



Marine and Freshwater Habitat Protection Program

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Problem Definition

The Puget Sound basin contains a mosaic of valuable fish and wildlife habitats. Upland forest and prairies absorb and deliver water to wetlands, streams and rivers. These water bodies ultimately supply fresh water, sediments and nutrients to Puget Sound and its marine habitats. The natural erosion of bluffs maintains beaches, coastal barriers and salt marshes that make up Puget Sound's shoreline habitats. Below the Sound's waves lies a world of sandflats, mudflats, eelgrass meadows, kelp beds and rocky reefs. Each of these habitats contributes to the Sound's spectacular natural productivity and makes the Puget Sound an important resource for the surrounding population.

The loss or alteration of habitats can reduce or eliminate its usefulness to the species that depend on them. For instance, the change in wetlands, in-stream habitat and marine nearshore habitat has contributed to the decline of runs of wild salmon. Puget Sound chinook, Hood Canal summer chum and bull trout are listed as threatened species under the federal Endangered Species Act. Floodplains and riparian areas (the land adjacent

to a waterbody) also continue to be degraded or lost. Together, these habitats sustain a biologically diverse and interconnected ecosystem. Lack of knowledge about the functions of marine nearshore and riparian habitat for salmon presents difficulties for decision-makers.

Many of the processes that create and maintain marine and freshwater habitat have been threatened during the course of development and growth—in some cases, irreparably. Historically, restoration projects were designed to replace lost habitat. Unfortunately, these projects have had varying degrees of success, mainly because they were designed to recreate the appearance of the lost habitat and did not take into consideration the natural processes that sustain it. For example, a wetland might be built as part of a restoration project along a leveed stream. However, if certain natural processes are absent, such as overbank flooding to provide seasonal inundation, the wetland would not survive.

Today, seven additional fish species are proposed for listing under the Endangered Species Act, while several others are on the decline. Traditionally, the answer to declining populations

What does "shall" mean?

The Action Team has determined that the actions in this plan are needed to protect and restore Puget Sound. Consistent with the importance of these actions, this plan says that appropriate implementers "shall" perform the actions. However, implementation of many of these actions is a long-term process. The Action Team's work plans will identify the actions that need to be taken each biennium to implement this management plan. Implementation of actions in the work plans is subject to the availability of funds and public input into the decision-making processes of implementing entities. When an action is included in a biennial work plan, the Action Team expects that it will be implemented in accordance with the relevant provisions of the Puget Sound management plan, in accordance with Chapter 90.71 RCW.

has been to manage the fish or wildlife as a single species and maximize their critical habitat—without consideration of natural processes that affect the habitat. For successful habitat restoration and ultimately marine and wildlife preservation, the biological diversity and health of the ecosystem needs to be restored. This includes minimizing adverse effects from stormwater and other sources of water quality degradation, removing physical barriers to species movements, and improving scientific knowledge about marine and fresh water habitats and the species that depend on them.

Institutional Framework

Wetlands, in-stream habitat and marine nearshore habitat are currently protected through regulatory and non-regulatory means at all levels of government. At the federal level, the Corps of Engineers (Corps) regulates the discharge of dredged or fill material into waters of the United States, including wetlands as well as structures placed in navigable waters. The Corps consults with the Environmental Protection Agency, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. The role of the latter two services has become more formalized as projects are reviewed for their effects on listed species through the various authorities of the Endangered Species Act. Individual permits and the permitting programs themselves are being reviewed by the services to assess the cumulative effects on threatened and endangered species and their critical habitats. Additional conditions to permits may be added by the services to address these concerns.

Tribal governments manage natural resources, including marine and freshwater habitats, as well as some aquatic and marine species on tribal lands. They also have a role in management of fish and wildlife species throughout usual and accustomed harvest areas as provided under various treaties.

State agencies regulate actions that could cause adverse effects to marine and freshwater habitats. Agencies provide guidance and technical assistance to applicants and local governments. Generally the state provides oversight and review of local government actions under various state laws rather than direct review of individual permits. The Department of Ecology issues water quality certifications, reviews Corps' permits for consistency with the state's coastal management program approves variances and shoreline master programs, may appeal substantial development permits and approves conditional use permits under local

shoreline master programs. The Department of Fish and Wildlife issues Hydraulic Project Approvals for activities that affect stream hydrology. The Department of Natural Resources manages 3 million acres of public lands and regulates forest practices and surface mining that effect marine and freshwater habitats and manages over 2.6 million acres of state-owned aquatic lands as both proprietor and natural resource trustee.

