Ecology staff, eleven of the actions outlined in the plan have been completed, six are currently being implemented, and seventeen of the recommendations remain high priority actions for the program. A lack of funding and staff has hampered efforts to complete more actions. As the state's wetland program has evolved, several of the actions have become low priority or irrelevant to the current program. Those that remain high priority were incorporated into this plan.

The *Making Mitigation Work* report was developed by the Mitigation That Works Forum¹². The Forum was created to develop a vision of what a comprehensive range of mitigation options would look like, including tools like wetland mitigation banking and *in-lieu fee* (ILF) programs. The report resulted in five major recommendations:

¹⁰ See <https://fortress.wa.gov/ecy/publications/SummaryPages/95100.html>.

¹¹ See <https://fortress.wa.gov/ecy/publications/SummaryPages/0806018.html>.

¹² See <http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/forum/index.html>.

1. Reinforce the importance of avoiding and minimizing impacts to resources that are highly valuable and difficult to replace, such as peatlands and mature forested wetlands.
2. Establish an ecosystem or watershed-based approach to mitigation.
3. Develop and implement a wide variety of compensatory mitigation tools.
4. Develop more coordinated, predictable approaches to reviewing development projects and associated mitigation plans.
5. Support making mitigation work (implementation with training and technical assistance, incentives, and investments).

These recommendations are incorporated throughout the elements of this plan. They remain a high priority to meet the goal of no net loss and overall net gain of wetlands in Washington State. Since 2008 several of these actions have been implemented and have resulted in a stronger, more effective mitigation and compliance program.

We will post an overview of the recommendations and implementation actions of SWIS and the Making Mitigation Work Report on the Wetland Program Plan web page. For each action, we will include an update on the status, current priority, and if and where it is included in the Wetland Program Plan action tables. Please see:

<http://www.ecy.wa.gov/programs/sea/wetlands/ProgramPlan.html>.

A watershed approach to wetlands management

Successful wetland management depends on taking a broader perspective, looking beyond an individual wetland to consider the larger watershed, including the distribution, abundance, and location of wetlands within a watershed. A watershed perspective helps ensure that actions impacting water resources of the state are considered in the broader landscape context. Watersheds contribute water to the downstream areas, influencing *wetland functions* and processes and being influenced by them.

The State as well as the EPA and Corps¹³ recommend a watershed approach to wetland resource protection and management, which is also reflected in planning documents produced by Ecology. Two of the documents are discussed below. The state supports a watershed approach to determine and evaluate cumulative impacts, guide permitting and restoration priorities, and identify priority areas for protection and mitigation. Program priorities are framed in a watershed context, in consideration of the broader processes that govern the formation of structure and function of wetlands at the site scale. The state has embraced a watershed approach in several ways, as the following projects demonstrate.

Developing a Puget Sound Watershed Characterization Tool¹⁴ Ecology, in partnership with the Department of Fish and Wildlife and the Puget Sound Partnership, has developed a *watershed*

¹³ See http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/mitig_info.aspx.

¹⁴ See the Puget Sound Watershed Characterization Project web page:
http://www.ecy.wa.gov/puget_sound/characterization/.

characterization tool for Puget Sound¹⁵. This web-based GIS tool provides decision makers, such as local governments, and resource managers with watershed-level assessments that can be integrated into planning decisions. Based on watershed boundaries, this tool provides spatial information about water flow, habitat, and water quality processes. These data help identify which areas to prioritize for developing land-use plans (such as identifying areas suitable for development and those that may be relatively more suitable for protection or restoration), and mitigation locations. Therefore overall impacts to wetlands and broader watershed processes may be minimized.

Selecting Wetland Mitigation Sites Using a Watershed Approach¹⁶ Ecology has developed watershed-based guidance for selecting wetland mitigation sites in the form of tools for western¹⁷ and eastern¹⁸ Washington. This guidance is part of Ecology's efforts to ensure mitigation is appropriately located on the landscape, addresses restoration of watershed processes, is sustainable, and has a high likelihood of ecological success. Ecologically successful wetland mitigation relies on selecting a location in the landscape where the functions of the wetland are feasible, protected, and restored, and contribute to the restoration of watershed processes. Further, watershed-based site selection considers whether constraints within the watershed may limit or impair the functions of proposed wetland mitigation sites. A key component of site selection is identifying where wetland mitigation will be sustainable over the long term.

A primary criterion for selecting compensatory mitigation sites is the watershed in which the impacts occur. Locating mitigation sites based on watershed needs and conditions can occur through mitigation banking, ILF programs, or permittee-responsible mitigation.

Ecology's watershed-based site selection for wetland mitigation involves:

1. Understanding how *ecological processes*, such as the movement of water, determine the characteristics and ecological functions in a drainage basin (watershed).¹⁹
2. Determining the extent to which the watershed processes have been altered (e.g., change in groundwater flows resulting from the conversion of forests to other land uses).
3. Identifying areas where these processes can be most effectively restored, and where they need to be protected.
4. Assessing the role voluntary and compensatory restoration can play in repairing those processes and replacing wetland functions lost in the watershed.

Using Water Resource Inventory Areas (WRIAs) WRIAs are watersheds that encompass relatively large geographic areas drained by rivers in Washington. Used by many entities for land-use planning and management, they provide a common geographic planning unit and

¹⁵ Development of this tool was funded in part by EPA's Puget Sound National Estuary Program watershed grants.

¹⁶ Mitigation Resources (Choosing a Mitigation Site): <http://www.ecy.wa.gov/mitigation/resources.html>.

¹⁷ Site selection tool for western WA: <https://fortress.wa.gov/ecy/publications/summarypages/0906032.html>.

¹⁸ Site selection tool for eastern WA: <https://fortress.wa.gov/ecy/publications/summarypages/1006007.html>.

¹⁹ There are no size limits to the drainage basin used for the analysis. A watershed approach can be used in small drainage basins that are only several square miles in size, or in entire river basins such as the Snohomish River.

encourage consideration of the larger-scale implications of land development and wetland protection. The WRIA is a common watershed unit used in selection of sites for *wetland mitigation banks* and ILF programs.

The use of WRIAs was formalized under Washington Administrative Code (WAC) 173-500-040 and authorized under the Water Resources Act of 1971 (Chapter 90.54 RCW). These boundaries were designated and are managed by Ecology²⁰.

Making Mitigation Work A key recommendation within the 2008 *Mitigation that Works* forum report is to establish an ecosystem or watershed-based approach to mitigation. This recommendation highlights the importance of understanding the landscape within which decisions and activities take place. This understanding results in better, more successful outcomes when ecosystem processes and watershed conditions are carefully considered.

There are several actions associated with this recommendation in the report, including efforts in state/federal collaboration, expansion of watershed characterization information, creation and maintenance of a status and trends wetland inventory, and providing tools and guidance.

Wetlands and climate change

The changing climate of our planet will result in a rising sea level, changes to the amount and timing of rainfall, and changes to the pattern of seasonal temperatures. Models of climate change in the Pacific Northwest predict significant changes in the type and size of wetlands along the coast and the Salish Sea.²¹ These changes can affect the distribution, function, and integrity of wetlands in the region, which will alter many of the important ecological processes, values, and benefits provided by wetlands. These changes may require that we find new ways to manage wetlands. Further, wetlands themselves can provide ecosystem resilience in the face of projected climate change impacts.

At present we do not fully understand all the changes to ecosystems that can result from climate change, so it is important to monitor wetland functions and condition through time. Tracking changes over time may allow us to distinguish between natural cyclical fluctuations and those caused by climate change. Additionally, it is important to monitor the effectiveness of our efforts to protect, restore, and enhance wetland and aquatic resources within the context of a changing climate.

²⁰ See <http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm>.

²¹ See http://www.nwf.org/pdf/NPLCC%20Reports/NPLCC_Marine_Climate-Effects_Draft-Final_FullReport.pdf and http://www.nwf.org/pdf/NPLCC%20Reports/NPLCC_Freshwater_Climate-Effects_Draft-Final_FullReport.pdf.

Core Element - Regulation

EPA outlines three basic elements for a successful regulatory program:

1. A clear and comprehensive jurisdictional scope
2. A method to authorize impacts to aquatic resources and assess proposed authorizations
3. A method of assuring compliance

Definition

This core element is defined as the authorities under which the state implements its regulatory program.

Washington is addressing all three elements as described below.

Clear and comprehensive jurisdictional scope

As discussed in the section on *Wetland Management in Washington State*, there are several authorities through different agencies that protect wetlands. The list below provides a summary of the state laws regulating wetlands. See Appendix B for a description of each regulation.

State laws guiding wetland regulation in Washington				
Law	Implementation	Jurisdiction	Application to wetlands	Implementing agency
State Water Pollution Control Act (Chapter 90.48 RCW; WAC 173-200)	Permits, administrative orders, or water quality certifications	Any pollution of <i>waters of the state</i>	Authorization required for discharging pollutants in waters of the state. Waters of the state includes wetlands	Ecology
State Growth Management Act (Chapter 36.70A RCW; WAC 365-196)	Consistent with local comprehensive plans and development regulations. Various permits may be required	All jurisdictions in WA are required to designate and protect wetlands as critical areas	Requires protection of all critical areas. Wetlands are designated as critical areas	Local jurisdiction, Commerce

State laws guiding wetland regulation in Washington

State Shoreline Management Act (Chapter 90.58 RCW; WAC 173-27)	Shoreline Master Programs guide development and protection efforts. Permits are required to ensure that proposed activities comply with local shoreline master programs and the SMA	Fresh and marine shorelines, streams with a mean annual flow over 20 cfs ²² , lakes 20+ acres, landward areas 200 ft from the OHWM ²³ or the floodway; associated wetlands, river deltas and certain floodplains	Includes all land within 200 feet of the OHWM of a state shoreline. Jurisdiction may be extended to include the entirety of an associated wetland and/or floodplain	Local jurisdiction, Ecology
State Hydraulic Code (Chapter 77.55 RCW; WAC 220-110)	Hydraulic Project Approval (HPA) permit required for all projects that affect the bed or flow of state waters	Activities affecting waters of the state	All activities in and adjacent to wetlands that affect the bed or flow of state waters	WDFW
Forest Practices Act (Chapter 76.09 RCW; WAC 222)	Permit required for some forestry related activities (e.g., harvest and road building)	State-owned and private timberlands	Restricts harvest activities in and around certain types of wetlands	WDNR
State Environmental Policy Act (Chapter 43.21C; WAC 197-11)	Environmental review is required for all project and non-project proposals unless the activity is exempted under state law	All jurisdictions (local government, special purpose districts, the state) in WA are required to implement SEPA	All activities in and adjacent to wetlands	Usually the first agency to issue a permit. There are exceptions and flexibility about lead agency status

²² Cfs – cubic feet per second

²³ Ordinary High Water Mark, see http://www.ecy.wa.gov/programs/sea/sma/st_guide/jurisdiction/OHWM.html.

State authorities for wetland protection are broader than the federal regulations. The state has the right to exercise state and local authority to establish protocols for managing wetlands that fall outside federal and tribal jurisdiction. For example, impacts to wetlands outside of federal jurisdiction, such as isolated wetlands, are authorized through administrative orders under the State Water Pollution Control Act.

Another example is the leasing or regulatory requirements by WDNR and WDFW that address state owned *aquatic lands* and stream habitats, which are included in the State's definition of waters of the state.

In general, the State emphasizes a local approach to wetland protection and regulation. As discussed in the section *Wetland Management in Washington*, counties and municipalities are authorized and required by the Growth Management Act (GMA) to regulate wetlands within their jurisdictions. In the context of GMA, successful regulation, compensation, compliance, enforcement, and monitoring are largely dependent on programs at the local level. Local governments typically adopt Critical Areas Ordinances (CAO) to accomplish this requirement. State agencies play an advisory role by providing comments during CAO updates and by offering technical assistance with delineations and wetland ratings, developing technical tools, and guidance. In the case of the SMA, Ecology has the authority to approve the local Shoreline Master Plan (SMP) and its wetland protection regulations.

State-administered Federal Law, Section 401 Clean Water Act

Washington State has an active Clean Water Act §401 water quality certification program. Ecology is the responsible agency for issuing §401 water quality certification decisions. The Federal Water Pollution Control Act (Clean Water Act) gives states the power to approve, condition, or deny proposed projects in waters of the US, including wetlands, to ensure they meet state water quality standards. To certify a project, Ecology must be assured that the proposed project complies with the state water quality standards and other protective requirements under Ecology's authority. Any actions necessary to protect water quality are then included as conditions in the §401 water quality certification.

A method of authorizing impacts and assessing proposed authorizations

For most projects potentially impacting wetlands, applicants pursue regulatory approval through completion of a Joint Aquatic Resources Permit Application²⁴ form. This application is used to facilitate permit processing within and between the federal, state and local agencies, and other federal authorities. Partners for this permit application form include:

- Local governments
- Washington State Department of Ecology

²⁴ See http://www.epermitting.wa.gov/site/alias_resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

- Washington State Department of Natural Resources
- Washington State Department of Transportation
- US Army Corps of Engineers
- US Environmental Protection Agency.

For example, the agencies with jurisdiction review the submitted application, wetland delineation report, proposed mitigation plan, and other supporting documentation. The wetland delineation report identifies existing wetland area, classification, estimated functions, and unavoidable impacts. The mitigation plan describes how the applicant intends to compensate for unavoidable wetland impacts. Using this information, the agencies determine whether a permit or administrative order is needed to comply with specific statutes and what conditions are required to protect the resource and compensate for losses.

Agencies may also be notified of projects with potential wetland impacts through the State Environmental Policy Act (SEPA) process. SEPA notification is provided by the lead agency (normally the local government, which may be the first agency to issue a permit). Often times SEPA notification is the first notice about a proposed project.

SEPA review results in a better understanding of the potential environmental impacts, and it can help local governments modify a proposal to reduce significant impacts. Where there may be significant impacts, the SEPA lead agency may require the applicant to prepare a Draft Environmental Impact Statement to better evaluate the impacts. Following the Final Environmental Impact Statement, the SEPA rules allow state and local government to deny a proposal when significant adverse impacts are identified and unavoidable.

MAP Teams

For some transportation projects with unavoidable wetland impacts, multi-agency permitting (MAP) teams are formed to facilitate the timely delivery of quality transportation programs, protect and enhance environmental quality, and make effective and efficient use of agency resources. This framework was developed by WSDOT, Ecology, WDFW, and other federal and state partners. These teams have also formed for other regulated activities, such as shellfish aquaculture permitting.

Mitigation sequence

The state strives to meet the goal of no net loss and overall gain in part through avoidance, minimization and compensatory mitigation strategies. Avoidance of wetland impacts is required by §404 of the federal Clean Water Act, the 2008 Federal Mitigation Rule and the State Environmental Policy Act as the first step in mitigation sequencing. If impacts can be avoided through planning or design alternatives, it better serves the environment, as well as the applicant who would otherwise be obligated to pay the cost of any mitigation. If impacts cannot be avoided then they must be minimized through consultation and planning efforts. In all cases,

landscape-scale tradeoffs are considered when wetland mitigation sequencing is applied²⁵. The applicant must compensate for any unavoidable impacts using methods outlined in the permitting process.

Types of compensatory mitigation

Federal, state, and local wetland regulations typically require compensatory mitigation for activities that impact wetlands. Compensatory mitigation can include establishment, *re-establishment*, *rehabilitation*, enhancement, and preservation. Approved mitigation plans may require a combination of these strategies to compensate for unavoidable impacts. The following definitions are from the interagency wetland mitigation guidance (2006)²⁶.

The general order of preference for the types of wetland compensation is:

- Restoration (re-establishment, rehabilitation)
- Creation (establishment)
- Enhancement (preferred in combination with restoration and/or establishment)
- Preservation

Restoration is the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. This is divided into two categories:

- Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic processes and functions to a former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres and functions.
- Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions and processes of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres.

Creation (also known as establishment) is the manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment results in a gain in wetland acreage and function.

Enhancement is the manipulation of the physical, chemical, or biological characteristics of a wetland to heighten, intensify or improve specific function or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such

²⁵ In some cases, impacts to degraded or low functioning wetlands may be preferred over impacts to a high quality or high function non-wetland habitat.

²⁶ See *Wetland Mitigation in Washington State, Parts 1 and 2* (Publication #s 06-06-011a and 06-06-011b): <http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/guidance/index.html>.

as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in an improvement in some wetland functions but may lead to a decline in other wetland functions. It does not result in a gain in wetland acres.

Preservation (also known as protection/maintenance) is defined as the removal of a threat to, or preventing the decline of, *wetland conditions* by an action in or near a wetland. This term includes the purchase of land or easements, repairing water control structures or fences, or structural protection. Preservation does not result in a gain of wetland acres or function.

Figure 3 below shows options for maintaining and increasing the area, condition, and functions of wetlands. Selection of options depends on the goals of the site, e.g. increase in functions, acreage, etc.

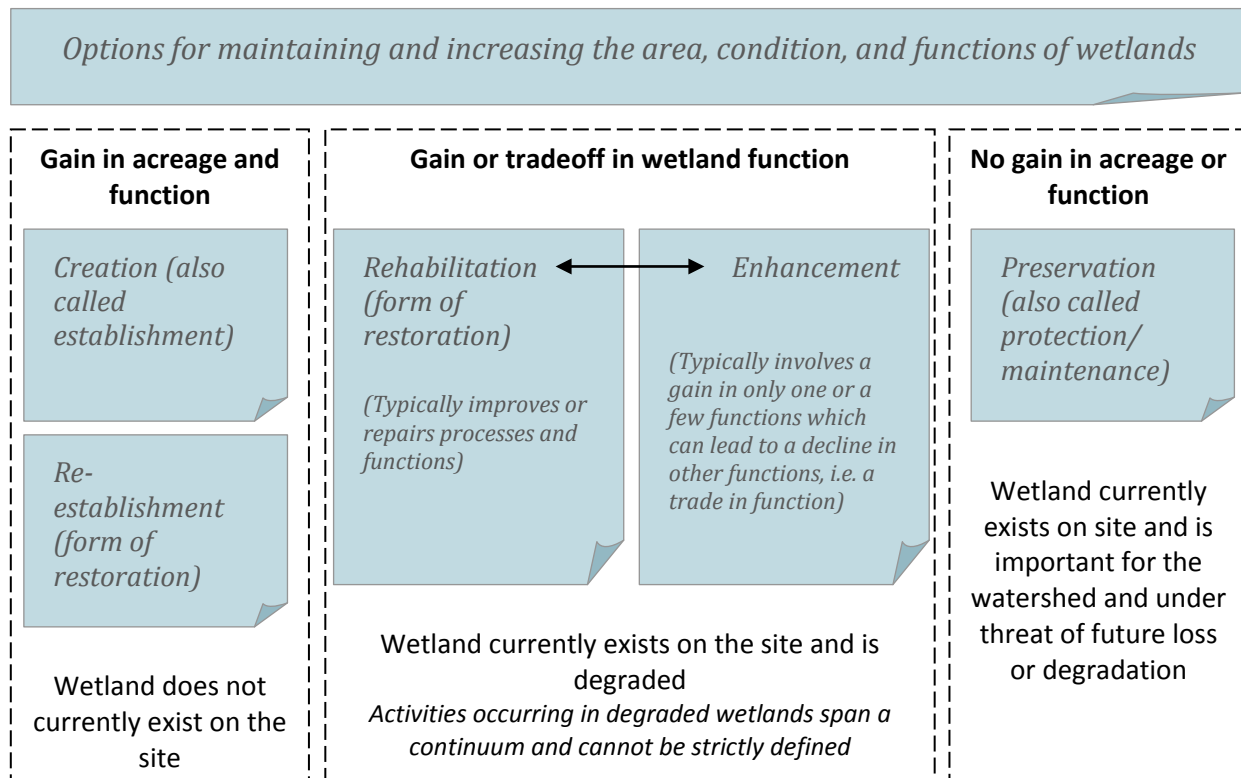


Figure 3: Definitions are consistent with *Wetland Mitigation in Washington State*, produced by Ecology, the Corps, and EPA (Version 1, March 2006, Publication #06-06-011a).