State agencies have improved their regulatory processes by adopting policies and developing guidance regarding the use of mitigation. Historic mitigation projects had variable success in restoring the function of marine and freshwater habitats lost as a result of permitted activities. Policy guidance on alternative forms of mitigation and a new rule on mitigation banking designate appropriate replacement ratios and give preference to "in-kind" mitigation but allow for "out-of-kind" if the net environmental benefit to the watershed can be demonstrated.

Local governments have a primary role in protecting and restoring marine and freshwater habitats. Under the Growth Management Act, local governments can identify and reserve critical habitat from development and maintain habitat corridors for movement of wildlife through their communities. Local capital improvement programs and agreements with private property owners provide additional opportunities to acquire and protect key habitat sites. Local planning under the Shoreline Management Act can give special attention to maintenance of shoreline processes and habitats. Through land use and shoreline permits, local governments can review individual development proposals to control site-specific impacts to habitat.

Each of these government entities also protects marine and freshwater wetlands through non-regulatory means or through their roles as natural resource trustees. Federal agencies provide funding for acquisition and restoration projects. Tribal governments are vigorously involved in habitat restoration projects on tribal lands. State agencies restore habitat on state-owned lands and produce public education materials. The Department of Transportation makes investments that reduce vehicle miles traveled and reduce the need to expand and construct new roads. This minimizes future degradation of marine and freshwater habitats. Local governments acquire property under capital facilities programs to implement their Growth Management comprehensive land use plans. Non-governmental organizations are

involved in strategic acquisition, management and restoration of key marine and freshwater habitats. Many private property owners voluntarily place restrictive easements on their own property or restore previously degraded marine and freshwater habitats to protect the natural integrity of their land for future generations.

Management of marine and freshwater habitats improves as people become aware of the effects their everyday activities have on those habitats, the species that depend on them and ultimately their own quality of life. Steps being taken to improve the state of the art include improving tracking of habitat gains and losses; watershed planning that considers processes needed to maintain habitat; and developing more efficient and effective regulatory practices.

Program Goal

To preserve, restore and enhance the ecological processes that create and maintain marine and freshwater habitats and to achieve a net gain in ecological function and area of those habitats within the Puget Sound basin.

Program Strategy

The strategy for achieving this goal is to:

- a. Develop comprehensive local programs to protect marine and freshwater habitats that include planning, stewardship, education and regulation;
- b. Improve regulatory program practices and scientific knowledge of marine and freshwater habitats;
- c. Educate the public;
- d. Create and maintain an accurate accounting of habitat gains and losses as a result of permitting actions;
- e. Preserve remaining natural marine and freshwater habitats;
- f. Measure progress through performance measures and adjust programs as needed; and
- g. Pursue funding for implementation of the management plan and related activities from all available federal, state and local government and private sources.

MFH-1. Comprehensive Local Program

Local governments have the opportunity to preserve and enhance marine and freshwater habitats in a comprehensive manner. Developers have the opportunity to streamline the permitting process by creating development proposals to be consistent with countywide planning policies and local comprehensive land use plans. Local government comprehensive programs shall include the following elements: planning; acquisition and restoration; education; regulation; and incentives.

MFH-1.1. Planning

- a. Participate in watershed and salmon recovery planning efforts, including multi-jurisdictional planning where watersheds are shared across boundaries. Include citizens and private landowners, businesses and other shoreline users in creating a vision for the future of their watersheds and community.
- b. Update shoreline master programs in accordance with guidelines developed by the Department of Ecology. Incorporate provisions to protect listed fish species as approved by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.
- c. Integrate protection and restoration of marine and freshwater habitats into countywide planning policies and local comprehensive land-use plans. Identify and rank for preservation or restoration critical habitats within each watershed including marine shorelines and submerged lands. Obtain this information from watershed and basin planning, salmon recovery planning, marine resource committees, floodplain management plans and shoreline master programs.
- d. Evaluate opportunities for protection and restoration of marine and freshwater habitat considering the effect of full development under alternative scenarios. Incorporate recommendations into local comprehensive plans.
- e. In association with habitat acquisition, identify opportunities for public access and open-space corridors that can provide sites for public enjoyment and education. Incorporate acquisition and development of sites into capital improvement programs.
- f. Develop policies and plans to protect natural sediment sources and the drift of sediments

along marine shorelines in order to protect nearshore habitats. Implement these policies and plans through shoreline master programs, critical areas ordinances and other appropriate measures.

- g. Encourage mixed-use master planned developments and other development approaches that preserve and enhance ecological processes of marine and freshwater habitats. These developmental approaches should also preserve and enhance historic public access to marine shorelines and they should utilize the principles of low impact development.
- h. Cooperate with Washington Department of Transportation (WSDOT) in the development of the 20 Year State Highway System Plan.
- i. Integrate stormwater management into countywide planning policies and local comprehensive land use plans.

Target Date for MFH-1.1: Consistent with the Growth Management Act comprehensive plan or shoreline master program update schedules.

MFH-1.2. Acquisition and Restoration

- a. As identified above, acquire high quality natural marine and freshwater habitats and uplands that have direct influence on those habitats through fee title or less than fee title interest, such as transfer of development rights. Provide for responsible management of acquired lands.
- b. Employ Ecology's Public Benefit Rating System to provide incentives for private preservation and restoration, such as current use taxation, for the protection of open space.
- c. Restore processes that maintain the natural conditions of watersheds and shorelines through actions such as replanting native vegetation in riparian areas and throughout the watershed to restore natural hydrology and water quality; breaching dikes that impede natural water flow; removing culverts that block fish passage; and eradicating non-native vegetation on public land and in partnership with private property owners.

Target Date for MFH-1.2: Ongoing

MFH-1.3. Education

- a. Use public access sites to foster appreciation for and educate about natural processes and biological diversity of marine and freshwater habitats.
- b. Provide education on the benefits that natural landscapes provide in maintaining biological integrity and decreasing the risk of landslides on private property.
- c. Clearly mark and maintain existing public access sites and make maps of these sites available to residents and visitors.

Target Date for MFH-1.3: Ongoing

MFH-1.4. Regulation

- a. Eliminate the loss and alteration of marine and freshwater habitats through appropriate updates of local ordinances and master programs and strong enforcement of shoreline permits, critical areas ordinances and other development regulations. Encourage public participation in setting strong anti-degradation standards.
- b. Develop or continue implementing development regulations for critical areas consistent with the guidance for wetlands protection provided in the *1994 Puget Sound Water Quality Management Plan* (see Addendum on p. 38).
- c. Use guidance provided by state agencies and best available science to protect stream banks, set ratios for compensatory mitigation, establish protective buffers and improve other aspects of local permitting programs.
- d. Restrict new shoreline armoring and the construction of new agricultural levees in floodplains and estuarine wetlands. Encourage the use of "softer" methods of shoreline stabilization to protect natural processes.
- e. Adopt the State of Washington Alternative Mitigation Policy Guidance for Aquatic Permitting, or an equivalent, for use in reviewing projects that may require compensatory mitigation.
- f. Approve wetland mitigation banks that meet local and state goals for protecting wetlands and that provide benefits of mitigation before allowing loss of wetlands.
- g. Track and evaluate permitted habitat losses, including losses from permit variances, mitigation successes and failures, and the effec-

tiveness of local ordinances. Report the findings of tracking and evaluation in biennial progress reports to the Action Team. Adjust regulatory programs as necessary to reverse the permanent loss of marine and freshwater habitats.

- h. Eliminate or fully mitigate the loss of native vegetation in watersheds through implementation of comprehensive land-use and stormwater regulations.

Target Date for MFH-1.4: Update critical areas ordinances consistent with growth management timeline.

MFH-2. State Technical Assistance

Local programs can significantly benefit from assistance and coordination with state programs.

Funding and technical assistance such as maps, targeted studies and guidance documents help local programs contribute to state goals.