Approaches to compensatory mitigation

Mitigation may take place onsite or at an offsite location. If the functions or habitats lost are critical to replace onsite, the mitigation may be required onsite. However, when looking at the impacts from a watershed perspective, it may be determined that mitigation done at an offsite location is ecologically preferable to onsite compensation. If offsite mitigation is ecologically preferable or if the onsite mitigation would not be sustainable, the mitigation may be done

offsite. Mitigation activities can occur as permittee–responsible projects (concurrent and advance), mitigation banks, or in-lieu fee (ILF) programs.

Concurrent permittee-responsible mitigation Compensation for wetland impacts is provided at a wetland mitigation site (or sites) by the permit applicant concurrently as the impacts occur. The permittee is responsible for the site’s success. Because the mitigation is not completed before impacts occur, there is no guarantee that the site (or sites) will adequately compensate for the impacts.

Advance permittee-responsible mitigation Advance mitigation occurs when a permit applicant implements compensation at a mitigation site before, and in anticipation of, future impacts to wetlands. Because advance mitigation provides compensation prior to the impact occurring, and the mitigation has met its requirements, compensation of the impacts is more likely assured.

Mitigation banking²⁷ A wetland mitigation bank is a site, or suite of sites, where the various types of mitigation are implemented expressly for the purpose of providing compensatory mitigation in advance of unavoidable impacts to wetlands, or other aquatic resources. One of the differences between advance, permittee-responsible mitigation, and banking is that sponsors of mitigation banks can sell compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor.

Mitigation banking is one of the most recognized forms of conservation markets²⁸. Wetland mitigation banks consolidate compensation for many small impact projects into one larger, and likely more ecologically valuable, site. Such consolidation encourages greater diversity of habitat and other wetland functions. It also helps create more sustainable systems. These banks provide mitigation prior to impacts occurring at the site of the development project. The bank generates credits through demonstrating ecological success and therefore when applicants purchase the credits from the bank, compensation for their impacts is more likely assured. Use of mitigation banks is based on a service area; credits must be from the same service area (usually a watershed) as the impact.

In-lieu fee programs (ILF)²⁹ In-lieu fee programs involve mitigation where applicants pay a fee to a third party in-lieu of conducting their own project-specific mitigation or buying credits from a mitigation bank. The fee is held in trust until it is used to finance a mitigation project. As with mitigation banks, they consolidate compensation for many small impacts into one larger, and likely more ecologically valuable, site. However, compensation occurs after the wetland impacts and the fees must be used to implement a compensatory mitigation project within three years. As with banking, ILF mitigation must be within the same service area as project impacts.

²⁷ See <http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/index.html>.

²⁸ Conservation markets are a technique for monetizing ecosystem services.

²⁹ See <http://www.ecy.wa.gov/mitigation/ilf.html>.

Given the assurances associated with banking and ILF, the 2008 federal mitigation rule establishes a preference hierarchy for these mitigation options (§230.93[b]). The rule generally provides a preference for use of mitigation banks where the permitted activity is in the service area of an approved bank with the appropriate types of credits available. In the absence of an approved bank, in-lieu-fee programs are preferred over permittee-responsible mitigation.

An Interagency Review Team (Ecology, Corps, and EPA) certifies and plays an ongoing role in the development, approval, and management of mitigations banks³⁰ and in-lieu fee programs. As of March 2015, there are 14 approved mitigation banks operating in the state³¹. Those banks cover over 2,200 acres of wetland and associated upland buffer and stream habitats. There are four approved and operating ILF programs in the state: King County, Hood Canal Coordinating Council, Pierce County, and one on tribal land. Three more ILF programs are currently in review.

While earlier studies³² have shown that permittee responsible mitigation is only partially successful, banking and ILF are relatively new in Washington and there is no consensus among stakeholders on the effectiveness of these programs. The agencies (Corps, EPA, and Ecology) will be evaluating the programs over time as they are implemented. It is too early at this time to say that the programs are fully successful. The assessment will include determining the level of ecological and compliance success on the bank sites, functions provided compared to those lost, and area replacement. Through this evaluation of the banks and ILF programs, the agencies will be able to determine if changes are needed to ensure that the programs meet their goals to provide appropriate and successful compensation.

A method of assuring compliance

Compliance and enforcement are important parts of an effective regulatory program. The purpose of compliance and enforcement is to ensure that permittees meet the terms and conditions of their permits resulting in resource protection and compensation, including successful implementation of a required mitigation plan. Without follow up after a permit is issued, protection and compensation may not occur and a net loss in wetland area and function may result.

Agencies have varying capacity to ensure compliance with mitigation requirements and enforce the conditions of their permits. Ecology established a wetland mitigation compliance team, initially funded through EPA and now financed through state government. The compliance team ensures mitigation compliance during follow-up site visits (as-built, mid-monitoring, and close-out) and review of monitoring reports.

³⁰ Ecology developed rules for certifying banks (WAC 173-700) under RCW 90.84.

³¹ See <http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/map.html>.

³² See Chapter 6 (The Science and Effectiveness of Wetland Mitigation) in *Freshwater Wetlands in Washington State Volume 1: A Synthesis of the Science* (March 2005, Ecology Publication #05-06-006): <http://www.ecy.wa.gov/programs/sea/wetlands/bas/volume1final.html>.

Compensatory mitigation projects are generally monitored to ensure projects ultimately meet the goals, objectives, and performance standards identified for individual mitigation sites. The



Photo credit: Ecology

duration of the monitoring depends on the scale of the project, the type of habitat, and the level of uncertainty of success. The compliance team strives to work collaboratively with permittees and engage them in adaptively managing the sites by providing recommendations. If the site remains out of compliance, or contingency actions are not implemented, enforcement measures may be taken which could result in additional compensatory mitigation requirements or penalties.

Violations

In addition to Ecology's mitigation compliance team, enforcement efforts also focus on violations resulting in impacts to wetlands where a §401 water quality certification or Administrative Order was not requested or granted. These violations of state water quality standards are discovered through Ecology's Environmental Report Tracking System, phone or email from a concerned citizen, or other agency personnel. There is no program currently in place to proactively seek out violations.

Once a violation is discovered, it is investigated and the severity of the impacts to the resource is determined. If deemed necessary, a joint site inspection in coordination with other local, state, and federal agencies is conducted. Voluntary compliance is preferred. However, if immediate compliance is not achieved, the incident may be referred to a multi-agency Field Level Agreement team. This team consists of enforcement staff from the Corps, EPA, NOAA, and Ecology. It meets quarterly to discuss and assign responsibilities for enforcement cases. If cases are not resolved within a reasonable timeframe, and the violation is significantly egregious, the EPA may accept the case for further enforcement.

Table 1 – Regulatory actions

Goal: To increase protection at the landscape and site scale by avoiding, minimizing, and where there are unavoidable adverse impacts, ensuring adequate compensation for wetland loss.

Objective 1: Promote efficient and consistent administration of regulatory activities through coordination among state and federal agencies and support to local governments.

Regulatory Objective 1 Action	Lead; Partners	Activity
1. Implement consistent review of SEPA (ensure environmental impacts are assessed by reviewing SEPA applications)	Ecology; state agencies, local gov'ts	<ol style="list-style-type: none"> 1. Build capacity within state agencies to review all SEPA applications 2. Update or develop new comment language for SEPA applications 3. Continue to provide timely comments, as necessary 4. Provide training to local staff on SEPA implementation
2. Implement regulatory activities according to a clear and effective set of criteria for reviewing and responding to applications to streamline the permit process	Ecology; local gov'ts, Corps, WDFW, WDNR, EPA	<ol style="list-style-type: none"> 1. Develop criteria to determine the completeness of applications 2. Develop criteria to determine the adequacy of applications 3. Continue to refine application processes and protocols 4. Establish multi-agency permit (MAP) teams as needed for application processes 5. Explore establishing interagency technical teams to assist smaller jurisdictions lacking technical staff 6. Develop guidance for applicants communicating new criteria (for example, completeness of application, etc.)
3. Enforce state permit³³ conditions and address violations to ensure wetland protection	Ecology; WDFW, WDNR	<ol style="list-style-type: none"> 1. Continue to update, develop, and implement enforcement and compliance mechanisms, guidelines, and resources 2. Increase focus on violations, and compliance with and enforcement of, permit conditions for impact and mitigation sites, including shorelines 3. Continue to explore new avenues for working with local governments on enforcement of permit conditions
4. Explore options for alternative permitting processes	Ecology; ORIA, state resource	<ol style="list-style-type: none"> 1. Explore State Programmatic General Permits (SPGPs) or Regional General permits (RGP) as a method to increase efficiency of the program by eliminating

³³ “permits” in this context means any authorization, certification, or other regulatory mechanism to allow impacts

Regulatory Objective 1 Action	Lead; Partners	Activity
	agencies, EPA, Corps, USFWS, NOAA Fisheries	duplication between state and federal permits, such as an RGP for levee setbacks that would include a programmatic mitigation approach 2. Explore incentives (permit fee waiver, permit goes first in line) for projects which avoid wetland impacts completely (i.e. project redesign) or some other permit-related incentive mechanism
5. Continue to coordinate among agencies, programs, industry, tribal governments, and local governments to reduce duplicative efforts and increase consistency	ORIA; Ecology, Corps, WDNR, WDFW, tribal gov'ts, local gov'ts	1. Create an interagency workgroup to develop clear roles, responsibilities, and procedures that increase coordination for projects requiring multiple permits 2. Convene interagency workgroup to explore permitting/certifications decisions conditioned to meet the requirements of multiple agency permit decisions 3. Explore the development of inter-local agreements to achieve joint use of available technical resources and foster cooperation among agencies in developing watershed-based regulatory programs
6. Continue to provide technical assistance to local governments in developing and administering wetland regulations	Ecology; local gov'ts, Commerce, WDFW, WDNR-NHP	1. Continue to review and comment on CAOs 2. Continue to provide SMP comment and approval 3. Continue to provide technical assistance to local governments on project-specific permit actions 4. Continue to provide training to local governments on wetland management approaches and tools 5. Work with local governments on establishing adaptive management programs for the protection of wetlands

Objective 2: Increase wetland protection and reduce wetland impacts through better application of avoidance and minimization practices.

Regulatory Objective 2 Action	Lead; Partners	Activity
1. Reinforce the importance of avoidance and minimization in the regulatory process	Ecology, local gov'ts, WDNR, WDFW	1. Identify and pilot incentives for avoiding impacts to wetlands 2. Offer technical assistance to project applicants to find solutions that avoid impacts
	Ecology, WDFW, EPA, Corps	3. Develop and share avoidance/minimization guidance as outlined in the <i>Mitigation That Works</i> report and in the Forest Practices rules

Regulatory Objective 2		
Action	Lead; Partners	Activity
2. Encourage comprehensive plans and zoning that avoid locating new development in areas with many or valuable wetlands	Ecology; local, gov'ts, WDFW, WDNR, PSP	1. Work to iteratively improve wetland mapping throughout the state 2. Increase use of watershed characterization or other methods to identify key areas to avoid developing 3. Identify high priority wetlands for protection
	Commerce; Puget Sound Reg. Council	4. Use transfer of development rights and other techniques to protect key lands
	Commerce;	5. Develop state capacity to assist with local comprehensive planning, as needed

Objective 3: Develop successful compensatory mitigation strategies for unavoidable wetland impacts.

Regulatory Objective 3		
Action	Lead; Partners	Activity
1. Use mitigation banking and in-lieu fee programs for compensatory mitigation	Ecology; local gov'ts, WSDOT, EPA, Corps	1. Continue to encourage the development of mitigation banks and ILF programs 2. Continue to encourage local governments to include banking and ILFs as a compensatory mitigation option within their jurisdiction 3. Develop and implement trainings on alternative mitigation such as ILF
	WSCC; Conservation Districts	4. Explore using ILF programs to support farmland preservation programs to permanently protect wetlands on these landscapes.
2. Explore launching a state-run in-lieu fee program	Ecology; Corps, EPA, WDFW, WDNR, Parks, WSDOT, PSP	1. Coordinate with WDFW, WDNR, Parks, WSDOT, PSP, and other partners to establish interest, authority, process and protocols 2. Develop a framework for an ILF program operated by the state
3. Develop guidance for applicants on methods for monitoring compliance with requirements, such as performance standards, at mitigation sites	Ecology; WSDOT, Corps, EPA, WDFW, USFWS, NOAA Fisheries	1. Convene a working group to develop monitoring guidance 2. Gather information from other state and tribal programs on methods for compliance monitoring and develop recommendations 3. Draft guidance on methods to be incorporated in mitigation plan
4. Continue to improve the success of mitigation for authorized impacts	Ecology; local gov'ts, WDFW, Commerce, WSDOT, Corps,	1. Review and compile current science of mitigation and restoration efforts 2. Update minimum requirements and review criteria for mitigation as needed 3. Verify restoration techniques and BMPs and adapt as necessary (Restoration and Protection Obj. 1, Action 3, Activity 4)

Regulatory Objective 3 Action	Lead; Partners	Activity
	EPA, USFWS	<ol style="list-style-type: none"> 4. Explore the use of financial assurances for compensatory mitigation projects 5. Increase the use of the Credit/Debit Method³⁴ in assessing mitigation requirements 6. Encourage local governments to allow watershed-based, inter-jurisdictional mitigation in their code 7. Explore developing a clearinghouse of potentially available sites for wetland mitigation projects

Objective 4: Evaluate the state regulatory program and state regulated activities to ensure adequate protection of wetlands at the landscape and site scale.

Regulatory Objective 4 Action	Lead; Partners	Activity
1. Track and evaluate applicable programs and activities	Ecology; participating partners	<p>Program Implementation:</p> <ol style="list-style-type: none"> 1. Ensure impact assessments and mitigation crediting lead to replacement of wetland resources 2. Evaluate the environmental consequences of federal, state, and local regulatory actions (individually and cumulatively) 3. Assess effectiveness (in detail) of mitigation banks and other approaches <p>Permit/Certification Program Activity:</p> <ol style="list-style-type: none"> 4. Create a web-based tracking and mapping system that is integrated and accessible to all audiences 5. Ensure ongoing database management and QAQC of data 6. Track and evaluate state permit decisions and CWA §401 certifications on federal actions 7. Investigate the feasibility of making state permit decisions and CWA §401 certifications available on a publicly accessible webpage 8. To the extent practicable, track and evaluate local permitting actions in partnership with local governments 9. Explore the feasibility of developing a statewide inventory and clearing house for wetland delineations and data sheets submitted to local, state, and federal permitting authorities.

³⁴ See the Credit/Debit Method web page: <http://www.ecy.wa.gov/mitigation/creditdebit-comments.html>.

Regulatory Objective 4		
Action	Lead; Partners	Activity
2. Measure environmental results	Ecology; WDNR, WDFW, local gov'ts	1. Measure environmental results using measures and methods outlined in regulatory monitoring and assessment plan to be developed
3. Modify regulatory program as needed	Ecology; local gov'ts, Corps, EPA, WDFW, WDNR	<ol style="list-style-type: none"> 1. Make recommendations for federal and local regulatory actions, and adjust state regulatory actions, as needed 2. Modify impact assessment methods and mitigation crediting based on evaluation 3. Modify permitting/certification based on evaluation
4. Share information and results	Ecology; Corps, EPA, WDFW and other participating organizations	<ol style="list-style-type: none"> 1. Consider the end users of information and ensure format and distribution of information meets their needs 2. Promote the use of assessment tools 3. Encourage local governments to monitor consequences of local permitting to inform future actions and development of Critical Areas Ordinances 4. Share best practices, mitigation/restoration priorities, and assessment methods with others

Core Element - Voluntary Restoration and Protection

Voluntary restoration and protection refers to activities not required by statutes or regulations. Examples include land trusts purchasing titles or easements to wetland areas, community groups removing invasive species and planting native vegetation, and conservation programs that pay landowners to change practices such as cultivation or grazing that alter wetland areas. Also, state and local agencies can purchase wetlands from willing sellers and dedicate those sites for conservation purposes, for instance through grant sources like the Washington Wildlife Recreation Program³⁵. While by definition voluntary protection is not required, the lands can be secured through legally binding agreements, such as conservation easements.

Definition

Voluntary restoration and protection is the conservation and improvement of wetland resources through non-regulatory mechanisms. This includes wetland restoration (re-establishment and rehabilitation), establishment, enhancement, and preservation.

Voluntary restoration involves a range of activities that may occur in existing or former wetlands and their buffers. Restoration typically involves improving ecological processes, providing habitat for target species, or re-establishing historic conditions. Examples of voluntary restoration include:

- removing or breaching a dike or levee to reconnect a floodplain or re-establish tidal influence
- re-meandering a channelized stream
- planting trees and shrubs in riparian areas to provide canopy cover
- planting native vegetation to restore native plant communities
- adding large woody debris to a stream or riparian area
- filling ditches to restore hydrology
- fencing livestock out of sensitive areas.

Voluntary protection involves acquiring land outright or obtaining development rights for long-term preservation of wetlands and adjacent areas so they will not be impacted. Wetlands are preserved for a variety of reasons. One reason may be to protect *biodiversity* values. The Washington Department of Natural Resources Natural Areas Program targets wetlands with high biodiversity value to be included in a statewide system of natural areas. These areas are usually targeted because they have high conservation values and are often significant for protecting and maintaining biodiversity, to preserve uncommon wetland types or plant communities, or are wetlands in excellent condition. Some land trusts conduct similar

³⁵ See <http://www.rco.wa.gov/grants/wwrp.shtml>.

preservation activities. Other voluntary protection objectives may be to preserve significant wildlife habitat, specific ecological processes or services, locally significant wetlands, or working landscapes.

Some protection actions preclude public use. For example, WDNR prioritizes protection over public access on their Natural Area Preserves, so some are off limits for public use, except for allowed research and education activities. Other programs protect wetlands without precluding use, such as establishing an area as a park or wildlife viewing area, collaborating with landowners on managing uses to promote or protect key habitat or diversity attributes, or through purchase or transfer of development rights programs on farmlands. In all cases, uses are considered in light of wetland protection goals.