- a. Ecology, the Department of Fish and Wildlife, the Department of Natural Resources, the State Salmon Recovery Team, Office of Community Development (OCD) and the Action Team support staff shall provide technical assistance on watershed planning to watershed and basin planning groups and local governments. The agencies shall provide maps; assistance with watershed characterization; information on techniques to predict the impacts of full development under alternative scenarios; and other relevant data.
- b. WSDOT shall provide information to local governments on highway and other transportation construction practices and mitigation procedures that protect marine and freshwater habitats.
- c. Ecology, in consultation with watershed and basin planning groups and local governments shall develop Total Maximum Daily Load (TMDL) evaluations and proposed actions (cleanup plans) that may help reach habitat preservation or restoration goals.
- d. Fish and Wildlife, Natural Resources and state colleges and universities shall provide available marine and freshwater habitat inventory data in a format useful to watershed and basin planning groups, salmon recovery groups and local governments.

- e. Action Team support staff, in cooperation with Fish and Wildlife, Natural Resources and state colleges and universities, shall develop and distribute protocols for monitoring the condition of marine and freshwater habitats.
- f. OCD, in consultation with the departments of Fish and Wildlife, Ecology and Natural Resources shall develop model local ordinances for the protection of marine and freshwater habitats.
- g. Ecology shall provide maps of shoreline drift cells to local governments and planning groups.
- h. OCD shall provide guidance to local governments on how to increase urban densities while protecting resources in urban growth areas.
- i. Action Team support staff, in cooperation with Natural Resources, Ecology, Fish and Wildlife, and local government, shall initiate a local pilot project to study the supply and transport of sediments along marine shorelines and the ecological effects of changes to marine shorelines. The agencies shall use the pilot project to develop analytical techniques, public education materials and management practices. The agencies shall publicize the results and encourage and assist all jurisdictions in using these approaches.
- j. State agencies represented in the Nearshore Habitat Loss Workgroup shall develop ways to recognize and encourage model local programs.

Target Dates for MFH-2: For TMDLs—in accordance with implementation schedule. For OCD actions—December 2003. For all others—ongoing. Initiate pilot project on sediment transport by 2003.

MFH-3. State and Federal Planning, Regulatory and Proprietary Practice

State and federal regulatory and proprietary programs have been a mainstay in marine and freshwater habitat protection through the years. These programs should continue and be enhanced in a number of significant ways to be responsive to changing conditions such as new scientific information about mitigation procedures or the listing of threatened or endangered species.

MFH-3.1. State Agencies

- a. Ecology shall continue processing water quality certifications for Corps of Engineers permits. Fish and Wildlife shall continue processing hydraulic project approvals. Natural Resources shall continue processing forest practices permits and proprietary authorizations. In accordance with limits of their legal authority, agencies should deny or place conditions on applicable permits and proprietary authorizations to prevent permanent unmitigated loss or alteration of marine and freshwater habitats and natural processes that maintain them. The agencies shall continue to acknowledge the co-management roles of tribal governments and notify affected tribes.
- b. Ecology shall implement the federal anti-degradation policy.
- c. Ecology, Fish and Wildlife and WSDOT shall implement the State of Washington Alternative Mitigation Policy Guidance for Aquatic Permitting.
- d. Ecology, Fish and Wildlife and Natural Resources shall notify each other when an action requires permits from multiple agencies. They shall also provide permit assistance for restoration projects.
- e. WSDOT shall coordinate with local governments and continue to integrate marine and freshwater habitat concerns through the Washington Transportation Plan, the strategic long-term transportation plan for highways, ferries, aviation, and rail. WSDOT shall also continue efforts toward commuter trip reduction and multi-modal investments.
- f. Wetlands occurring on lands undergoing forest practices are subject to the protective requirements of the Wetlands Protection sections of the Forest Practices Act and associated rules as well as recommendations of the *Forest and Fish Report*. Natural Resources and Ecology should convene the Wetlands Working Group of the Forest and Fish Report to review the wetland recommendations in the report and propose actions to implement them.