Non-regulatory protection efforts in the state

Much of the restoration and protection work in the state is being performed by non-profit organizations, community groups and interested landowners through various grant programs. There is a significant opportunity to enhance the state's role in helping voluntary wetland protection efforts and to foster and support coordination of the restoration and protection efforts in the state.

There is no single, comprehensive data source for tracking these activities. Therefore there is also an opportunity to explore partnering with non-governmental organizations to assess the need for and feasibility of developing a database to track and report restoration and preservation activities.

There are several efforts not mentioned previously that directly and indirectly restore, protect and enhance wetland resources. The following provides a brief summary of organizations involved with voluntary wetland restoration and protection efforts. A more complete list can be found in Ecology's wetland stewardship guide³⁶.

Local governments Many local governments are leading or assisting with efforts to voluntarily protect and restore wetlands. Local conservation commissions, zoning administrators, planners, and other officials all play a central role in how resources are restored and preserved in Washington. Additionally, there are many locally-driven restoration efforts taking place in partnership with state, federal, and tribal governments, as well as non-profit and for-profit companies.

Local governments administer open-space programs through their tax assessment and GMA comprehensive planning processes. Open-space programs outline a jurisdiction's vision for development, and may use principles of smart growth.³⁷ Some jurisdictions use a public

³⁶ See *Exploring Wetlands Stewardship: A Guide for Washington Landowners and Communities*
<https://fortress.wa.gov/ecy/publications/summarypages/96120.html>.

³⁷ See <http://www.epa.gov/smartgrowth/openspace.htm>.

benefits rating system to evaluate requests for enrollment in open space protection programs. This planning incorporates natural features on the landscape, including wetlands. These programs allow landowners to receive tax breaks for specific periods of time if their property meets criteria, and they agree to restrict land use for a designated length of time.

Conservation Futures, administered by local governments, is a land preservation program that protects threatened areas of open space, timber lands, wetland, habitat areas, and agricultural lands. Conservation Futures funds are used to acquire the land or the rights to future development of the land. The funding for this program is a state authorized county property tax.

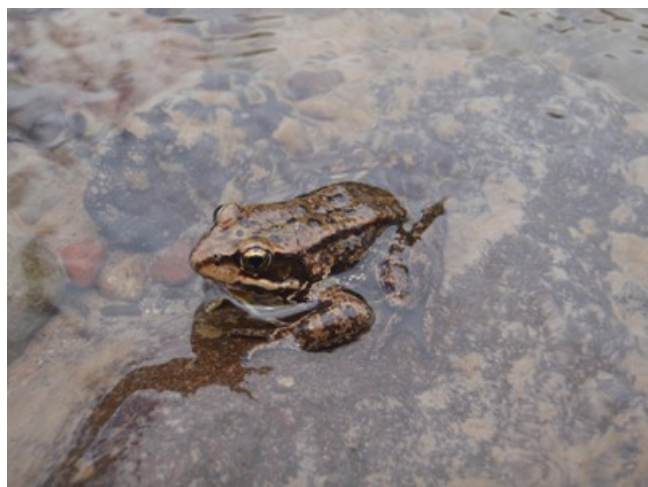


Photo credit: Ecology

Land trusts Washington has over 30 land trusts in operation that preserve sensitive natural areas such as wetlands, farmlands, water sources, and cultural resources in perpetuity through conservation easements, purchasing property, and conservation financing. Land trusts are non-profit organizations dedicated to preserve, manage, and restore ecologically valuable and locally important lands in perpetuity. Several of these trusts work towards protection of wetland and estuarine habitats in partnership with state agencies, tribal governments, and private

landowners. According to the Washington Association for Land Trusts, at least 11,000 acres of wetlands and tidelands have been protected by land trusts in the state³⁸. Protection is achieved through acquiring land outright or through stewardship options, like conservation easements which may be purchased or donated.

Regional Fisheries Enhancement Program This program created a statewide network of 14 Regional Fisheries Enhancement Groups (RFEG)³⁹, which work within specific geographic regions based on watershed boundaries. It was created by the Washington State Legislature to involve communities, citizens, and landowners in the state's salmon recovery efforts. These RFEGs lead their communities in successful voluntary restoration efforts, including education and monitoring projects which may involve wetlands. These projects positively impact watershed health and wetlands in project areas.

Washington State University Cooperative Extension WSU⁴⁰ provides information and opportunities for landowners, students, and community members to get involved in wetland

³⁸ See <http://www.walandtrusts.org/>.

³⁹ See <http://www.rfeg.org/>.

⁴⁰ See <http://cahnrs.wsu.edu/extension/>.

restoration efforts. Often, extension offices administer volunteer programs for wetland restoration projects or ongoing monitoring. Additionally, they provide information about wetland buffers, noxious weeds, and permitting requirements through local outlets.

Conservation Districts (Chapter 89.08 RCW) Conservation Districts are county-based, non-regulatory government entities that assist in meeting local resource needs with technical assistance and financial resources. These districts report to the Washington State Conservation Commission and help landowners with on-the-ground conservation projects that enable them to be good stewards of their property while balancing the value and use of property containing wetlands. Each conservation district is directed by a board of supervisors; three elected locally, two of which must be landowners or operators of a farm. This ensures a local perspective on projects to protect both working lands and ecological functions.

Washington State Conservation Commission (WSCC) WSCC was established in 1939 as a non-regulatory state agency providing assistance to conservation districts across the state. The 10-member Commission also coordinates state and federal agency activities providing assistance to agricultural landowners to protect natural resources. Incentive-based programs at the Commission provide funding and technical assistance for the protection of wetlands and other important resources. Programs implemented by the Commission include the Conservation Reserve Enhancement Program, which provides rental payment to landowners to lease riparian habitat, including stream-adjacent wetlands, for protection from agricultural activities.

The Voluntary Stewardship Program⁴¹ is a relatively new program implemented by the WSCC. It's an alternative planning process that uses incentives instead of regulations to promote environmental stewardship on agricultural lands. Counties opting in to this program are eligible for funding for the development of watershed work plans to set goals and benchmarks for protection and enhancement of wetlands and other critical areas on agricultural lands. At this time, only two counties (Thurston and Chelan) have received funding to develop watershed work plans. If additional funding is not received, counties that have opted into the program and not received funding will need to develop regulations addressing agriculture and critical areas.

U.S. Natural Resources Conservation Service (NRCS) NRCS, in coordination with the Washington State Conservation Commission, offers the Wetland Reserve Program which helps landowners protect, restore, and enhance wetlands on their property through technical assistance and financial support. NRCS provides grant funding through the Conservation Stewardship Program, which gives financial assistance to producers who maintain a high level of conservation on their land and agree to adopt higher levels of stewardship.⁴²

Washington Recreation and Conservation Office (RCO) RCO administers several land acquisition grants for habitat conservation, shoreline preservation, salmon recovery, public recreation, and public access. Those grant opportunities originate from the Washington Wildlife

⁴¹ See <http://scc.wa.gov/voluntary-stewardship/>.

⁴² See <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/wetlands/>.

and Recreation Program, Aquatic Lands Enhancement Account, Salmon Recovery Funding Board, and the Land and Water Conservation Fund. Although not all of these funding opportunities are specific to wetlands, funded projects have involved wetlands and often have a positive impact on the health of the watershed and its associated aquatic resources, including wetlands.

Washington Invasive Species Council⁴³ This council, a part of the Washington State Recreation and Conservation Office, was established by the Legislature to provide policy-level direction, planning, and coordination for combating harmful invasive animal and plant species and preventing introduction of potentially harmful species. The council's efforts have helped support restoration and enhancement of wetlands that have been degraded or threatened by invasive species. Their outreach and education efforts have had far-reaching positive impacts by creating awareness of native plant and animal communities and the threats of invasive species, and providing tools and resources for eradication and rehabilitation.

Washington Biodiversity Council⁴⁴ This council, a part of the Washington State Recreation and Conservation Office, was established to develop and implement a prioritized strategy which would enable the state to sustainably protect its biodiversity heritage. The council is a public-private partnership which focuses on defining priorities for conservation, providing landowner incentives, educating the public, engaging citizen scientists, making scientific information accessible, and incorporating conservation into local planning. The council supports incentives, recognition, and market-based mechanisms for conservation and stewardship.

Washington State Department of Natural Resources (WDNR) WDNR manages 55 Natural Area Preserves⁴⁵ and 36 Natural Resources Conservation Areas⁴⁶ as part of a statewide system of natural areas. This system includes voluntary participation by federal, state, and local agencies, private organizations, and individuals (Chapter 79.70 RCW). Although this system of natural areas is not solely focused on wetland protection, a variety of rare and high-quality wetlands and numerous rare wetland species are protected within it.

The identification of Washington's rare and ecologically unique wetlands is part of the responsibilities of the WDNR Natural Heritage Program⁴⁷ (WDNR-NHP). They have developed an ecosystem based wetland classification system, a floristic quality assessment tool, and updated the database of Washington State's unique and rare wetland ecosystems with funding from EPA. They also monitor the integrity of wetlands in Washington. See the Monitoring and Assessment section of this plan for a more detailed description of their tools and database.

⁴³ See <http://www.invasivespecies.wa.gov/>.

⁴⁴ See <http://www.rco.wa.gov/documents/biodiversity/WABiodiversityConservationStrategy.pdf>.

⁴⁵ State Parks also has several Natural Area Preserves.

⁴⁶ See http://www.dnr.wa.gov/ResearchScience/Topics/NaturalAreas/Pages/amp_na.aspx.

⁴⁷ See <http://www.dnr.wa.gov/ResearchScience/Topics/NaturalHeritage>.

Washington Department of Ecology (Ecology) Ecology⁴⁸ solicits and administers grant funding from the USFWS National Coastal Wetlands Conservation Grant Program for wetland acquisition and restoration projects in the coastal counties. Ecology works in partnership with groups such as the Northwest Watershed Institute, Capitol Land Trust, North Olympic Salmon Coalition, the Lummi Nation, the Tulalip Tribes, and county governments. Recent projects have included land acquisition and restoration in Oakland Bay Estuary and the Snow Creek Estuary at Discovery Bay. Additional funding for coastal and estuarine areas in Dabob Bay has been provided to Ecology through the nationally competitive NOAA Coastal and Estuarine Lands Conservation Program.

U.S. Environmental Protection Agency (EPA) EPA has several grant and assistance programs to support non-regulatory approaches to wetland and aquatic resources restoration including the 5-Star Restoration Grant Program⁴⁹, the National Estuary Program Grants, and Clean Water Act Section 106 and 319 Grants⁵⁰.

U.S. Fish and Wildlife Service Programs (USFWS) USFWS has several grant and assistance programs to support non-regulatory approaches to wetland and aquatic resource restoration, including the National Coastal Wetlands Conservation Grant Program⁵¹ and other smaller grants through the Division of Bird Habitat Conservation⁵². USFWS is the administrating agency for the North American Wetlands Conservation Act grant for conservation of migratory birds and wildlife.

The National Coastal Wetlands Conservation Grant Program⁵³ is a matching grants program administered by the USFWS to acquire, restore, and enhance wetlands of coastal states and trust territories. Using matching funds from this grant program, Ecology has partnered with tribal governments, cities, counties, federal and state agencies, and others to acquire, restore, and enhance coastal wetlands throughout Washington. In the last 25 years, this grant program has brought more than 25 million federal dollars to Washington State for wetland conservation.

U.S. National Oceanic and Atmospheric Administration (NOAA) NOAA, in coordination with the Department of Ecology, offers Coastal and Estuarine Land Conservation Program⁵⁴ grants for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses. Local governments, tribal governments, and state agencies with authority to own land are eligible to apply for land acquisition assistance.

⁴⁸ See <http://www.ecy.wa.gov/programs/sea/wetlands/stewardship/index.html>.

⁴⁹ See http://water.epa.gov/grants_funding/wetlands/restore/index.cfm.

⁵⁰ See http://water.epa.gov/grants_funding/.

⁵¹ See <http://www.fws.gov/coastal/coastalgrants/>.

⁵² See <http://www.fws.gov/birdhabitat/Grants/NAWCA/Small/index.shtm>.

⁵³ See <http://www.ecy.wa.gov/programs/sea/wetlands/stewardship/nwccgp.html>.

⁵⁴ See <http://www.ecy.wa.gov/programs/sea/wetlands/stewardship/celcp.html>.

Incentive programs With over 60% of Washington land in private ownership, incentive programs support and enhance many of the voluntary conservation efforts in Washington. Several government and foundation programs offer incentives to private landowners in Washington to promote conservation, protection, or improvement of wetland resources on their property. These range from direct financial incentives, like tax breaks, grants, or subsidized loans, to recognition-based incentives that reward landowners for pursuing conservation activities. In addition to these programs, many of the organizations and agencies listed above provide technical assistance in applying for grants or loans, developing conservation plans, and providing regulatory assistance.

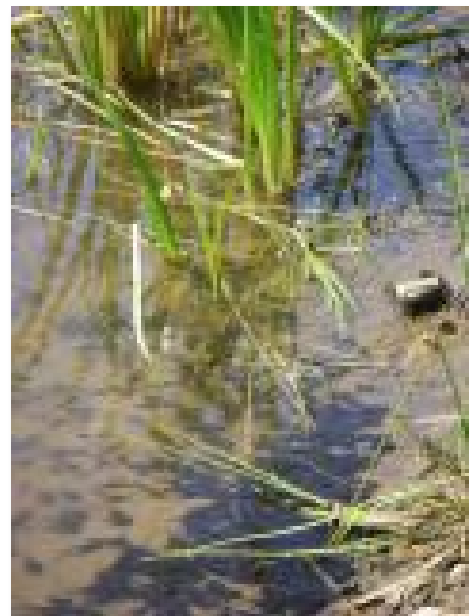
Partnerships and collaboration

Most of the programs listed above encourage or require partnerships or collaboration to achieve conservation goals. Many of the groups and landowners who participate in these programs use multiple funding sources and partners to maximize the benefits gained in protecting wetlands. Contributions by partners may include technical expertise for grant application preparation, which can be a key to successful applications for smaller organizations.

One example of successful collaboration is the recent acquisition of a property in Oakland Bay, Mason County, by the Capitol Land Trust. The acquisition was made possible by a long-term collaborative partnership between numerous state and federal agencies, local government, and an extensive list of local supporters including timber and shellfish companies and neighboring landowners. Funding was obtained from state and federal grants, cash match from the Squaxin Island Tribe, in-kind match from the Capitol Land Trust, and a stewardship endowment from the private landowner who sold the property.

Another example is the strong partnership between state agencies, local land trusts, and other non-profit groups working together in Jefferson County. WDNR, Ecology, Jefferson Land Trust, Northwest Watershed Institute, and The Nature Conservancy are actively collaborating to conserve land within the Dabob Bay Natural Area proposed boundary. The partnership has also received funding from the US Navy and applied for and obtained numerous state, local, and federal grants, along with private funds for acquisition and restoration of land within the Natural Area. This partnership has allowed for many instances of available funding to be used as match for a partner's grant, which is beneficial for fully leveraging funding under a single, collaborative conservation effort.

Some examples of successful partnerships with tribal nations include projects like the McAllister Wellfield



Western toad tadpoles
Photo credit: Ecology

project; a joint development of the Nisqually Indian Tribe and the City of Olympia that created a more protected, more productive water source for both communities. Another example is the purchase and restoration of 250 acres of *estuary* wetlands in the Nooksack River delta by the Lummi Indian Business Council, with funding provided by the Washington State Salmon Recovery Funding Board and the USFWS Tribal Landowner Incentive Program. This large acreage includes current and historic wetland purchased and placed under permanent protection with an environmental easement deeded to the Whatcom Land Trust. Tribal governments also acquire and protect lands using tribal general funds or with grant funding obtained from state and federal sources like the National Coastal Wetlands Conservation grant program. The Qwuloolt Estuary Restoration Project is a joint venture between the Tulalip Tribes, Ecology, the Corps, EPA, and other federal agencies, which are restoring tidal influence to over 350 acres of wetland in the lower Snohomish Estuary.⁵⁵



Photo courtesy of Joe Rocchio

⁵⁵ See <http://www.qwuloolt.org/>.

Table 2 - Voluntary restoration and protection actions

Goal: Using a watershed perspective, increase the quantity, condition, and function of wetlands and their ecosystems through voluntary restoration and protection.

Objective 1: Clearly and consistently define restoration and protection goals throughout the state using a multi-scale watershed approach.

Restoration and Protection Objective 1 Action	Lead; Partners	Activity
1. Establish restoration and protection goals that are consistent and compatible across relevant partners	Ecology; WDNR, WDFW, RCO; WSCC , NRCS, USFWS, other partners	<ol style="list-style-type: none"> 1. Coordinate with relevant partners to outline restoration/protection goals, strategies, and timeframes, based on agency and partner objectives and on available information 2. Identify or develop a multi-partner body to coordinate restoration and protection efforts 3. Synthesize existing information on wetland location, class, and condition/functions to inform the strategies 4. Using watershed analyses, identify priority areas for restoration and protection
2. Synthesize planning tools, approaches, and information used for selecting restoration and protection sites	Ecology; WDNR, WDFW, PSP, WSCC, USFWS, NOAA Fisheries	<ol style="list-style-type: none"> 1. Identify prioritization tools, regional ecosystem recovery targets, and other information to help identify rare, vulnerable, threatened, and important wetlands 2. Prioritize and plan for use of tools to achieve program goals 3. Share synthesis with other groups involved in restoration and protection 4. Apply tools to identify important wetlands for protection efforts (e.g. rare, vulnerable, threatened wetlands)
3. Provide clear guidance on appropriate restoration techniques and success measures	Ecology; WDFW, WDNR, WSCC, Conservation Districts	<ol style="list-style-type: none"> 1. Develop restoration and management guidance specific to wetland types and location 2. Establish measures of restoration success (e.g., adopt function and/or condition measures and field methods) 3. Establish performance standards based on reference wetland sites 4. Verify restoration techniques and BMPs and adapt as necessary 5. Train restoration partners to use guidance techniques

Objective 2: Protect against the loss of wetland area, restore wetland acres, and improve wetland condition and function.

Restoration and Protection Objective 2 Action	Lead; Partners	Activity
1. Prioritize and share with relevant groups rare, vulnerable, threatened, and important wetland types for impact avoidance, minimization, and acquisition/protection	WDNR; WSCC; WDFW, local gov'ts, Ecology, tribal gov'ts	<ol style="list-style-type: none"> 1. Account for different timeframes for assessing priority wetlands protection sites across agencies/groups 2. Encourage the use of the state wetland protection prioritization into protection efforts throughout the state 3. Initiate protection efforts for highest priority wetlands
2. Implement incentives identified for protection and restoration to establish and institutionalize long term protection	Local gov'ts, state and federal agencies	<ol style="list-style-type: none"> 1. Identify incentives, grant funding, and technical assistance for voluntary restoration and protection efforts 2. Identify incentives, funding, and technical assistance for the Voluntary Stewardship Program 3. Implement incentives to ensure protection 4. Provide incentive tools to local governments
3. Establish partnerships to increase funding for restoration, acquisition, and protection of priority areas	Ecology; WSCC, WDNR, tribal gov'ts, local gov'ts	<ol style="list-style-type: none"> 1. Identify relevant groups involved in acquisition and protection efforts throughout the state 2. Share priorities with partners for preservation efforts 3. Identify and develop a comprehensive list of funding and technical assistance resources 4. Address protection priorities within each watershed through coordinated funding and shared capacity
4. Continue to expand the use and development of watershed/landscape scale planning tools by intended audiences	Ecology; Commerce, WDFW, WDNR–NHP, WSCC, Conservation Districts, local gov'ts	<ol style="list-style-type: none"> 1. Identify and make accessible key tools used in landscape/watershed scale planning efforts 2. Facilitate the development of new tools which integrate coarse/landscape scale assessments with site level information 3. Develop guidance for the integration of multiple landscape-scale assessments 4. Develop and conduct trainings in the use of watershed scale planning tools to more effectively promote protection and restoration of areas important to key watershed processes 5. Provide leadership in the development of watershed tools to identify integrated solutions to address problems in watersheds
5. Increase wetland acreage (quantity)	No lead	<ol style="list-style-type: none"> 1. Get baseline data at landscape and site level

Restoration and Protection Objective 2 Action	Lead; Partners	Activity
	agency identified at this time	<ol style="list-style-type: none"> 2. Develop restoration and protection plans that include funding opportunities for re-established and rehabilitated wetlands consistent with guidance 3. Provide technical assistance to restoration projects as needed
6. Improve wetland conditions (quality) and functions	No lead agency identified at this time	<ol style="list-style-type: none"> 1. Develop restoration and protection plans that include funding opportunities for restored wetlands 2. Provide technical assistance to re-establishment and rehabilitation projects as needed

Objective 3: Evaluate progress over time and modify practices as appropriate.

Restoration and Protection Objective 3 Action	Lead; Partners	Activity
1. Track restoration and protection efforts throughout the state	No lead agency identified at this time	<ol style="list-style-type: none"> 1. Develop and populate accessible tracking database for restoration/protection sites 2. Administer and update tracking database regularly 3. Track projects by watershed, for example: <ul style="list-style-type: none"> • acres of wetland protected by wetland category • number of stewardship agreements • changes in wetland acreage • changes in wetland function
2. Monitor restoration and protection sites	As outlined in the M & A strategy	<ol style="list-style-type: none"> 1. Monitor restoration and protection sites using adopted measures and methods (Objective 2, Monitoring and Assessment) 2. Update monitoring and performance records regularly
3. Evaluate the success of current voluntary restoration and protection efforts throughout the state	Ecology; WSCC, WDNR, WDFW, RCO	<ol style="list-style-type: none"> 1. Monitor effectiveness of restoration and protection efforts using adopted measures and methods 2. Conduct a study evaluating success of non-regulatory restoration and protection efforts
4. Adapt techniques, process for site selection, and success measures according to monitoring information and relevant watershed planning efforts	Ecology; WSCC, WDNR, WDFW	<ol style="list-style-type: none"> 1. Adapt restoration and protection prioritization methods and modify as needed 2. Identify restoration and protection sites as needed and plan for follow-up site maintenance, restoration, and protection activities
5. Share results with decision makers at various levels (local, tribal, state, federal), relevant entities, and the public	Ecology; WSCC, WDNR, WDFW	<ol style="list-style-type: none"> 1. Document results, considering how the information is presented and formatted with the end user's needs in mind 2. Distribute information considering the end users of the information

Core Element - Monitoring and Assessment

Decision-makers can use monitoring and assessment data to:

- Track wetland loss, compensation, restoration, conservation, and preservation.
- Understand how cumulative impacts and other stressors associated with land use and climate change affect wetland systems and their buffers.
- Assess the effectiveness of land-use policies, regulations, and mitigation strategies over time.

Wetlands are commonly characterized by their area, type, integrity, condition, function, or some combination. These characteristics are the basis of most wetland monitoring and assessment programs. Data on these characteristics are collected at different levels from the landscape to the site scale.

Definition

Monitoring, as related to this state program plan, is the systematic observation and recording of wetland information that is collected over time. It includes establishing and carrying out the appropriate methods and procedures necessary to compile and analyze the information. An assessment is the use of the data to understand wetlands in ways that support our efforts to better protect and manage wetlands and plan for the future.

Levels of assessment

The EPA has developed a three-tiered framework for monitoring and assessing wetlands. These three tiers, or levels, include a landscape-based approach, rapid assessments, and more intensive quantitative assessments. The level of monitoring and assessment selected depends on the questions being addressed, the availability of staff and funding resources, and the level of rigor needed. These levels are not mutually exclusive and can be applied in a nested approach either sequentially or concurrently to supplement the information collected at each level.

Level 1 - Landscape Assessment

This level relies on landscape-scale information, including geographic information systems (GIS) and remote sensing data. Assessment results can provide a coarse gauge of wetland location, distribution, and extent, as well as type, condition, function, or some combination, within a watershed, ecoregion, or even statewide. Examples of data typically used to conduct a Level 1 wetland assessment include aerial photo interpretation, satellite imagery, digital elevation models or LIDAR, land use and land cover, topographic, hydrographic, and soil information. Examples of applications of a Level 1 assessment include status and trends

reporting as well as protection, restoration, and conservation planning for wetlands and watersheds.

Level 2 – Rapid Assessment

Level 2 involves collecting relatively simple, field-based data to qualitatively estimate biological, chemical, and physical characteristics. Information on water regimes, landscape position, plant communities, soils, and stressors are collected using indicators instead of direct measurements. For example, the density of persistent vegetation may be one factor used to assess the reduction of sediment in water passing through a wetland versus using an instrument to directly measure the change in sediment before and after it passes through the wetland. Level 2 information can be used for making permit decisions, integrated reporting with surface water monitoring efforts, watershed planning, identification of protection and conservation priorities, monitoring restoration and conservation projects, and validating Level 1 assessments.

Level 3 – Intensive Site Assessment

Intensive site assessments involve gathering quantitative, site-specific, and often direct measurements of biological, chemical, and physical characteristics. They can be used to:

- develop water-quality use designations
- evaluate wetland conditions or level of specific functions for site-specific land use planning and permitting
- determine compliance with compensatory mitigation performance standards
- refine and validate Level 1 and 2 assessments.

Current monitoring and assessment efforts

The following are some of the monitoring and assessment efforts that have been completed or are underway in Washington State. This list does not include efforts completed by local governments. For example, several counties and cities have completed local wetland inventories based on remote sensing with field verification.

In the Puget Sound basin, regional monitoring is coordinated through the Puget Sound Ecosystem Monitoring Program (PSEMP), which is a collaboration of monitoring agencies and partners dedicated to monitoring the environmental conditions in Puget Sound. PSEMP is supported by the Puget Sound Partnership, and has a stated objective to look for opportunities to coordinate or leverage monitoring to meet multiple needs and fill current gaps whenever possible.

In early 2014, PSEMP completed a monitoring gaps analysis that, for the Terrestrial domain which includes wetlands, recognized a need *to map priority ecosystems/habitats so that dynamics can be assessed by change detection*. This is consistent with the recommendation in this plan to conduct a Level 1 landscape-scale change-analysis using National Agricultural Imagery Program (NAIP) information. The monitoring elements and recommendations included

in this plan are consistent with PSEMP's goals and objectives. For more information on PSEMP, go to: <https://sites.google.com/a/psemp.org/psemp/>.

Coordinating with local governments, the Puget Sound Partnership, and many others⁵⁶ will be an important component of the development of a long-term monitoring and assessment strategy. This type of coordination is one of the objectives of this core element (see the action table later in this section). Additionally there are citizen science wetland monitoring projects in Washington whose data may be incorporated into state agency efforts.⁵⁷

Level 1 – Current landscape assessments

National Wetlands Inventory

The National Wetlands Inventory (NWI), produced by the USFWS, serves as a coarse-scale, Level 1 inventory of the distribution of wetlands by area and types for the entire state. The USFWS uses their classification of wetland and deepwater habitats when mapping and classifying wetlands across the entire United States. As of May 1, 2014 the USFWS has completed a comprehensive and detailed digital data set for the nation's wetlands. Washington State was one of the first in the country to fund USFWS to digitize the data for electronic applications. The digital data are available to the public on the Wetlands Inventory Mapper. For more information on NWI and to access the Wetlands Inventory Mapper, go to: <http://www.fws.gov/wetlands/index.html>.

The USFWS used 1980's era data to produce the inventory for Washington. Therefore, much of the current NWI data do not capture the changes in wetland area and types that occurred over the last three decades. Other limitations of the NWI mapping include an exclusion of certain types of farmed wetlands and an often incomplete or inaccurate identification of wetlands in forests and on slopes.⁵⁸



Photo credit: Ecology

The USFWS updates the inventory when funded to do so by individual states or for specific projects. Inventories of portions of Washington have been updated, including the City of Seattle, King County, parts of the Yakima River, Mt. St. Helens, and some National Wildlife Refuges. However, a majority of Washington still relies on the original wetland inventory data.

⁵⁶ See <http://www.epa.gov/emap/west/html/docs/eceow.html>.

⁵⁷ See <http://water.epa.gov/type/wetlands/assessment/wa.cfm>.

⁵⁸ See <http://www.fws.gov/wetlands/Data/Limitations.html>.

Modeled Wetland Inventory and Wetland Change Analysis

Ecology has used Level 1 information to map wetland areas in western Washington. The NOAA Coastal Services Center (NOAA-CSC) produced this wetland inventory by modeling the potential of an area to be wetland based on the analysis of existing GIS data layers, such as LANDSAT imagery, soils, topography, NAIP, aerial photography, NWI, and LIDAR (where available). For more information on the Wetland Change Analysis project, see:

<http://www.ecy.wa.gov/programs/sea/wetlands/StatusAndTrends.html>.

The modeled wetland inventory is based on the land cover mapping of NOAA-CSC's Coastal Change Analysis Program and is therefore available for the following years: 1992, 1996, 2001, 2006, and 2011. Ecology intends to use these data to analyze trends in wetland acreage for western Washington. In addition, each year's inventory is based on LANDSAT imagery of the same year and thus is more up-to-date than NWI. However, the analysis is at a coarse scale (30m x 30m pixel) and may not identify wetlands that are less than one acre. Because soils and topography data layers were components of the model, the inventory includes wetlands in forests, on slopes, and on agricultural lands. Ecology intends to perform field verification on a statistical sample of the results of the modeled wetland inventory to determine its accuracy. In addition, Ecology continues to work with NOAA-CSC on efforts to incorporate the wetland potential model into the US Geological Survey's (USGS) land cover mapping of eastern Washington.

The modeled wetland inventory was one component of a recent Wetland Change Analysis project. The other component involved testing the feasibility of using WDFW's high resolution change detection (HRCDD – discussed more in the following paragraph) to identify wetland change at a finer scale.

Analysis of landscape-scale changes using low-altitude aerial photography

The WDFW is currently conducting a Level 1 analysis of landscape-scale changes using low-altitude aerial photography from NAIP. This project assesses the dynamics of the landscape, looking at changes in land class, canopy cover, and impervious surfaces from 2006 - 2009, and soon 2009 - 2011, for all watersheds draining into Puget Sound (WRIAs 1-19). This tool advances the landscape-level approach to critical areas management by providing information on change occurring in locations of concern, such as wetlands, riparian areas, and Urban Growth Areas.⁵⁹ Information will be used to better understand the effectiveness of management decisions in protecting critical areas, and to develop more effective Critical Areas Ordinances (CAO) at the local level.

Products from this project are designed to be integrated with information from the Puget Sound Watershed Characterization tool.⁶⁰ Future work for 2014 includes analyzing changes from 2009-2011, and an analysis of changes in land cover. For more information, see http://wdfw.wa.gov/conservation/research/projects/aerial_imagery/index.html.

⁵⁹ See <http://apps.leg.wa.gov/RCW/default.aspx?cite=36.70A.110>.

⁶⁰ See http://www.ecy.wa.gov/puget_sound/characterization/index.html.

Assessment of wetland integrity of vegetated, freshwater wetlands

The WDNR Natural Heritage Program (WDNR-NHP) has conducted a Level 1 Environmental Integrity Assessment (EIA) of vegetated, freshwater wetlands in Washington based on surrounding land use. Wetlands were identified using the NWI. The assessment was applied to nearly all vegetated *palustrine* and *lacustrine* NWI *polygons* across the state. This effort assigned a Level 1 ecological integrity score to each mapped NWI wetland, indicating its integrity relative to surrounding land use.

Along with creating an inventory of potential sites of high conservation value, this type of information can be used for a variety of watershed-based analyses including:

- developing watershed wetland profiles
- establishing wetland ambient monitoring protocols
- informing Level 2 and 3 assessments
- identifying a reference network for continued condition monitoring and trends analysis.

The data from this assessment are not yet available on the internet. You can find more information about EIA, including a definition of ecological integrity, on the WDNR website at: <http://www1.dnr.wa.gov/nhp/refdesk/communities/eia.html>.

Level 2 – Current rapid assessments

Assessment of wetlands and riparian areas for conservation planning

The WDNR-NHP is currently conducting a Level 2 assessment of wetlands and riparian areas across the state using the Ecological Integrity Assessment method. The purpose is to identify wetland conditions relative to a minimally-disturbed reference standard. This information is then used to help identify which wetlands are of high conservation value. The assessment classifies wetlands according to Cowardin, hydrogeomorphic (HGM) class, and U.S. National Vegetation Classification types. It also assesses current ecological integrity, identifies the presence of rare plants, identifies observable stressors, and estimates wetland function using Ecology's Wetland Rating System⁶¹.

WDNR is partnering with NatureServe who is developing a nationally-standardized EIA database that will allow integration of information on wetland condition across the U.S. For more information on NatureServe's EIA, go to:

<http://www.natureserve.org/conservation-tools/ecological-integrity-assessment>.

The Washington State ShoreZone Inventory

Between 1994 and 2000, the Nearshore Habitat Program at WDNR conducted a Level 2, statewide inventory of Washington's saltwater shorelines. The ShoreZone Inventory data consist of spatial data, tabular data, and documentation. It describes the geomorphic and

⁶¹ See: <http://www.ecy.wa.gov/programs/sea/wetlands/ratingsystems/index.html>.

biological resources of the intertidal and nearshore habitats. Wetlands are one of the geomorphic forms mapped.

The resulting ShoreZone Inventory can be used to better understand and manage Washington's coastal ecosystem. For more information on the ShoreZone Inventory, see:

http://www.dnr.wa.gov/researchscience/topics/aquatichabitats/pages/aqr_nrsh_inventory_projects.aspx.

Wetlands research strategy related to forestry

The Cooperative Monitoring Evaluation and Research (CMER) committee's Wetland Science Advisory Group (WetSAG) is working on a wetlands research and monitoring strategy related to forestry and wetlands. CMER was established by the Washington State Forest Practices Board. The committee conducts research and monitoring to produce peer-reviewed technical reports to help guide decision-making for aquatic resources in regard to forest practices. WetSAG is one of several science advisory groups under CMER.

The CMER wetland research and monitoring strategy was completed in the fall of 2014. This strategy will be used as a long-term plan for creating a prioritized order with an emphasis on policy-mandated monitoring and project study designs. These studies are intended to address questions for the Adaptive Management Policy group, so they can better inform the Forest Practices Board regarding any need for changes to the forest practices rule. For more information, see <http://www.dnr.wa.gov/AboutDNR/BoardsCouncils/CMER/Pages/Home.aspx>.

Wetland function assessment methods

The Washington State Wetland Function Assessment Methods (WFAM) are a collection of Level 2 assessments, developed to determine the degree to which several functions (up to 15) are performed by a wetland. These methods require collection of site-specific data and were designed to be relatively rapid. As part of developing the methods and for use in their calibration, Ecology collected data at reference standard wetlands. The reference standard



Photo courtesy of Rebecca Rothwell

wetlands were used to establish the characteristics that must be present in a wetland to score the highest for each function.

Ecology published the methods in 1999 for riverine and depressional wetlands in the lowlands of western Washington, and in 2000 for depressional wetlands in the Columbia Basin of eastern Washington. Thus far, assessment methods for other HGM wetland types have not been developed.

These methods are currently not being used due to the cost, time, and effort needed for the assessment. However, they provide the scientific basis for the wetland rating system (described below), which is the current tool for gathering general information on functions provided by wetlands. The agencies are interested in exploring the adequacy of rapid function assessment methods for statewide use.

Wetland rating systems

The Washington State Wetland Rating Systems for eastern and western Washington are coarse-scale, Level 2 assessment tools. Ecology developed them to allow for categorization of wetlands into four categories based on their sensitivity to disturbance, their rarity, their ability to be replaced, and the functions they provide. The Rating Systems are primarily intended for use with vegetated, freshwater wetlands as identified using the federal wetland delineation manual and applicable regional supplements⁶². They also categorize estuarine wetlands but do not characterize their functions.

In 2004, Ecology revised the Washington State Wetland Rating Systems for eastern and western Washington to incorporate HGM-based information from WFAM. To apply the rating system, data are collected for three function groups (water quality, water quantity, and habitat). In general, the rating system is more rapid to apply than WFAM, though the resolution is coarser. In addition, the rating systems cover all HGM classes. As a result, additional reference wetlands were added to the Ecology reference set, for a total of 212 on which data were collected.

Ecology updated the rating systems in October 2014 to improve the accuracy of the method. Data previously collected at reference sites were used to calibrate the 2014 update.

Information on the rating systems can be found at:

<http://www.ecy.wa.gov/programs/sea/wetlands/ratingsystems/index.html>.

Calculating credits and debits for compensatory mitigation in wetlands

Ecology developed a Level 2 assessment tool for calculating whether a proposed wetland mitigation project is likely to adequately replace the functions and values lost when wetlands are impacted. It is called the Credit/Debit Method.

The tool is designed to provide guidance for both regulators and applicants during two stages of the mitigation process:

1. Estimating the functions and values lost when a wetland is altered.
2. Estimating the gain in functions and values that result from the mitigation.

More information on the Credit/Debit Method can be found at:

<http://www.ecy.wa.gov/mitigation/creditdebit-comments.html>.

⁶² Corps delineation manual and regional supplements:

http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg_supp.aspx.

Level 3 – Current intensive site assessments

National Wetland Condition Assessment (NWCA)

In the early 2000s, EPA began the National Aquatic Resource Surveys to assess the condition of the nation's aquatic resources. In 2011, EPA and the states carried out the nation's first assessment of wetland condition⁶³ across the entire country. Ecology was involved in the development of field protocols for this survey and has served on the National Monitoring and Assessment working group that supports it.

In 2011, Ecology staff conducted field sampling for this project at 15 sites. WDNR Natural Heritage staff participated in the NWCA project by serving as the state herbarium, which included validating the identifications of quality assurance specimens, preparing and maintaining voucher specimens, and identifying unknown plant specimens.