Target Date for MFH-3.1: Ongoing

MFH-3.2. Federal Agencies

- a. In addition to rules and regulations adopted under regulatory authorities of the U. S. Fish and Wildlife Service and National Marine Fisheries Service (NMFS), the services shall also provide guidance and criteria for compliance with the Endangered Species Act.
- b. NMFS and U.S. Fish and Wildlife shall work to prevent further loss of habitats important to species listed as threatened and endangered.
- c. NMFS and U.S. Fish and Wildlife shall provide guidance on goals for recovery of critical habitat that can be incorporated into mitigation requirements of state and local permits.
- f. Corps and the Environmental Protection Agency (EPA) shall increase enforcement of the Clean Water Act to prevent unauthorized activities that could harm marine and freshwater habitats.
- e. In coordination with U.S. Fish and Wildlife, NMFS, EPA and tribal governments, the Corps shall deny or place strong, protective conditions on permits in order to prevent permanent loss or alteration of marine and freshwater habitats or disruption of natural processes that maintain those habitats. Risk to human life and property shall be seriously considered when comprehensive countywide flood control projects are being evaluated for permits.
- f. The Corps shall consult with state permitting agencies on the appropriate use of the State of Washington Alternative Mitigation Policy Guidance to provide consistent guidance on mitigation to applicants.
- g. Federal agencies shall provide technical assistance and cost share to tribal, state, local and non-governmental marine and freshwater habitat protection programs.

Target Date for MFH-3.2: Ongoing

MFH-4. Habitat Accounting

The assessment of marine and freshwater habitat protection programs requires accounting of gains and losses through both regulatory and non-regulatory program actions. Cumulative impacts can be assessed only through accurate habitat accounting.

MFH-4.1. State Agencies

- a. Fish and Wildlife, Ecology, and Natural Resources shall quantify, through administrative means such as permit and lease databases and aquatic reserve designations, changes in acreage and type of marine and freshwater habitats that are associated with Hydraulic Project Approvals, Clean Water Act Section 401 certifications of the Corps of Engineer permits, forest practices permits and aquatic land use authorizations as well as from restoration projects. If methods to assess functions exist, augment quantitative reports with qualitative statements on whether the permit or lease resulted in an increase or decrease in function.
- b. Fish and Wildlife, Ecology and Natural Resources shall evaluate the success or failure of mitigation in a representative sample of permitted projects and leases and calculate the net change in acreage and function. The agencies shall invite citizens, where appropriate, to tour compensatory mitigation project sites and review data from agency-required monitoring. The agencies shall provide a summary report on the effectiveness of their permit programs to the Action Team.
- c. WSDOT shall evaluate the success or failure of a representative sample of its compensatory mitigation projects and use the information to improve its mitigation practices. This evaluation should be in addition to monitoring that is performed as a requirement of WSDOT's project permits. WSDOT shall track the performance of habitat function for out-of-kind mitigation projects proposed as a result of applying the State of Washington Alternative Mitigation Policy Guidance and annually report findings to the Puget Sound Council and Action Team.
- d. The Action Team support staff, in cooperation with Ecology, Natural Resources, Fish and Wildlife, the Office of Community Development (OCD) and state colleges and universities, shall complete the ongoing Soundwide baseline inventory using remote sensing, tribal government sources of resource inventory information, including the Salmon and Steelhead Information and Assessment Project (SSHIAP) and other relevant data. The inventory shall survey wetlands, floodplains, intact riparian areas, and

marine nearshore habitats and be coordinated through the Puget Sound Ambient Monitoring Program. WSDOT shall assist by providing any applicable data that has been collected for transportation projects. The agencies shall update the results of the inventory by monitoring each biennium in order to assess the basinwide change in marine and freshwater habitat.

Target Date for MFH-4.1: First reports by December 2001. Begin inventory by 2001, update each biennium through ongoing monitoring.

MFH-4.2. Federal Agencies

- a. EPA, Natural Resources Conservation Service, Corps, the U.S. Fish and Wildlife Service and NMFS shall assist the Puget Sound Ambient Monitoring Program with basinwide habitat inventories and shall share results of similar regional inventories they have conducted.
- b. The EPA shall provide the Puget Sound Council and Action Team with an annual report summarizing restoration or acquisition projects that involve wetlands, floodplains, riparian areas and marine nearshore habitat. The report shall also document any change in habitat caused by those projects.
- c. The Corps shall provide an annual report to the Puget Sound Council and Action Team that summarizes the loss of marine and freshwater habitat that is authorized by permits.

Target Date for MFH-4.2: Reports submitted annually.

MFH-5. Improved Science

Good decision-making for protecting and restoring marine and freshwater habitats depends on sound science. As new scientific understanding and management practices are developed, they should be reviewed, publicized and incorporated into management decisions.

- a. The Action Team support staff shall identify and distribute scientific information on the functions of marine nearshore habitats and the impacts of human disturbance on those habitats.
- b. Federal, tribal and state governments, state colleges and universities, in consultation with the Puget Sound Ambient Monitoring

Program, shall work with local governments and non-governmental organizations to identify gaps in science, including gaps in understanding of the functions of marine and freshwater habitat and of the impacts to these habitats from human disturbance. The agencies shall target research to address gaps and incorporate pilot projects that demonstrate practical application when possible.

- c. The Action Team support staff shall collect and disseminate examples of the following: innovative technologies for stabilizing shorelines without armoring; restoration processes that help maintain natural habitats; techniques that avoid or minimize impacts to natural habitats; the role of marine buffers; and assessment methodologies to evaluate the effectiveness of each technology.
- d. Natural Resources, in cooperation with Fish and Wildlife, shall designate a system of aquatic reserves that foster research, education and environmental protection to improve understanding of processes that affect the entire Sound.
- e. State and federal agencies shall provide continued funding for the development of additional methods to assess the functions of wetlands.

Target Date for MFH-5: Ongoing

MFH-6. Education and Stewardship

It is important to educate citizens and waterfront businesses about the value of protecting marine and freshwater habitats and about tools available to assess and recover habitat. State and federal agencies and tribal governments shall:

- a. Increase use of the Internet and other communications technologies to publicize educational and guidance materials;
- b. Target educational programs about marine and freshwater habitats to the interests of various audiences. Conduct a survey of the public to assess current knowledge and understanding of environmental issues to define target audiences and how to reach them;
- c. Keep citizens involved by frequently updating information sources;
- d. Develop and support educational programs about: the loss and alteration of marine

nearshore habitats; the natural processes that create and maintain marine and freshwater habitats; life history of fish, habitat requirements of marine ground and forage fish and the effects of human disturbance; and the protection and enhancement of marine biodiversity;

- e. Educate the media on the importance of marine and freshwater habitats and biodiversity. Develop and disseminate educational materials regarding ways that waterfront businesses can minimize their impact on marine habitat. Educate members of the landscape trade and engineers on preserving existing vegetation;
- f. Develop training and education materials and conduct workshops on new technologies and methods to protect and restore marine and freshwater habitats. Workshops should include a field component;
- g. The Action Team support staff shall support an expansion of citizen stewardship and monitoring projects such as the Citizen's Shoreline Inventory and Beach Watchers. Organizations with established Quality Assurance Project Plans should be consulted to aid in the development of monitoring protocols; and
- h. WSDOT Ferries shall be used as a venue to distribute educational materials and programs on Puget Sound's marine and freshwater habitats.

Target Date for MFH-6: Ongoing

MFH-7. Preserve and Restore Marine and Freshwater Habitats

We are just beginning to understand the contributions that healthy shorelines make to marine biodiversity and salmon production. We must preserve and restore these habitats in order to reap the benefits we know of thus far, as well as those we have yet to discover.

- a. Federal, tribal and state governments shall restore historic natural processes of watersheds and shorelines through actions such as acquiring property for protection, breaching dikes that impede natural water flow, removing culverts that block fish passage and eradicating non-native vegetation. Preservation and restoration projects shall be based on best available science. Ranking of projects

shall be based on potential benefit and probability of success taking into account the level of disturbance and proximity to other natural areas. They shall also provide for management and maintenance of preserved or restored sites in their plans and budgets and timelines.

- b. Lead entities under the State Salmon Recovery Act, local marine resource committees and the Northwest Straits Commission should take early action to preserve natural marine shorelines in order to protect species, including forage fish and salmon in various life stages.
- c. Natural Resources and Fish and Wildlife shall continue to establish aquatic reserves and protected areas that incorporate state-owned wetlands, floodplains, riparian areas and marine nearshore habitats. These reserves are meant to protect important marine and freshwater habitats that may or may not be included in the definition of marine protected areas. The agencies shall coordinate their efforts with the establishment of marine protected areas for research, fish stock recovery and protection of biodiversity.
- d. Federal, tribal and state governments shall support local habitat preservation and restoration groups with funding and technical assistance and by streamlining permits for restoration projects.