This survey is scheduled to be conducted every 5 years, with the next one in 2016. Ecology intends to continue to complete field work in Washington. Ecology sees value in exploring the feasibility of conducting a Level 3 NWCA intensification study in 2016, which would involve collecting additional data or adding more sites in a targeted Washington region or for specific wetland types. Data from intensification studies can be used to report on wetland condition at the state level, validate or calibrate existing assessment tools, and support regulatory decisions.

Vegetation plot data

As part of WDNR-Natural Heritage Program efforts to identify statewide wetland conservation priorities, over 400 vegetation plots have been collected in a diversity of wetland types across the state. These data are being used to refine a statewide classification of wetland vegetation. Since these data have been collected in high-quality wetlands they could also be used as reference data for monitoring objectives at wetland restoration sites.

Coordinated monitoring and assessment strategy

Washington State currently does not have a coordinated monitoring or assessment program for wetlands and seeks to develop a strategy through a broad, collaborative approach that supports different management, monitoring, and protection goals.

In response to this need, a wetland monitoring and assessment work group was established and is currently working toward developing a strategy for the state (see Monitoring and Assessment, Table 3, Goal 1, Objective 1, Action 1). During the fall and winter of 2014-2015, the work group has been focusing on Action 2 in the same table: *Develop wetland monitoring objectives consistent with mandates of the agencies and needs of policy makers*. See Appendix D for the Draft Wetland Monitoring and Assessment Strategy.

⁶³ See <http://water.epa.gov/type/wetlands/assessment/survey/index.cfm>.

Table 3 – Monitoring and assessment actions

Goal 1: To establish the extent and types of wetlands, their level of function and condition, to detect changes and stressors, and to characterize trends over time to inform better decision making.

Objective 1: Develop and maintain a coordinated monitoring and assessment strategy relevant to the goal.

Monitoring and Assessment Objective 1 Action	Lead; Partners	Activity
1. Establish a wetland monitoring and assessment work group comprised of relevant partners	Ecology; WDNR, WDFW, WSDOT, PSP,	1. Continue to convene the monitoring and assessment workgroup to finalize the Wetland Monitoring and Assessment Strategy, develop state-wide priorities, and facilitate technical transfer between state agencies.
2. Develop wetland monitoring objectives consistent with mandates of the agencies and needs of policy makers	tribal gov'ts, local gov'ts, non-profits, EPA, Corps	1. Identify long-term environmental outcome(s) that will benefit from a statewide monitoring and assessment program (e.g., improved wetland protection through more accurate identification of wetland locations and extent and their change over time, protection of wetlands of high conservation value and high-functioning wetlands) 2. Identify the programs, decisions, and policies which monitoring data will inform (e.g. 401 water quality certification program, local governments' critical areas ordinances, no net loss policy, WDNR's Natural Heritage Program, habitat conservation plans, Voluntary Stewardship Program) 3. Identify shared goals and activities (e.g., map wetland location and extent, create and maintain a state-wide wetlands status and trends inventory, identify hydrogeomorphic classification and functions of wetlands, assess the condition of wetlands) 4. Identify and prioritize the monitoring needs and questions (see the draft strategy in Appendix D) NOTE: This is where we will consider drivers and stressors (examples include climate change, cumulative impacts, land use changes).
3. Document the wetlands monitoring strategy NOTE: More detailed implementation plans will be developed for each monitoring question as we address them.	same	1. Develop a synopsis of proposed action items for each monitoring objective with timeframes. NOTE: When we develop an implementation plan for each monitoring question we will identify existing tools and sources of information and identify information gaps

Monitoring and Assessment Objective 1 Action	Lead; Partners	Activity
		2. Identify the lead organization(s) for each objective in the strategy.
4. Establish a data management approach for coordinated data standards, storage, management, and dissemination of monitoring and assessment data	same	<ol style="list-style-type: none"> 1. Manage and share data and cross-train between state agencies and programs (for example, WDNR-Natural Heritage Program provide training on EIA, FQA, and Wetland Ecological Classification system) 2. Create a strong quality assurance and quality control (QA/QC) approach for the data management system 3. Create or integrate with existing web-based data management platforms (e.g., a map viewer like the Coastal Atlas) so that data is easily accessible by users
5. Maintain the strategy over time by refining agency and policy makers' needs and priorities, and identifying funding sources.	same	<ol style="list-style-type: none"> 1. Convene the monitoring and assessment workgroup at least annually to identify current common needs and priorities.

Objective 2: Build upon current monitoring and assessment efforts to address monitoring questions.

Monitoring questions that have already been identified by the agencies are described in the draft monitoring and assessment strategy in Appendix D. Monitoring questions will be further refined and prioritized when developing the overall monitoring strategy under Objective 1. The focus of Objective 2 is to identify monitoring projects that are already in progress or being completed in phases. In the short term (prior to finalizing the state monitoring strategy), individual agencies will likely pursue funding to complete the activities listed below when funding opportunities are available. These actions and activities will be incorporated into the state monitoring strategy being developed under Objective 1.

Monitoring and Assessment Objective 2 Action	Lead; Partners	Activity
1. Implement phased wetland mapping efforts and development of Level 1 landscape assessments	Ecology; NOAA-CSC, USGS	<ol style="list-style-type: none"> 1. Complete a Modeled Wetland Inventory in eastern Washington, in partnership with USGS 2. Use the Modeled Wetland Inventory to map and analyze change in extent over time
	Ecology, WDNR-NHP	<ol style="list-style-type: none"> 3. Continue to participate in the National Wetlands Mapping Consortium.
	WDFW; Ecology	<ol style="list-style-type: none"> 4. Complete additional phases of the Level 1 analyses of landscape-scale changes using NAIP

Monitoring and Assessment Objective 2 Action	Lead; Partners	Activity
	Ecology; WDNR-NHP, WDFW	5. Investigate other mapping efforts to determine the most appropriate tool(s) to identify and characterize wetlands in Washington (for example, NWIPlus to determine change in wetland functions over time)
2. Develop and apply Level 2 rapid assessments	Ecology; WDNR-NHP	1. Conduct field verification of the Modeled Wetland Inventory 2. Expand Level 2 EIA data collection to the entire population of wetlands in order to provide a comprehensive picture of overall wetland condition and associated stressors. NOTE: This is both for validation of Level 1 and 2 EIA methods AND to provide an overall picture of wetland condition in the state. Also, this helps WDNR assign conservation status ranks to wetland types which help inform conservation priorities.
	WDNR-NHP	3. Conduct preliminary validation of WDNR's Natural Heritage Program Level 1 assessment of integrity
	Ecology, WDNR, WDFW	4. Support implementation of the priorities identified in the CMER WetSAG strategy to develop specific research study designs related to forestry effects on wetlands
	Ecology, WDNR, WSDOT	5. Explore the adequacy of available rapid function assessment methods for statewide use.
3. Implement Level 3 intensive site assessments	Ecology; UW Herbarium	1. Participate in EPA's 2016 National Wetland Condition Assessment (NWCA).
	Ecology; WDNR-NHP	2. Explore feasibility of conducting a future NWCA Intensification study in a targeted Washington region or for specific wetland types.
	Ecology, WDNR-NHP	3. Continue to serve on the National Monitoring and Assessment working group.

Effectiveness of the Wetland Program Plan

Another aspect of monitoring and assessment is evaluation of the effectiveness of all elements the Wetland Program Plan, including the monitoring and assessment element, and the plan as a whole. This evaluation is critical to:

- Maintain momentum to carry out the tasks identified in the plan.
- Hold agencies accountable to their commitments.
- Determine whether the activities and actions taken are effective at achieving our goals and objectives.
- Communicate with the public about our successes and challenges in wetland management.

Table 4 - Program assessment actions

Goal 2: To evaluate the effectiveness of each of the six core elements and the effectiveness of the Wetland Program Plan as a whole.

Objective 1: Develop a system for evaluating the Wetland Program Plan for effectiveness in all core elements.

Program Assessment Objective 1 Action	Lead; Partners	Activity
1. Draft a strategy to monitor effectiveness of the Wetland Program Plan	Ecology in partnership with the WPP Interagency Work Group	<ol style="list-style-type: none"> 1. Coordinate with agencies, tribal governments, and local governments to draft a monitoring strategy 2. Identify the end users of plan assessment information, and ensure the form and format meet their needs 3. Use evaluation data collected for each core element as part of the plan's monitoring strategy
2. Compile and interpret results from evaluation of each core element	same	<ol style="list-style-type: none"> 1. Ensure consistency in tracking programmatic effectiveness in each core element 2. Synthesize and interpret results of core element evaluation
3. Modify core element activities as needed to ensure results toward the overall goal of no net loss and net gain	same	<ol style="list-style-type: none"> 1. Make recommendations for adapting core element activities and adjust activities as needed 2. Modify assessment plan for each core element based on changes
4. Share results at all levels (local, state, tribal, federal) with decision-makers and others involved in management and protection	same	<ol style="list-style-type: none"> 1. Consider the end users of the information and ensure the format and distribution meets their needs
5. Modify program evaluations and tracking criteria	same	<ol style="list-style-type: none"> 1. Consider underlying assumptions within the plan and which are testable 2. Modify methods to evaluate the success of each objective
6. Update the plan and submit for re-approval before plan expiration date in 2021	same	<ol style="list-style-type: none"> 1. Hold mid-plan review meeting with the EPA in 2019 2. Update the plan and submit to EPA for re-approval in 2020

Core Element – Water Quality Standards

Wetland water quality, like other surface waters, is protected by the federal Clean Water Act (CWA; 33 U.S.C. 1251 et seq.) and the state Water Pollution Control Act (Chapter 90.48 RCW), and implemented through Surface Water Quality Standards (WAC 173-201A). Current water quality standards are meant to *maintain the highest possible standards for all waters of the state...* (Chapter 90.48.035 RCW). Standards protect a range of beneficial uses when authorizations are issued, conditioned, or reviewed. Standards are reviewed every three years to ensure pollution problems are addressed using the best available information on water quality management.

Definition

Water Quality standards designate the highest attainable uses of a water body, set criteria that reflect the current and evolving body of scientific information to protect those uses, and establish provisions to protect water bodies from further degradation.

Criteria and designated uses

Washington’s surface waters are protected by numeric and narrative criteria and designated uses. Existing and beneficial uses are protected through those criteria, based on the use designations. In cases where there are more than one criterion to protect a water body parameter, the most stringent criteria for each parameter is used. This approach ensures that standards default to a position of the highest protection.

These guidelines recognize that some water bodies, such as wetlands, often cannot meet the assigned criteria due to the natural conditions of the water body. For example, dissolved oxygen levels in a wetland can vary throughout the day and night according to biological activity, so dissolved oxygen level criteria are not applicable to wetlands. When standards cannot be met, the natural conditions then constitute the water quality criteria. If conditions have been altered due to human influences, and the alteration cannot be remedied, alternative estimates for water quality standards are made.

Anti-degradation policy

Washington’s surface waters are also protected by an anti-degradation policy (guided by Chapter 90.48 RCW, Water Pollution Control Act, Chapter 90.54 RCW, Water Resources Act of 1971, and 40 CFR 131.12). It protects and maintains existing beneficial uses of waters of the state. It is the primary means of protecting water quality in wetlands. The purpose of the anti-degradation policy is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of a surface water.

- Ensure that all human activities that are likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment.
- Apply three levels of protection for surface waters of the state, as generally described below:
 - Tier I is used to ensure existing and designated uses are maintained and protected and applies to all waters and all sources of pollution.
 - Tier II is used to ensure that waters of a higher quality than the criteria assigned in this chapter are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.
 - Tier III is used to prevent the degradation of waters formally listed in the RCW as outstanding resource waters, and applies to all sources of pollution.

Wetland water quality standards and permitting

EPA guidance on Water Quality Standards for wetlands outlines five key steps for developing standards for wetlands:

1. Define wetlands as *state waters*.
2. Designate uses that protect the structure and function of wetlands.
3. Adopt narrative criteria and appropriate numeric criteria in the standards to protect the designated uses.
4. Adopt narrative biological criteria in the standards.
5. Extend the anti-degradation policy and implementation methods.

Washington has completed all of these steps. The state has defined all wetlands as waters of the state within the existing narrative standards for water quality (with the exception of artificial wetlands⁶⁴). Washington has designated beneficial uses as defined within statute, and those uses do not degrade either the structure or function of wetlands. To date, the adopted narrative standards, along with the anti-degradation policy, have been adequate for protecting wetland resources and beneficial uses.

Ecology issues permits relating to water quality standards. The primary permits, certifications, and reviews administered by Ecology for wetlands include:

- CWA §401 water quality certifications and Coastal Zone Management Federal Consistency Determinations, written in conjunction with the request for a permit or license. Ecology can approve, deny, or condition the permit, so that wetland impacts are avoided and compensated.
- Aquatic herbicide permits which are conditioned to reduce wetland impacts.

⁶⁴ An artificial wetland must be both intentionally created and created in an upland area (Chapter 90.48 RCW and Chapter 90.58 RCW).

- Conditional Use and Variance permits under the SMA, for which Ecology has final approval authority. The SMA jurisdiction includes protection of floodplains and associated wetlands. In permit review Ecology ensures that projects are consistent with the goals and requirements of SMA and local shoreline master programs, and they provide adequate wetland protection measures.
- SEPA review to ensure adequate wetland protection

At this time we are not proposing any water quality standards actions, therefore this section does not have an action table as the other sections do. In the future the state may explore avenues to improve water quality standards for wetlands.



Photo credit: Ecology

Core Element - Outreach and Education

The state has long recognized the importance of outreach and education regarding wetlands, both directly through teaching opportunities and indirectly through technical assistance and outreach. Outreach and education is particularly critical in communities with wetlands that are facing pressure from development; where public support for protecting the environment is vital for protecting, maintaining, and enhancing wetland resources.

Definition

Outreach and education are approaches used to provide guidance, information, and tools that promote public knowledge and stewardship of wetland resources.

Past and current outreach

Ecology, for example, in the 1990s placed education and outreach as a high priority, and Ecology received EPA and other funding to develop wetland education materials and tools for teachers, students, and landowners. Many of these are still used and requested today. Ecology had dedicated staff who developed and implemented educational tools, such as school curriculum and traveling displays, as well as guides for landowners. Materials developed during that time include:

- *Discover Wetlands*, a curriculum guide for teachers grades K-12.
- *Fabulous Wetlands*, featuring Bill Nye *The Science Guy* discussing the importance of wetlands and the services they provide.
- A mobile wetlands education display, exhibited at schools and interpretive centers across Washington.
- *Washington Wetlands*, a booklet providing general information on wetlands.
- Wetland posters showing plants and animals commonly found in wetlands.
- *Wetlands*, an illustrated book for children introducing the inhabitants of wetland ecosystems.
- *At Home with Wetlands*, a landowners guide.

Many of these resources are available on Ecology's Wetland Training and Education Resources web page at: <http://www.ecy.wa.gov/programs/sea/wetlands/education.html>.

Ecology staff, developing a Washington-specific curriculum, coordinated with Project WET (Wetland Education for Teachers) Foundation and currently serves as Project WET coordinator for Washington State. Project WET is a non-profit organization dedicated to the mission of *reaching children, parents, teachers, and community of the world with water education*. Project

WET developed the *Wow! The Wonders of Wetlands* educator guide, as well as the *Celebrate Wetlands* activity booklet as part of the Kids in Discovery series.⁶⁵

Since the 1990s Ecology's emphasis on education and outreach has diminished due to budget constraints. With limited resources, the focus has been on technical assistance and guidance for local governments and consultants. Many of the technical materials that have been developed are discussed in other parts of this plan. The following are some examples:

- *Washington Wetland Rating Systems* for eastern and western Washington used to categorize wetlands for regulatory purposes.
- *Methods for Assessing Wetland Functions* for specific wetland types in western Washington lowlands and the Columbia basin.
- *Wetland Mitigation in Washington State* with agency policies as well as technical guidance on developing mitigation plans.
- *Selecting Wetland Mitigation Sites Using a Watershed Perspective*.
- *Calculating Debits and Credits for Compensatory Mitigation in Wetlands*.
- An extensive wetlands website⁶⁶ that provides access to all Ecology resources.
- A wetlands email listserv to distribute regulatory updates and other wetland information.

Coastal Training Program

The Coastal Training Program⁶⁷, administered through the Padilla Bay National Estuary Research Reserve, offers training courses on managing coastal, estuarine, and wetland resources. This program encourages the development of new courses. Current courses related to wetland resources include classes based on the technical tools listed above as well as how to use mitigation banks, integrating Puget Sound Watershed Characterization assessments into planning decisions, designing wetland compensation and restoration projects, and identifying hydric soils.

Natural Resources training

The Washington Department of Natural Resources is also developing technical tools and education with EPA funding, which are expected to be available by 2016. These include:

- Training in the application of the Natural Heritage wetland classification and the Ecological Integrity Assessment methodology for wetland professionals. This will increase trainees' technical expertise while expanding the reach of inventory efforts.
- An internet-based map viewer and web site to expand public access to Natural Heritage Wetlands (*Wetlands of High Conservation Value*) data.

⁶⁵ See <http://projectwet.org/water-resources-education/wetland-education/>.

⁶⁶ See <http://www.ecy.wa.gov/programs/sea/wetlands/index.html>.

⁶⁷ See <http://www.coastaltraining-wa.org/>.

- A guide to the various wetland vegetation types which occur in Washington. For more information, see:
http://www.dnr.wa.gov/researchscience/topics/naturalheritage/pages/amp_nh.aspx.

Developing outreach plans

Outreach and education continues to be a high priority for the state's wetland program, as demonstrated by the addition of a core element to address this need. The WPP Interagency Work Group identified the need to develop an outreach plan to address each objective listed within the core element table at the end of this chapter. The outreach plans will be based on identified priorities and available resources. The development process should include an active and fruitful feedback loop between state collaborators, local governments, and citizens to provide up-to-date information on local wetland issues that can be used to tailor future outreach and education efforts.

Below are some suggested steps for the development of strategic outreach plans.

1. **Issue identification:** Clearly identify the issue, why action is needed, and who it impacts.
2. **Target audience:** Determine individuals or groups most likely to implement change or achieve the desired outcome (includes audience-based research).
3. **Focused and consistent message:** Consider impacts and benefits to target audience and why it is important.
4. **Contacts to deliver the message:** Identify what parties are responsible for delivering the message. Identify the trusted messengers.
5. **Desired outcome:** Determine what type of behavior change is desired and tailor the message to the target audience and desired change.
6. **Implementation of results (feedback loop):** Follow-up to efforts through reporting and feedback, including identifying who will implement the results of workshops, events, presentations, and other outreach activities. Consider the end users of the information, and ensure format and distribution of information meets their needs.
7. **Outreach tools:** List the tools most effective in delivering the message.
8. **Resources:** Include what staff time, funding, and supplies are needed to implement the outreach plan, and which resources are currently available.
9. **Distribution of outreach materials:** Distribute materials and deliver messaging to target audience(s).
10. **Deadline date:** Set a timeline that clearly identifies deadline dates for achieving the goal.

Each outreach plan will include an action to evaluate, interpret, and synthesize results of each outreach campaign. These results will be used to make changes to each approach, as needed, to achieve the desired objective and the overall goal of outreach.

Outreach ideas

Potential outreach opportunities and tools include the following:

- Provide guidance and trainings on updated wetland delineation protocols and what activities require what authorizations.
- Use successful restoration or preservation projects as demonstration sites.
- Explore the use of Washington State Parks for interpreting key messages on wetland importance, protection, and restoration efforts to the general public.
- Provide guidance on strategies for successful restoration and mitigation techniques on a watershed scale.
- Conduct proactive outreach with updated materials to local governments in areas of high priority (e.g., areas of high resource value, areas of repeat violations).
- Conduct a literature review to evaluate the economic value of ecosystem services provided by wetlands of the state.
- Continue and expand the Coastal Training Program to include courses on wetland resources (including a class targeted to local permit and technical staff on delineation and state/federal approval standards).
- Update and streamline the Ecology Wetlands web page to be more user-friendly and accessible.
- Explore the use of social marketing for wetland education.
- Hire a wetlands education specialist to work within agencies, schools, and other educational venues.
- Publicize the use of alternative approaches to mitigation, including advanced compensatory mitigation, mitigation banks, and ILF programs available throughout the state, and provide guidance to jurisdictions and entities setting up programs in new areas.
- Convene an interagency *Wetlands Education Group* to review and update guidance and materials on a regular basis.
- Make education and outreach documents or activities available on important programmatic topics such as:
 - Importance of aquatic resources
 - How to identify protected waters
 - Ecosystem services and economics
 - Identify and advertise opportunities for public participation in the protection of aquatic resources.
- Develop watershed-based educational materials about local wetlands.
- Incorporate an education/outreach component into staff job duties.
- Partner with non-profits and academic institutions providing wetland education.
- Designate and certify educators within the program through Labor and Industries.

- Make program information available through readily accessible outlets (website, brochures, booths at public events).
- Explore and implement innovative ways to reach new audiences, including social media outlets and existing outreach campaigns (e.g., *Puget Sound Starts Here*, TV spots, radio advertisements).
- Publish a field guide to identify Washington’s wetland types and to describe their biodiversity values.
- Publish a field guide to identify Washington’s wetland plant species (similar to *A Field Guide to the Common Wetland Plants of Western Washington and Northwestern Oregon* by Sarah S. Cooke, but statewide).
- Develop a guide to Washington’s wetlands of high conservation value.
- Provide training to technical staff (local/state/federal/tribal) on how to use the WDNR-NHP database to identify wetlands with rare species or ecological associations.
- Increase education about incentives and benefits of voluntary restoration and protection.
- Distribute wetland information materials to all conservation district technical staff.
- Work with conservation district technical staff to provide linkages with Ecology, WDFW, WDNR, and other state, federal, local, and tribal staff for cross training opportunities.
- Provide conservation district staff with wetland information materials to use during landowner outreach meetings.
- Train WSCC and conservation district staff to evaluate landowner plans for opportunities for wetland protection and restoration.



Photo credit: Ecology

Table 5 – Outreach and education desired outcomes

The table below, unlike the other core element tables, is labeled as a *desired outcome* table instead of an *action* table. This is because the items listed are the results desired from a possible activity, not the activity itself. Specific actions and activities will be identified when funding is received and a sub-group of the WPP Interagency Work Group develops a strategy for this core element.

Goal: Directly engage with identified key stakeholders to foster Washington State citizens who understand the role that wetlands play in the landscape, and as a result, value and protect wetlands.

Target Audience	Lead; Partners	Desired Outcomes
Objective 1: Landowners recognize, value, and protect wetlands on their property (restoration and protection)	Ecology; PSP, WDFW, WSCC, WDNR, local gov'ts	<ol style="list-style-type: none"> 1. Landowners seek authorization for impacts from fill, dredging, and grading 2. Landowners maintain adequate wetland buffers 3. Landowners are able to identify wetlands on their property 4. Landowners avoid land use conversion when possible
Objective 2: State and local decision makers understand and make decisions that reflect the value of wetland ecosystem services and the costs associated with loss of wetland functions (regulatory)	Ecology; local gov'ts	<ol style="list-style-type: none"> 1. Decision-makers support adequate CAO updates, including clearing and grading ordinances, and also support implementation and enforcement of the CAO and SMP
Objective 3: Local government permit and technical staff protect wetland ecosystem services using the latest scientific information consistently to advise applicants according to state laws, jurisdictions, and statutes (regulatory)	Ecology regional wetlands staff; local planners and staff	<ol style="list-style-type: none"> 1. Local staff continue to communicate to applicants about permitting requirements 2. Locally permitted projects are channeled through state and federal permit processes as needed 3. Local staff have adequate and current knowledge of wetlands 4. Planning and permitting efforts are informed using watershed planning tools 5. Local staff consult with the Corps, Ecology, and other agencies involved in the permitting process 6. Local staff have access to, and capability to use, GIS-based and other mapping tools

Core Element - Sustainable Financing

A critical component of the success of any wetland program is adequate and consistent funding to implement objectives and activities outlined in the plan. Securing the necessary financial resources to implement the wetland plan and further develop the wetland program is a fundamental and challenging part of program development. Sustained funding for these actions will allow for timely implementation, and will increase the likelihood of successfully completing objectives. This plan is a tool for securing future funding by providing a concise and clear statement of needs, activities, and outcomes.

Definition

Sustainable financing is sufficient and consistent funding to implement the wetland program plan, achieved through federal, state, and local funding options and development of partnerships.

The range of existing state wetland activities is funded by various sources. Funding is derived from general state appropriations, some dedicated appropriations, federal grants, and funds from other state agencies. Examples include Coastal Zone Management Act funding, EPA Wetland Program Development Grants, Shoreline Management Program funding, and the EPA National Estuary Program. Some of these sources vary year to year. However, many elements of the program are currently underfunded and understaffed, and the program budget fluctuates from year to year. Core elements deemed critical to a successful program require attention simply to maintain status quo, let alone implement the actions identified in this plan.

Many other potential funding sources exist that could support this plan. For example, many states charge a minimum permit fee to cover costs associated with completing §401 certifications. Other states receive funds from penalties and violations that go directly back to wetland restoration and protection efforts. Other strategies for consideration include: real estate transfer taxes, general obligation funds, revenue bonds, permit fees, license plate trust fund, lottery proceeds, state building code fees, stormwater utility fees, and voluntary tax contributions.

Limited capacity within the program has constrained exploration of these funding mechanisms. The goal of the sustainable financing section of this plan is to provide stable and consistent funding for implementation of the wetland plan. Before that can be accomplished, resources must be allocated to seek out funding and partnership opportunities, and to identify and obtain funds. Additionally, to provide funding for the duration of this plan and to protect the investments made, these funding sources must be stable and long term.

Table 6 - Sustainable financing actions

Goal: To provide stable and consistent funding for implementation of the wetland plan.

Objective 1: Build capacity and resources within the program.

Objective 1	Action	Lead; Partners	Activity
1.	Explore options for financing wetland program priorities, including the state’s monitoring and assessment strategy	Ecology; WDFW, WSCC, WDNR, WSDOT, local gov’ts, conservation districts, non-profits	<ol style="list-style-type: none"> 1. Add capacity to help identify and seek out funding and partnership opportunities 2. Identify and evaluate state and federal funding options and opportunities for plan implementation 3. Identify and obtain funds to support local wetland protection and management 4. Provide training for grant writing to existing staff 5. Seek out partnerships to share resources, strengthen initiatives, and reduce redundancies
2.	Direct monetary non-compliance penalties back to wetland protection and restoration	Ecology	<ol style="list-style-type: none"> 1. Use current laws or develop legislative action to name state agencies as administrators of monetary penalties for wetland protection
3.	Provide guidance to local governments on obtaining funding for wetland restoration, protection, and management through updated guidance documents and technical resources	Ecology; local gov’ts	<ol style="list-style-type: none"> 1. Update the <i>Wetland Stewardship Guidance</i> to provide current opportunities available for local efforts

Implementation Schedule

This table lists high priority activities identified for implementation over the next six years, depending on funding and resource availability. Some of these activities may not occur and additional activities may be undertaken as circumstances and resources change.

The leads, co-leads, and supporters listed in this table are predominately state agencies and not all inclusive. Federal agencies are not included although they may be involved in several activities, specifically in updating the 2006 Interagency Wetland Mitigation Guidance. Local governments may also be involved in multiple activities although they are listed only once on the table. Other organizations will likely be involved to varying degrees.

The year in which a new phase or activity is expected to occur is checked in the appropriate column. The specified years are by the federal fiscal year (FFY), October through September. For example, FFY 2016 is from October 2015 through September 2016. If there is a check in the *ongoing* column, the associated activity has occurred in the past and is expected to continue into the future. If ongoing and a specific year(s) are checked, it means that an ongoing project has a new phase or activity of the project initiated in that year.

Activity	WPP Reference Core element Objective.Action.Activity	Lead; co-lead - supporters	ongoing	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020	FFY 2021
Regulatory									
Continue to update, develop, and implement enforcement and compliance mechanisms, guidelines, and resources.	Regulatory 1.3.1	Ecology	✓						
Continue to provide technical assistance to local governments in developing and administering wetland regulations.	Regulatory 1.6.1 through 1.6.4	Ecology; - Commerce, WDFW, WDNR- NHP	✓						

Activity	WPP Reference Core element Objective.Action.Activity	Lead; co-lead - supporters	ongoing	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020	FFY 2021	
Increase focus on violations, and compliance with and enforcement of, permit conditions for impact and mitigation sites, including shorelines: <ul style="list-style-type: none"> • Continue current wetland mitigation compliance program. • Explore development of a shoreline compliance program. 	Regulatory 1.3.2	Ecology								
			✓							
				✓	✓	✓	✓			
Increase use of watershed characterization or other methods to identify key areas to avoid developing: <ul style="list-style-type: none"> • Continue to apply the Puget Sound Watershed Characterization • Develop a watershed characterization model for eastern Washington. 	Regulatory 2.2.2	Ecology; WDFW, - PSP (western WA)								
			✓							
							✓	✓		
Use transfer of development rights and other techniques to protect key lands	Regulatory 2.2.4	Commerce; - Puget Sound Regional Council	✓							
Continue to develop state capacity to assist with local comprehensive planning, as needed	Regulatory 2.2.5	Commerce; - Other state agencies	✓							
Continue to encourage the development and use of mitigation banks and ILF programs and encourage local governments to include banking and ILFs as a compensatory mitigation option within their jurisdiction.	Regulatory 3.1.1 & 3.1.2	Ecology; -local gov'ts, WSCC- Conservation Districts	✓							
Update minimum requirements and review criteria for mitigation as needed: Update the 2006 Interagency Wetland Mitigation Guidance.	Regulatory 3.4.2	Ecology; - Commerce, WDFW, WSDOT			✓	✓				

Activity	WPP Reference Core element Objective.Action.Activity	Lead; co-lead - supporters	ongoing	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020	FFY 2021
Voluntary Restoration and Protection									
Establish performance standards based on reference wetland sites: Continue to develop a wetland reference standard network to provide baseline examples for restoration and conservation actions.	Restoration & Protection 1.3.3	WDNR-NHP		✓	✓				
Monitoring and Assessment									
Continue current and complete additional phases of Level 1 analyses of landscape-scale changes using NAIP-based land-cover change analyses.	Monitoring & Assessment 2.1.4	WDFW; - local gov'ts, Ecology	✓	✓	✓	✓	✓	✓	✓
Participate in EPA's 2016 National Wetland Condition Assessment (NWCA)	Monitoring & Assessment 2.3. 1	Ecology; -UW Burke Herbarium		✓	✓				
Outreach and Education									
Produce a field guide to DNR-NHP's wetland and riparian classification	Outreach & Education Objectives 1 & 2 and Idea List	WDNR-NHP; -WDFW, WSCC-CREP*		✓	✓				
Continue to work with the Coastal Training Program (CTP) to provide wetland-specific training as identified in the CTP strategic plan.	Outreach & Education Idea List	Ecology; - Coastal Training Program	✓						
Sustainable Financing									
Add capacity to help identify and seek out funding and partnership opportunities.	Sustainable Financing 1.1.1	Ecology; WPP Interagency Work Group		✓	✓	✓	✓	✓	✓

Activities Involving Multiple Core Elements									
Improve wetland mapping and classify wetlands to characterize wetland functions (Level 1 Assessments).	Regulatory 2.2.1 Restoration & Protection 2.1 Monitoring & Assessment 2.1.1 through 2.1.5	Ecology; WDNR-NHP, -WDFW, WSCC-CREP*		✓	✓	✓	✓	✓	✓
Identify high priority wetlands for protection as it relates to current DNR efforts and future wetland mapping and classification.	Regulatory 2.2.3 Restoration & Protection 2.1.1 through 2.1.3 Monitoring & Assessment 2.1.4 and 2.1.5	WDNR; -Ecology	✓	✓	✓	✓	✓	✓	✓
Increase capacity of non-Natural Heritage Program scientists to identify Wetlands of High Conservation Value by provide training to agency staff, consultants, and others in using the WDNR-NHP's classification and wetland condition assessment methods.	Monitoring & Assessment 1.4.1 Outreach & Education Idea List	WDNR-NHP, - Ecology- Coastal Training Program		✓	✓				
WPP Plan Review									
Annually review progress of activity implementation with the WPP Interagency Work Group	Periodic Plan Review on page 4	Ecology; WPP Interagency Work Group		✓	✓	✓	✓	✓	✓
Hold mid-plan review meeting with the EPA	Monitoring & Assessment Goal 2, 1.6.1	same					✓		
Update the plan and submit to EPA for re-approval.	Monitoring & Assessment Goal 2, 1.6.2	same						✓	

*= CREP is the Conservation Reserve Enhancement Program

Glossary of Technical Terms

Aquatic lands – navigable lakes, rivers, streams, and marine waters, such as Puget Sound, managed by WDNR.

Biodiversity – refers to the full variety of living organisms (species), the variation in the genes these species contain, and the variation in assemblages of these species (ecosystems) as well as the distribution of assemblages across a landscape.

Created wetlands (creation) – those wetlands intentionally created from non-wetland sites to produce or replace natural wetland habitat.

Ecological processes – the biological, physical, and chemical processes that sustain ecological systems.

Ecosystem services – services that ecosystems such as wetlands, forests, grasslands, and oceans provide to human beings. These include water filtration, climate regulation, nutrient cycling, pollination, pest control, disease regulation, pollution reduction, and flood control.

Enhancement – the manipulation of the physical, chemical, or biological characteristics of a wetland to heighten, intensify or improve specific function or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in an improvement in some wetland functions but may lead to a decline in other wetland functions. It does not result in a gain in wetland acres.

Estuary – tidal wetland and deep-water habitats that are usually semi-enclosed by land but have open, partial, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from land.

In-lieu fee program (ILF) – This type of mitigation is one approach to compensate for wetland impacts that result from development. ILF mitigation involves funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation for federal, state, and local permits.

Lacustrine – Related to or associated with a lake.

Landscape scale – the geographic scale that encompasses the broader landscape (i.e., large areas such as basins, sub-basins, watersheds, and habitat corridors).

Mitigation – wetland mitigation is a sequence of actions taken for proposals that will impact wetlands. These actions occur in the following order:

1. Avoiding the impact altogether by not taking a certain action or part of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensation for the impact by replacing, enhancing, or providing substitute resources or environments.
6. Monitoring the impact and taking appropriate corrective measures.

Palustrine – includes all non-tidal wetlands dominated by trees, shrubs, and persistent emergent vegetation, and tidal areas where ocean derived salts are below 0.5% salinity. Common examples of palustrine wetlands include marshes, swamps, ponds, bogs, and fens.

Polygon – a regularly or irregularly shaped area on a map, generally with homogenous features that separate it from adjoining areas in some way.

Preservation - (also known as protection/maintenance) is defined as the removal of a threat to, or preventing the decline of, wetland conditions by an action in or near a wetland. This term includes the purchase of land or easements, repairing water control structures or fences, or structural protection. Preservation does not result in a gain of wetland acres and may result in a gain in functions over the long term. All preservation sites are required to have protective easements placed on the property.

Re-establishment – the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Re-establishment results in rebuilding a former wetland and results in a net gain in wetland acres and functions.

Rehabilitation – the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions and processes of a degraded wetland. Rehabilitation results in a gain in wetland function and does not result in a gain in wetland acres.

Restoration – the manipulation of a former or degraded wetland’s physical, chemical, or biological characteristics with the goal of returning natural or historic functions to a former or degraded wetland.

Scale – the typical geographical extent of interest. The range of scales and the terminology we use in this document includes *basins* (more than 100 square miles); *sub-basins*, *valley segments*, and *drift cells* (commonly 1 to 100 square miles); *waterbodies* (100 acres to 1 square mile); and individual *stream segments* and *sites* (normally less than 100 acres).

Waters of the state – includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington⁶⁸. Two court cases have established that wetlands are also waters of the state⁶⁹.

⁶⁸ See <http://apps.leg.wa.gov/RCW/default.aspx?cite=90.48.020>.

⁶⁹ In a 2010 case, *Pacific Topsoils, Inc. v. The Washington State Department of Ecology*, the Court of Appeals of the State of Washington ruled that wetlands are “waters of the state” and under Ecology’s jurisdiction by statute. In another recent case, *Port of Seattle v. Pollution Control Hearings Board* (2004), the Supreme Court of

Watershed – the drainage area contributing water, organic matter, dissolved nutrients, and sediments to aquatic resources. Watersheds can be drawn at varying scales from the smallest watershed of a first order stream in the headwaters to that of a major river (tens to thousands of square miles).

Watershed characterization – a process of collecting information and data within a watershed on factors that control watershed processes and analyzing this information. The purpose is to identify and rank the areas most suitable for development, protection, and restoration. These results are then synthesized into a management framework that provides clearly defined regulatory and non-regulatory actions.

Wetland mitigation bank – an existing wetland mitigation project that has been certified by an Interagency Review Team and approved through the execution of a Mitigation Banking Instrument (MBI). Developers whose projects are located within the bank service area and require wetland mitigation may propose to buy credits from the mitigation bank sponsor, instead of doing the specialized work on their own.

Wetland condition – the current state of a wetland as compared to reference standards for physical, chemical, and biological characteristics.

Wetland functions – the physical, chemical, and biological processes that occur in a wetland, or under the direct influence of a wetland. They include hydrologic functions such as the conveyance or storage of flood water, chemical functions such as biogeochemical cycling, and biological functions such as primary and secondary productivity, and habitat for animals and plants. Ecology’s wetland rating systems provide a rapid assessment of a wetland’s functions.

Wetland type – each wetland differs due to variations in size, soils, landscape, climate, water regime and chemistry, vegetation, and human disturbance. Wetland types are often classified by different systems, such as Cowardin, hydrogeomorphic class, or WDNR-NHP classification.