Target Date for MFH-7: Ongoing

MFH-8. Marine Protected Areas

Marine protected areas (MPAs) are an effective way to protect biological and ecological diversity and to respond to declines of marine species. MPAs are any areas of intertidal or subtidal terrain, together with their overlying water and associated flora, fauna, historical and cultural features and uses, that have been reserved by law or other effective means to protect part or all of the enclosed environment (as adapted from the definition by the International Union for the Conservation of Nature and Natural Resources). In Puget Sound, there are many marine protected areas already established for a variety of goals and objectives, with varying levels of restrictions (Murray, 1998). These include areas designated by state and federal agencies, local governments, University of Washington Friday Harbor Labs and the Nature Conservancy.

- a. Agencies and tribal governments should work together with local governments, local marine resource committees, the Northwest Straits Commission, and non-governmental organizations to identify rare and unique marine habitats and those habitats that would most benefit declining marine species and shall seek their designation as marine protected areas. The goal shall be to seek a net gain in marine species that have suffered decline and a long-term protection of critical habitats.
- b. Agencies will include best science when designating marine protected areas and will provide technical assistance, data and information to groups seeking to collect information about local marine resources.
- c. When considering location, marine protected areas must address the operation and growth of the Washington State ferry system and marine freight transport routes.
- d. The Action Team and Puget Sound Council shall develop a comprehensive management strategy including protocols and processes for establishing marine protected areas. Fish and Wildlife, tribal governments, Natural Resources, the Action Team support staff, the Northwest Straits Commission, local marine resource committees and other interested groups, should work cooperatively to develop and manage a network of marine protected areas in Puget Sound as part of an overall marine protected areas strategy. Sites should be based on ecologically sound, measurable goals and objectives. The network of marine protected areas may serve a variety of purposes including protecting representative habitats, protecting migratory corridors, and protecting habitats for reproduction and dispersal of larvae. New marine protected areas should complement existing sites. All sites must have long-term monitoring plans, provisions for periodic assessments and a strategy to evaluate effectiveness that serves the goals and objectives of the particular marine protected area. The entities should use a mixture of regulatory and voluntary management approaches.
- e. Agencies should include an educational component in establishing and managing marine protected areas in order to promote increased understanding of marine resources among residents and other users (boaters,

fishers, recreational divers, etc.). Agencies should also consider the establishment of a local advisory committee for individual marine protected areas.

- f. Individual marine protected areas should each have specific goals and objectives associated with their designation. Monitoring, assessment and evaluation efforts should be used to determine the overall success of the site. Areas not achieving their ecological goals in a reasonable amount of time (varies with differing goals) should be considered for relocation, different management regimes, or abandonment. When monitoring and assessment indicate that goals and objectives have been achieved, the future of the MPA should be comprehensively reevaluated with removing the designation considered as an option.
- g. The Action Team support staff, Fish and Wildlife, Natural Resources, the Northwest Straits Commission, local marine resource committees and state colleges and universities, shall coordinate in identifying, establishing, managing and monitoring marine protected areas, including sharing physical and biological data and conducting periodic assessments which serve the goals and objectives of the particular marine protected area.
- h. The establishment of marine protected areas, especially those that pose restrictions on hunting, fishing or the gathering of shellfish, must continue to acknowledge and uphold tribal treaty rights and co-management roles of affected tribal governments.

Target Date for MFH-8: Add newly identified marine protected areas from local marine resource committees by December 2003. The Action Team and Puget Sound Council shall develop a comprehensive management strategy including protocols and processes for establishing marine protected areas by December 2002, to be followed by establishment of a coordinated network of marine protected areas by December 2005.

MFH-9. Measuring Program Effectiveness

The Puget Sound Action Team support staff shall evaluate program results through use of program and environmental performance measures. This supports the adaptive management approach described in the Estuary Management Program of

the *Puget Sound Management Plan*. At a minimum, these evaluations should incorporate information from the following monitoring and assessment sources:

- a. Program measures that track implementation of this program.
 - The results of habitat accounting reported to the Puget Sound Action Team.
 - Reviews of critical areas ordinances by OCD.
 - Shoreline master programs approved by Ecology.
 - Number of comprehensive marine and freshwater habitat programs adopted by local governments.
- b. Case studies that assess the effectiveness of program actions.
 - Evaluations of the success or failure of projects that attempt to restore habitat functions including mitigation.
- c. Indicators of environmental conditions for which this program is a major or important determinant (recognizing that these measures may be affected by several plan programs).
 - Puget Sound Ambient Monitoring Program marine and freshwater habitat inventory using remote sensing.
 - Environmental outcomes of the State Salmon Recovery strategy balanced scorecard (stream miles accessible to salmonids, estuarine wetland acres).
 - Population trends of key marine species monitored by the Puget Sound Ambient Monitoring Program.