Wetlands – areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including but not limited to irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands⁷⁰.

Washington ruled that wetlands (including “prior converted croplands”) are “waters of the state” and subject to regulation under the State Water Pollution Control Act.

⁷⁰ Growth Management Act: <http://apps.leg.wa.gov/RCW/default.aspx?cite=36.70A>.

Appendix A: State agencies involved in wetland management

Department of Ecology

The Department of Ecology (Ecology) has authority to regulate wetlands through two state laws: the State Water Pollution Control Act and the Shoreline Management Act. In addition, Ecology provides support to local governments on Critical Area Ordinances (CAOs) under the Growth Management Act and on shoreline master programs under the Shoreline Management Act. For most development projects, the State Environmental Policy Act (SEPA) review process is required. SEPA notices are routinely reviewed by Ecology, and comments submitted as appropriate. For Federal laws, Ecology is the implementing agency for the Federal Clean Water Act Section 401 and the Federal Coastal Zone Management Act. Ecology also has a stewardship program focused on protection of wetland resources through two major grant programs: the National Coastal Wetlands Conservation Grant Program, and the Coastal and Estuarine Lands Conservation Program. Additionally, Ecology provides technical assistance to project applicants and local governments, administers grants received for conservation projects, and develops technical tools for the management, regulation, and stewardship of wetlands.

Ecology serves as the lead state agency in wetland regulation, and works with other resource agencies and local authorities to fill the gap of wetland regulatory and non-regulatory protection in the state. Those agencies include:

Department of Fish and Wildlife

The Department of Fish and Wildlife (WDFW) is responsible for preserving and perpetuating Washington's fish and wildlife resources. WDFW serves as the administering agency for the Hydraulic Project Approval (HPA) permit for projects that use, divert, obstruct, or change the natural bed or flow of state waters. WDFW has developed Wildlife Action Plans that create a new management framework for protection of species and habitats in greatest need.

The agency's Priority Habitat and Species Program provides comprehensive information on important fish, wildlife, and habitat resources to local governments, state and federal agencies, tribal staff, private landowners, and consultants. The program screens Forest Practices Applications (administered by WDNR) and HPA applications for species occurrences and special habitats, including wetlands. WDFW also provides review and technical assistance to local governments on CAO and shoreline master programs.

Much of the species and habitat information is incorporated into regional mapping efforts, such as the Puget Sound Watershed Characterization Project⁷¹. The WDFW's High Resolution Change Detection (HRCD) project developed a tool that identifies loss of vegetation in riparian areas

⁷¹ See http://www.ecy.wa.gov/puget_sound/characterization/index.html.

adjacent to water sources. The HRCDD tool may be used to identify wetland loss and alteration. WDFW uses grants to acquire, restore, and enhance coastal wetlands. WDFW also manages wetlands on state lands for recreational and wildlife habitat protection purposes.

Department of Commerce

The Department of Commerce (Commerce) provides technical and financial assistance to local governments for development of Critical Area Ordinances through the Growth Management Act. In partnership with Ecology, Commerce developed a six-year strategy for an EPA National Estuary grant for Watershed Protection and Restoration in Puget Sound. The six-year plan emphasizes using a watershed approach to accomplish specific strategic priorities and near term actions identified in the Puget Sound Partnership's Action Agenda. This includes offering funding for integrating land use and zoning decisions based on data on watershed process impairments and protection priorities in the Puget Sound. Commerce also provides guidebooks, trainings, grants, and planning tools to help local decision makers and planners.

Department of Natural Resources

The Department of Natural Resources (WDNR) operates the Natural Heritage Program and Natural Areas Program, both of which contribute to the protection of wetland biodiversity. The Natural Heritage Program is part of an international network of programs that provide an objective, scientific approach to setting conservation priorities by (1) identifying which species and ecosystems are most in need of conservation attention; (2) performing surveys for those species and ecosystems; (3) building and maintaining a database of the locations of the priority species and ecosystems; (4) sharing the information with others so that it can be used for environmental assessments and conservation planning purposes; and (5) assisting in the selection of potential additions to the statewide system of natural areas. The sites the Natural Heritage Program identifies as being of conservation value are included in the highest category in Washington's wetland rating system. The Natural Areas Program manages the Department of Natural Resources' Natural Area Preserves and Natural Resources Conservation Areas which protect numerous rare wetland species and a variety of rare and high-quality wetland ecosystems.

WDNR also administers the Forest Practices Act to prevent, minimize, and mitigate forest practices-related impacts to wetland habitats, and to restore and maintain riparian processes that create aquatic habitat. The Forest Practices and Trust Lands Habitat Conservation Plans were developed and are administered by WDNR for compliance with the Endangered Species Act (ESA) and to regulate harvest and road-building activities in and around all wetlands. As a land steward, WDNR issues leases for the use of state-owned aquatic lands which may include wetlands.

The Cooperative Monitoring, Evaluation, and Research Committee (CMER) was established by the Washington State Forest Practices Board. The committee conducts research and monitoring to produce credible, peer-reviewed technical reports based on best available science to help guide decision making in adaptive management for aquatic resources. The CMER Wetland

Research Strategy was completed in the fall of 2014. For more information, see <http://www.dnr.wa.gov/AboutDNR/BoardsCouncils/CMER/Pages/Home.aspx>.

WDNR manages 2.6 million acres of aquatic lands which includes marine nearshore and bedlands, estuarine, lake, riverine, and coastal lands. Some of these systems may include wetland habitats. The WDNR manages aquatic lands for the purposes of 1) Encouraging direct public use and access; 2) Fostering water-dependent uses; 3) Ensuring environmental protection; and 4) Using renewable resources. WDNR manages use authorizations such as leases and easement on these state-owned aquatic lands. These authorizations are also typically required to obtain local, state, and federal regulatory permits.

WDNR is also developing the Aquatic Lands Habitat Conservation Plan to provide ESA consistent protection for nearshore habitats. WDNR will use this plan to implement management strategies which support long-term landscape-based protection of 29 federally listed and non-listed species considered at risk of extinction. Some of the area covered under the Aquatic Lands Habitat Conservation Plan will benefit associated wetlands. This plan is a formalized contract between WDNR and the federal service agencies charged with protecting endangered and threatened species under the Endangered Species Act. See http://www.dnr.wa.gov/ResearchScience/Topics/AquaticHCP/Pages/aqr_aquatics_hcp.aspx for more information.

Department of Transportation

The Department of Transportation (WSDOT) serves the public's need for a safe and reliable transportation system, which often results in unavoidable impacts to wetlands. WSDOT has a policy to protect and preserve wetlands, to ensure no net loss and overall gain of wetlands by department actions, and to increase wetland quality and quantity in the long term.

WSDOT uses Eco-Logical⁷² which lays the conceptual groundwork for integrating plans across agency boundaries and endorses ecosystem-based mitigation, an innovative method of mitigating infrastructure impacts that cannot be avoided. As a development entity WSDOT receives a large number of permits for unavoidable impacts to wetlands. They perform wetland assessments, as well as design, monitor, construct, and maintain compensatory mitigation sites. WSDOT also has three certified mitigation banks that serve as sources of mitigation credits for transportation project impacts. Sometimes, for projects not needing federal approval, WSDOT provides pass-through funds from the state for local restoration projects used as compensation for unavoidable impacts to wetlands.

Puget Sound Partnership

The Puget Sound Partnership (PSP) is a state agency that serves as an advocate for the recovery of Puget Sound, facilitating public and private partners to focus efforts on cleaning up the Sound, monitoring effectiveness, and creating accountability for actions. Their Action Agenda,

⁷² See http://www.environment.fhwa.dot.gov/ecological/eco_index.asp.

last updated for 2014/2015⁷³, is a comprehensive list of strategies and actions to drive the changes that are needed to protect and restore Puget Sound. Specifically, the priorities are:

- Prevent pollution from stormwater runoff
- Protect and restore habitat
- Restore and re-open shellfish beds

PSP has several groups that implement work outlined in the Action Agenda. Lead Entities are local, watershed-based organizations that develop local salmon habitat recovery strategies and plans. They recruit organizations to do habitat protection and restoration projects that will implement the recovery strategies.

PSP Local Integration Organizations foster implementation of Action Agenda priorities. They have a coordinated Puget Sound Ecosystem Monitoring Program to assess progress and effectiveness towards recovery, support decision-making, and communicate results. PSP also has a successful outreach strategy that includes the *Puget Sound Starts Here* campaign that promotes stewardship and best practices, and ECO Net, a Sound-wide network of professionals working to help save Puget Sound.

Recreation and Conservation Office

The Recreation and Conservation Office (RCO) manages grant programs to create outdoor recreation opportunities, protect the best of the state's diverse biological heritage and farmland, restore habitat, and help return salmon from near extinction.⁷⁴ Grant funding includes the Salmon Recovery Funding Board (SRF Board) and the Recreation and Conservation Funding Board. The SRF Board provides funding for elements necessary to achieve overall salmon recovery, including habitat projects and other activities that result in sustainable and measurable benefits for salmon and other fish species. The Recreation and Conservation Funding Board provides leadership and funding to help protect and enhance Washington's natural and recreational resources for current and future generations. These grant opportunities provide for local projects, many of which involve wetland restoration and protection efforts. RCO also provides funding for the Habitat and Recreation Lands Coordinating Group whose mission is to *improve the visibility and coordination of state habitat and recreation land purchases and disposals*. RCO is home to the Governor's Salmon Recovery Office, established by the legislature to coordinate a statewide salmon recovery strategy. This office provides funding for local, regional, and state salmon recovery efforts.

Department of Agriculture

The Department of Agriculture (Agriculture) supports the producers, distributors, and consumers of Washington's food and agricultural products. This agency strives to protect the state's natural resources while protecting food supply and maintaining existing agricultural uses. Agriculture provides technical support and guidance on regulatory actions involving

⁷³ See http://www.psp.wa.gov/action_agenda_center.php.

⁷⁴ See <http://www.rco.wa.gov/grants/index.shtml>.

agricultural lands, including shoreline master programs and critical area ordinances. They participate in groups that influence protection of wetland resources, including the Washington State Conservation Commission and the Noxious Weed Control Board.

Conservation Commission

The Conservation Commission (WSCC) strives to lead citizens of the state in the wise stewardship, conservation, and protection of soil, water, and other natural resources. The WSCC works with conservation districts to help citizens protect renewable resources through the use of proven, incentive-based practices. The Commission participates in several programs that affect wetland resources including: the Conservation Reserve Enhancement Program (CREP), the Wetland Reserve Program, Water Quality grant programs, and the Voluntary Stewardship Program. The Commission has no regulatory function, but works primarily through education and through facilitating dialogue between land owners, land managers, local stakeholders, and state and federal agencies on critical natural resource conservation issues.

Parks and Recreation Commission

The Parks and Recreation Commission (Parks) cares for Washington's most treasured lands, waters, and historic places. It provides communities a connection to their natural and cultural heritage, recreation opportunities, and educational experiences. Parks partners with groups such as the Salmon Enhancement Board on wetland restoration on park lands, and encourages use of park properties for compensatory mitigation efforts. GIS information is collected on native, rare, and invasive vegetation. State parks also provide excellent wetland education and outreach opportunities.

Governor's Office for Regulatory Innovation and Assistance

The Governor's Office for Regulatory Innovation and Assistance (ORIA) is a central agency for assistance with environmental permitting, government relations, and small business assistance. ORIA serves as a first point of contact for applicants that may require permits for development. Their website provides online tools to understand permits and the permitting process.⁷⁵ Regional assistance leads are available to assist applicants throughout the permitting process and direct them to the appropriate agencies. Currently, applicants can obtain a Joint Aquatic Resources Permit Application through ORIA for submittal to the appropriate federal, state, and local agencies for project review and permitting.

⁷⁵ See http://www.oria.wa.gov/site/alias_oria/404/default.aspx.

Appendix B: Regulatory statutes

State statutes

State Water Pollution Control Act (Chapter 90.48 RCW)

This Act directs Ecology to protect state water quality by controlling and preventing the pollution or degradation of waters of the state.⁷⁶ The law directs Ecology to establish water quality standards that will uphold the state's water quality. When Ecology issues a water quality certification under §401 of the federal Clean Water Act, it reflects the state's determination that a project approved by the U.S. Army Corps of Engineers under §404 of the Clean Water Act complies with state water quality standards and other appropriate requirements of state law.

The state uses its authority under this Act to review and authorize projects that will result in the alteration or loss of isolated and other waters of the state that are not within federal jurisdiction (not regulated under §404 of the Clean Water Act).

Ecology's regulation of wetlands, including isolated wetlands⁷⁷, ensures that projects are in compliance with State Water Quality Standards (Chapter 173.201A WAC). The anti-degradation procedures of the water quality standards (Chapter 173.201A.300 WAC) are the primary means for protecting water quality in wetlands.

Water quality in wetlands is maintained and protected by maintaining the hydrologic conditions, hydrophytic vegetation, and substrate characteristics necessary to support existing and designated uses. In addition to designated uses, wetlands may have existing beneficial uses that are to be protected that include groundwater exchange, shoreline stabilization, and storm water attenuation. (Chapter 173-201A.260[3]i WAC)

Growth Management Act (GMA) (Chapter 36.70A RCW)

This Act requires local governments to designate and protect critical areas, which include wetlands. The GMA is implemented by local governments, which are required to periodically review and update their plans and regulations, including their critical areas ordinances. State agencies, including the Departments of Ecology, Fish and Wildlife, Commerce, Conservation Commission, and Natural Resources, provide assistance to local governments in development of their critical areas ordinances.⁷⁸

⁷⁶ Waters of the state - include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington, RCW 90.48.020.

⁷⁷ For more information on isolated wetlands, see <http://www.ecy.wa.gov/programs/sea/wetlands/isolated.html>.

⁷⁸ See <http://www.commerce.wa.gov/Services/localgovernment/GrowthManagement/Pages/LawsRules.aspx>.

Shoreline Management Act (SMA) (Chapter 90.58 RCW)

Part of Washington's approved Federal Coastal Zone Management Program; the SMA regulates activities that affect shorelines of the state and their associated wetlands. The purpose is to promote and enhance the public interest. The SMA protects against adverse effects to public health, land and its vegetation and wildlife, and the waters of the state and their aquatic life. Ecology assists in the development of and reviews and approves local government shoreline master programs, which contain the goals, policies, and regulations used by cities and counties to guide their shoreline permit decisions. Ecology has the authority to review and either approve or appeal certain local government permitting decisions (e.g., conditional use permits). In its review of these permits, Ecology considers the language in the local shoreline master program, the policies of the SMA, and its understanding of the project effects to wetlands.⁷⁹

Hydraulic Code (Chapter 77.55 RCW)

The State Hydraulic Code is implemented through the Hydraulic Project Approval (HPA) permit obtained through the Washington Department of Fish and Wildlife (WDFW). Although there is no direct protection of wetlands through the HPA, this approval is required for projects that affect the bed or flow of state waters, which often include wetlands, in order to protect fish. This makes HPAs an important regulatory tool in the protection of wetlands that support fish habitat.

Forest Practices Act (Chapter 76.09 RCW)

Forest practices regulations protect water quality and quantity, fish and wildlife habitat, and the production of timber on state and private forest lands. This act regulates forestry activities in and around wetlands because they may contain unique or rare ecological systems that need protection. Additionally, through this Act landowners are encouraged to increase wetland acreage and function over time. The Forest Practices Act is implemented through the Washington Department of Natural Resources (WDNR).

Aquatic Lands Act (Chapter 79.90-79.96 RCW)⁸⁰

This act gives WDNR responsibility to manage state-owned aquatic lands, including authorizing the use of these lands for activities including wetland mitigation projects. Aquatic lands are the bedlands (bottom) of navigable lakes, rivers, streams, and marine waters, such as Puget Sound, along with some marine nearshore lands. Any proposed project on state aquatic lands may require authorization from WDNR. WDNR also funds wetland protection and restoration projects through its Aquatic Lands Enhancement Account.

Wetlands Mitigation Banking Act (Chapter 90.84 RCW)

This act outlined the legislature's support for wetland mitigation banking and directed Ecology to develop rules for a certification program for wetland mitigation banks (WAC 173-700)⁸¹.

⁷⁹ See <http://www.ecy.wa.gov/programs/sea/shorelines/index.html>.

⁸⁰ Chapters 79.90 – 79.96 RCW were not passed under the term “Aquatic Lands Act.” However, the sections all relate to the management of state-owned aquatic lands and have become commonly referred to as such.

⁸¹ See <http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/index.html>.

State Environmental Policy Act (SEPA)

SEPA⁸² review is required for those proposals involving a government action (e.g. issuing a permit or certification)⁸³ for construction or timber harvest and for non-project government actions (e.g., comprehensive plan updates, capital facility plans, and zoning code amendments). SEPA checklists and determinations provide early notice on projects that may affect wetlands. The applicant typically works with the local government, who is often the primary SEPA lead. The SEPA lead is responsible for making the project application and SEPA checklist available to interested parties and agencies. Ecology reviews the materials and offers comments regarding potential environmental impacts resulting from the project.

Aquatic Resources Mitigation Act (Chapter 90.74 RCW)

This act outlined the state's policy related to mitigation of wetlands and aquatic habitat for infrastructure development. The law directs Ecology and WDFW to authorize innovative, watershed based, mitigation measures for infrastructure projects.

Federal statutes

In addition to the state authorities above, Ecology uses the following federal laws to protect wetlands:

Coastal Zone Management Act (CZMA)

The CZMA requires states to review all federal projects, permits, and licenses that may affect any land or water use or natural resources of the coastal zone for consistency with the state's coastal management program. In Washington, CZM review applies to Washington's 15 coastal counties, and Ecology is the state agency for this review.

Section (§) 401 of the Clean Water Act (CWA)

Ecology uses its authority under §401 of the Clean Water Act to regulate discharges to waters of the state, including wetlands. Ecology issues §401 water quality certifications for impacts to wetlands (as well as other waters) being considered for permit approval under CWA §404. CWA §404 is administered by the U.S. Army Corps of Engineers, with oversight by the U.S. Environmental Protection Agency (EPA). The §401 certification certifies that the state has reasonable assurance that the project as proposed and conditioned will comply with applicable state water quality standards.

⁸² See the SEPA handbook at: <http://www.ecy.wa.gov/programs/sea/sepa/e-review.html>.

⁸³ CWA §401 is exempt from SEPA unless there is a non-exempt permit needed like a NPDES permit.

Appendix C: Federal agencies involved in wetland management

Army Corps of Engineers

The U.S. Army Corps of Engineers (Corps) plays a central role in wetland management at a federal level. Historically, the agency served the purpose of protecting and maintaining the navigable capacity of the nation's waters. Currently, most significant is the Corps responsibility in administering §404 of the Clean Water Act. The Corps, jointly with the EPA, determines the jurisdiction for *waters of the U.S., including wetlands* for all construction activities that occur in the nation's waters. Ecology has adopted the Corp's 1987 Wetlands Delineation Manual and applicable regional supplements for identifying wetland boundaries. Ecology works in close coordination with the Corps for all §401/404 CWA permitting. The Corps also provides support on mitigation and conservation banking and in-lieu fee programs across the country through the Regulatory In-Lieu fee and Bank Information Tracking System (RIBITS).

Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) helps state, tribal, and local governments with wetland protection by providing information and program guidance and by sponsoring national forums on state program development. Financial assistance may also be available from the EPA to pursue some of these activities through the EPA's State Wetlands Protection Grants Program. The EPA routinely provides review and comment on Corps §404 permit applications as part of their oversight responsibilities to ensure Corps' compliance with the Clean Water Act (CWA) §404 regulations. EPA also has authority under §404(c) to veto Corps' issuance of CWA §404 permits, and can elevate specific cases or policy issues pursuant to CWA Section §404(q). The EPA has the ultimate authority to determine federal jurisdiction of waters of the U.S. and works jointly with the Corps in making determinations of what are isolated waters.

Enforcement of CWA §404 is shared by the EPA and the Corps. The EPA approves and oversees State and Tribal assumption of the §401 and §404 program as well as state and tribal water quality standards for wetlands. The EPA also writes CWA §401 water quality certifications on tribal lands where the tribal government has not been delegated the authority to administer §401.

Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) provides essential data on wetlands throughout the nation with the National Wetlands Inventory. The USFWS is currently developing the Surface Waters and Wetlands Inventory. The new database will provide more inclusive geospatial data of all wetland and surface water features and will contribute to improved modeling of flow and water movement in surface water basins, channels, and wetlands. They have also produced a report to Congress on the status and trends of our Nation's wetland resources: *Status and Trends of Wetlands in the Conterminous United States 2004 to 2009*. They have also produced,

with NOAA, another report: *Status and Trends in the Coastal Watersheds of the Conterminous United States 2004 to 2009*. USFWS authority is related to fish and wildlife, and federally threatened and endangered species. The USFWS can also elevate specific cases or policy issues pursuant to the CWA §404(q).

National Oceanic and Atmospheric Administration – National Marine Fisheries Service

The National Marine Fisheries Service (NOAA Fisheries) within the National Oceanic and Atmospheric Administration (NOAA) provides guidance in the form of conservation recommendations to the Corps on conservation of threatened and endangered fish and other animals in waters of the U.S., and in some cases habitat for some of these species, under the Endangered Species Act.

NOAA Fisheries evaluates impacts on fish and wildlife of all new Federal projects and federally permitted projects, including projects subject to the requirements of CWA §404 (pursuant to the Endangered Species Act). Similar to the EPA and USFWS, NOAA Fisheries can also elevate specific cases or policy issues pursuant to the CWA §404(q). NOAA also administers the CZMA program and provides funds to the state for their Shoreline Management Act implementation.

Natural Resource Conservation Service

The U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) works with landowners through conservation planning and assistance to achieve productive lands and healthy ecosystems. This agency provides assistance to the USDA's Wetland Conservation provisions, commonly called *Swampbuster*. This program prohibits participants from converting remaining wetlands on their farming operations to cropland, pasture, or hayland, unless that conversion is compensated for through mitigation. The NRCS, in partnership with the WSCC, also offers easements to landowners seeking to maintain or enhance their land in ways beneficial to agriculture and the environment through programs such as the Wetland Reserve Program. The NRCS also has the Conservation Reserve Program⁸⁴ and the Environmental Quality Incentives Program (EQIP)⁸⁵, which help establish riparian corridors and easements.

The NRCS is the federal agency responsible for researching and maintaining information on the nation's soils, including wetland soils. The NRCS coordinates the National Technical Committee for Hydric Soils that develops the definition, criteria, and field indicators for hydric soils. Those field indicators are adopted and incorporated into the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual and regional supplements, which are the guidelines used by practitioners to help identify hydric soils in the field for wetland delineation purposes. Additionally, the NRCS's National Wetlands Team supports the scientific and technical needs of the agency, as well as the broader wetlands science community.

⁸⁴ See <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/?cid=stelprdb1041269>.

⁸⁵ See <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>.

Bureau of Reclamation

The Bureau of Reclamation constructs and manages dams, powerplants, and irrigation canals in seventeen western states. The Bureau's mission is *to assist in meeting the increasing water demands of the west while protecting the environment and the public's investment in these structures*. One prominent project is the Columbia Basin Project⁸⁶.

Bureau of Land Management

The Bureau of Land Management's mission is to *manage and conserve the public lands for the use and enjoyment of present and future generations under our mandate of multiple-use and sustained yield*. BLM manages more than 245 million acres of public lands, more wildlife and plant habitat than any other federal or state agency in the U.S. This includes over 3 million acres of lakes and reservoirs, and 117,000 miles of streams, many with associated wetlands.

⁸⁶ See http://www.usbr.gov/projects/Project.jsp?proj_Name=Columbia+Basin+Project.

Appendix D: Draft coordinated wetland monitoring and assessment strategy



Washington State

DRAFT Coordinated Wetland Monitoring and Assessment Strategy

Prepared by the Interagency Wetland Monitoring and Assessment Workgroup

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Acknowledgements

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Abstract/Executive Summary

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Introduction and Background

As an initial step in developing a wetland monitoring and assessment program, the Department of Ecology (Ecology), one of the primary agencies involved in state wetland activities, initiated a coordinated approach with state, federal, and tribal partners to develop a state monitoring and assessment strategy. The overall goal of the wetland monitoring and assessment strategy is:

To establish the extent and types of wetlands, their level of function and condition, to detect changes and stressors, and to characterize trends over time to inform better decision making.

The monitoring and assessment strategy identifies priority objectives and an approach to meet the objectives. It will help guide monitoring efforts over the next five years. Due to the dynamic nature of wetland science, this strategy should be considered a work in progress that will be revisited and updated periodically as needed to reflect lessons learned and evolving needs, priorities, and funding.

Development of the Strategy

In order to develop the strategy, the following actions and activities were completed or are in the process of being completed. They are further described throughout this document.

Action 1: Establish a monitoring and assessment workgroup

Establish a wetlands monitoring and assessment workgroup comprised of relevant partners (partners may include WDFW priority habitats and species program, Ecology's water quality monitoring program, WDNR's Natural Heritage Program, WSDOT, Tribes, and educational institutions).

Activity

- Identify and convene staff from partner organizations committed to development and implementation of the monitoring and assessment strategy

Action 2: Develop monitoring objectives

Develop wetland monitoring objectives consistent with mandates of the agencies and needs of policy makers.

Activities

- Identify long-term environmental outcome(s) that will benefit from a statewide monitoring and assessment program (e.g., improved wetland protection through more accurate identification of wetland location and extent and their change over time, protection of wetlands of high conservation value and high-functioning wetlands)
- Identify the programs, decisions, and policies which monitoring data will inform (e.g. 401 water quality certification program, local governments' critical areas ordinances, no

net loss policy, WDNR's Natural Heritage Program, habitat conservation plans, Voluntary Stewardship Program)

- Identify shared goals and activities (e.g., map wetland location and extent, create and maintain a state-wide wetlands status and trends inventory, identify hydrogeomorphic classification and functions of wetlands, assess the condition of wetlands)
- Identify and prioritize monitoring needs and questions that need to be answered. NOTE: This is where we will consider drivers and stressors (examples include climate change, cumulative impacts, land use changes).

Action 3: Document the strategy

Document the wetlands monitoring strategy. NOTE: More detailed implementation plans will be developed for each monitoring objective as we address them.

Activities

- Develop a synopsis of proposed action items for each monitoring objective with timeframes. NOTE: When we develop an implementation plan for each monitoring objective we will identify existing tools and sources of information as well as identify gaps in the information.
- Identify the lead organization(s) for each objective in the strategy.

Action 4: Establish a data management approach

Establish a data management approach for coordinated data standards, storage, management, and dissemination of monitoring and assessment data.

Activity

- Manage and share data and cross-train between state agencies and programs (for example, WDNR-Natural Heritage Program provide training on EIA, FQA, and Wetland Ecological Classification system)
- Create a strong quality assurance and quality control (QA/QC) approach for the data management system
- Create or integrate with existing web-based data management platforms (e.g., a map viewer like Coastal Atlas) so that data is easily accessible by users.

Action 5: Maintain the strategy over time

Maintain the strategy over time by refining agency and policy makers' needs and priorities, and identifying funding sources.

Activity

- Convene the monitoring and assessment workgroup at least annually to identify current common needs and priorities.

Washington's Wetlands

According to a 1990 report to Congress¹, wetlands cover approximately 938,000 acres in Washington State, or about 2 percent of the state's total land. Since the 1780s, Washington State has lost 31% of its wetland areas, from 1.35 million acres to 938,000 acres. Wetlands are critical to the overall health of our watersheds....

[Provide one-page summary of types of wetlands found in WA]

Condition, Function, and Integrity

Wetlands are commonly characterized by their area, type, integrity, condition, or function. These characteristics are the basis of most wetland monitoring and assessment programs.

[Define these terms and describe how they are used in Washington state assessments of wetlands.]

Levels of Assessment

Level 1 – Landscape Assessment

Level 2 – Rapid Assessment

Level 3 – Intensive Site Assessment

¹ See: http://www.npwrc.usgs.gov/resource/wetlands/wetloss/table_1.htm (active as of February 11, 2015)

Interagency Monitoring and Assessment Workgroup

The monitoring and assessment workgroup consists of staff from partner organizations committed to development and implementation of a monitoring and assessment strategy. Partner organizations include, but are not limited to:

- WA Department of Ecology
- WA Department of Fish and Wildlife (Priority Habitats and Species Program)
- WA Department of Natural Resources (Natural Heritage Program)
- WA Department of Transportation
- U.S. Environmental Protection Agency

The workgroup convened in August 2013... add more background about the group.

Wetland Monitoring Objectives

The agencies have identified the following monitoring objectives (not in priority order):

- Quantify wetland area and function
- Identify priorities for conservation
- Understand the efficacy of buffers
- Understand the effects of invasive species
- Understand how humans affect wetland habitat
- Evaluate the success of wetland mitigation
- Understand the impacts of climate change
- Ensure Forest Practice Rules achieve resource objectives related to wetlands
- Learn more about specific wetland types (e.g., peatlands and interdunal wetlands)

Quantify wetland area and functions

At a state level it is expected that loss of wetland acreage and function will be minimized through regulation. It is also expected that no net loss and long-term gain in wetland resources will occur through a combination of regulation and non-regulatory conservation and restoration. The agencies strive to quantify success in achieving the state goal of no net loss and long-term gain of both wetland area and function.

This need is documented in the Governor's Executive Order (*achieve no net loss and overall gain of wetlands*) and the *Mitigation that Works* report under Recommendation 2.3: Create and maintain a state-wide wetlands status and trends inventory.

Monitoring questions

- What are the historical and current areal extent, distribution, and types of wetlands in Washington and how do they change over time?
- What functions (by HGM class) are wetlands in Washington providing, at what level, and how do the functions change over time?
- Are there gaps in wetland protection in the state resulting in a net loss of area and function (e.g., small, isolated wetlands)?
- Are there adequate, rapid² function assessment methods for wetlands in the state of Washington?

Identify priorities for conservation

Per the Natural Area Preserves Act of 1972 (RCW 79.70), one of WDNR Natural Heritage Program's mandates is to identify which species and ecosystems are priorities for conservation through classification, inventory, and the management and dissemination of data.

² "Rapid" means that it could be completed in one day by a trained professional wetland specialist.

The presence of rare species and ecosystems occurring in wetlands is one of the primary considerations in prioritizing wetland sites with high conservation value.

Understanding which wetland species, types, and/or wetland locations are most vulnerable to possible climate effects would be very useful in assisting WDNR to identify which wetland species and ecosystems are priorities for conservation. For example, a wetland type that is common and in relatively good condition today may not be a high conservation priority. However, if that same wetland is expected to be very vulnerable to the effects of climate change it might be prioritized differently.

In addition, long-term monitoring of wetlands already protected within WDNR's statewide system of natural areas can help identify changes attributable to climatic conditions and help inform management strategies for specific wetland types across the state.

Monitoring questions

- What is the distribution and long-term viability of rare species associated with Washington's wetlands?
- Is statewide wetland biodiversity adequately represented in the WDNR's natural areas system?
- What is the extent and range of ecological condition (baseline ecological integrity) across Washington's wetlands and in the natural areas system? How does condition change over time?
- Which wetland plant species, types, and sites of conservation value are potentially vulnerable to climate change effects?
- Are there adequate rapid, ecological integrity/floristic quality methods for wetlands in the state of Washington?

Understand the efficacy of buffers

Local governments often protect wetlands and their functions by buffering them from surrounding land uses. Buffers also provide wildlife habitat in conjunction with wetlands for some wetland-dependent species. However, we have little information on buffer resiliency over time. Without this information, we know little about the long-term efficacy of buffers. Once adequacy is established, these buffers should be monitored over time to identify trends.

Monitoring questions

- Are existing buffers being degraded over time as a result of human or natural changes?
- Are buffers being established per local government critical areas requirements, and are they persisting over time?

Understand the effects of invasive species

Invasive species can affect wetland processes, structures, and functions in multiple and non-intuitive ways. We need to know how invasive species acting alone or in combination with other invasive species affect wetland functions.

The number and types of invasive species are increasing worldwide with little real hope for stopping their spread. Resource managers need information to prioritize control efforts given limited resources.

Monitoring questions

- What is the current extent of invasive plant and animal species and how does this change over time?
- Is it possible to correlate invasive species with different land uses and other disturbances?

Understand how humans affect wetland habitat

Wetlands represent the focal habitat for most amphibian species, providing breeding habitat for many amphibians during their active season as well as overwintering habitat for others. Amphibians are declining globally as well as in Washington State. Wetlands can also serve as important habitat to small mammals and wetland-dependent birds.

A basic understanding of how humans affect wetland habitat functions in Washington State is fundamental to understanding the state's environmental health. Degradation and loss of wetland habitat for amphibian, wetland-dependent bird, and small mammal species is a rapidly accelerating problem in urban to rural landscapes in our wetter areas as well as in drier ephemeral landscapes. These issues reflect a complex interaction of factors: 1) land development and changes in land use patterns, 2) changes in plant communities due to altered hydrology and natural disturbance regimes, 3) introduction and expansion of non-native aquatic predators, and 4) contaminants, mainly nutrients from fertilizers, agricultural and residential application of herbicides and pesticides, and selected metals from building materials.

Monitoring questions

- What is the current extent of wetland habitat in areas with different land uses, and how is this changing over time?
- How is wetland biodiversity and function changing in westside and eastside landscapes?
- How has the extent, distribution, and type of wetlands been affected in urban to rural landscapes in our wetter areas as well as in drier ephemeral landscapes?

Evaluate the success of wetland mitigation

The state's regulatory program is designed to address impacts to wetlands and, where losses are permitted, to require that equivalent wetland resources are provided through compensatory mitigation.

For mitigation efforts to be effective, losses must be replaced both in function and area. These metrics must be measured over time to understand how closely compensatory mitigation offsets wetland losses before we can adapt our mitigation strategies. This need is highlighted in the Mitigation that Works report under Recommendation 5: Support Making Mitigation Work.

Monitoring questions

- Do mitigation sites replace area and level of function?
- Do mitigation sites continue to replace area and level of function after compliance monitoring is complete?
- How do different types of wetland mitigation approaches compare regarding effectiveness?

Understand the impacts of climate change

Under Washington State law, state agencies are mandated to incorporate climate change adaptation plans when developing agency policies and programs (RCW 43.21M.040). Changes in temperature and the amount and timing of precipitation have the potential to impact wetland functions. Wetlands can provide protection to coastal habitats and developed areas that may be impacted by sea-level rise. Many wetlands provide storage during precipitation events that can help prevent or reduce damage from floods. The water storage function of wetlands can also contribute to habitat resilience during droughts. We need to understand how wetland alteration associated with climate change will impact resource availability for plants, wildlife, and human uses.

Monitoring questions

- What wetland locations and types are potentially vulnerable to the effects of climate change?
- How will climate change affect the extent and functions of wetlands?
- Are there types of wetlands that are more resilient to climate change?
- What role will wetlands play in community resilience to impacts from climate change?

Ensure Forest Practice Rules achieve resource objectives related to wetlands

The Forest Practices Board's Cooperative Monitoring Evaluation and Research (CMER) Committee's is responsible for effectiveness research and monitoring to help ensure the Forest Practice Rules produce forest conditions and processes that achieve goals of protecting water quality and sensitive species, and maintaining a viable timber industry. When developing the objectives, the committee takes into account the natural spatial and temporal variability inherent in forest ecosystems. The resource objectives are measured by performance targets. The studies

included in the CMER's Work Plan are intended to determine whether resource management objectives are being met as they relate to wetlands and wetland functions.

Monitoring questions

- Are the current Forest Practices Rules for wetlands effective at meeting the goals of maintaining water quality and quantity in and downstream of wetlands, and protecting sensitive wetland species?
- How are wetland functions affected by specific forest practices (e.g., timber harvest), and what are the resultant effects downstream from them (fish, forest, and riparian areas)?

Learn more about specific wetland types (two examples are listed below)

Characterize the extent and condition of peatlands

Peatlands support a significant proportion of Washington's rare wetland plants and rare wetland plant communities³. They are also considered irreplaceable because they take thousands of years to form. As such, characterizing peatland extent and condition across the state is needed to better understand hydro-geochemical conditions, vegetation patterns, and ecological integrity to inform their protection, management, and restoration.

Monitoring questions

- Where are peatlands in Washington State?
- How do they vary in ecological setting, vegetation, and hydro-geochemical conditions?

Understand the functions of interdunal wetlands

Interdunal wetlands form in the *deflation plains* and *swales* that are geomorphic features in areas of coastal dunes. The wetlands that form in the interdunal ecosystem are not well understood. No methods have been developed to characterize the functions of interdunal wetlands and functions may differ with distance from the coast. Interdunal wetlands develop more vegetation structure and diversity as they trend landward from the Pacific Ocean. Interdunal wetlands are potentially vulnerable to increasing development pressure on the coast of Washington and sea level rise due to climate change. We need to better define interdunal wetlands and understand their functions.

Monitoring questions

- What are the functions of interdunal wetlands? (For example, do interdunal wetlands provide hydrologic storage and water quality functions that are distinct from the adjacent uplands?)
- What is the role of interdunal wetlands in the interdunal ecosystem?
- Do the functions of interdunal wetlands differ with proximity to the coast? If so, how?
- What is the nature and extent of the hydrologic connectivity between interdunal wetlands and the Pacific Ocean?

³ Characteristics of the Low-elevation Sphagnum-dominated Peatlands of Western Washington: A community profile (Kulzer et al, 2011) and Peat Resources of Washington (George Rigg, 1958)

- Do interdunal wetlands contribute to sea level rise resiliency of coastal communities and what is their role/function in that resiliency?

Data Management

Literature Cited

Appendices

Appendix A. Existing Monitoring and Assessment Efforts in Washington

Text...

Appendix B. (title)