Target Date for MFH-9: Ongoing

Addendum

The basic elements that should be included in regulation designed to protect wetlands include the following:

A. A “no net loss” goal

The local government ordinance for protecting wetlands should include a “no net loss of wetlands” goal. To be consistent with federal and state policy, wetlands loss should be stated in terms of functions and acreage.

B. A clear definition of “regulated wetlands”

The Growth Management Act defines wetlands as:

Areas that are inundated or saturated by surface water or ground water 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 nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention 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 nonwetland areas created to mitigate conversion of wetlands. (RCW 36.70A.030 (20))

C. An established method of delineating wetlands

The Growth Management Act defers to the Shoreline Management Act for designation of a manual for delineating wetlands.

Wetlands regulated under development regulations adopted pursuant to this chapter shall be delineated in accordance with the manual adopted by the department pursuant to RCW 90.58.380. (RCW 36.70A.175)

The Shoreline Management Act states

The department by rule shall adopt a manual for the delineation of wetlands under this chapter that implements and is consistent with the 1987 manual in use on January 1, 1995, by the United States army corps of engineers and the United States environmental protection agency. If the corps of engineers and the environmental protection agency adopt changes to or a different manual, the department shall consider those changes and may adopt rules implementing those changes. (RCW 90.58.380):

D. A method of categorizing wetlands

Categorizing or rating wetlands is an essential step in ensuring adequate protection of wetland functions and values. A wetland rating system provides the basis for tailoring protection standards and assists with land use planning decisions. A wetland rating system also provides predictability for landowners and applicants regarding the potential restrictions that may be placed on a proposed project.

Wetlands should be categorized according to their rarity, irreplaceability, sensitivity to disturbance and the functions they provide. Local governments should either use the Washington State Wetland Rating System for Western Washington developed by Ecology or they should develop their own, regionally-specific, scientifically-based method for categorizing wetlands. Management standards for permitted activities, avoidance criteria, buffers and mitigation replacement ratios should be designated for each category of wetland and should be adequate to ensure that all wetlands in that category will be adequately protected.

Local governments that do not have their own wetlands rating system are strongly encouraged to adopt the Washington State Wetlands Rating System. This system includes four tiers or categories to define relative wetlands values. Information on the Washington State Wetlands Rating System and guidance on the related field methodology are available from Ecology. Local governments that choose not to use this rating system must explain the rationale for their decisions in their next Biennial Report. This information will help the Action Team to identify other useful rating systems.

E. A definition of “regulated activities”

Wetlands functions and values can be severely affected by poorly controlled construction and land-development activities. Each local government should identify activities that adversely affect wetlands and their associated buffers. These activities should be regulated through a permit system and enforced at the local level.

The Action Team recommends that local governments adopt the following definition of “regulated activities”:

- a. The removal, excavation, grading or dredging of soil, sand, gravel, minerals, organic matter, or material of any kind.
- b. The dumping, discharging or filling with any material.
- c. The draining, flooding or disturbing the water level or water table.
- d. The driving of pilings.
- e. The placing of obstructions.
- f. The construction, reconstruction, demolition or expansion of any structure.
- g. The destruction or alteration of wetlands vegetation through clearing, harvesting, shading or planting of vegetation that would alter the character of a regulated wetland, provided that these activities are not part of a forest practice governed under chapter 76.09 RCW and its rules.
- h. Activities that result in a significant change of water temperature, a significant change of physical or chemical characteristics of wetlands water sources, including quantity, or the introduction of pollutants.

F. Wetland buffer zones

A wetland buffer zone is an area that surrounds and protects a wetland from adverse effects of activities on adjacent lands. A buffer zone should be of adequate width and vegetative character to provide the following functions:

- a. Stabilize soil and prevent erosion.
- b. Filter suspended solids, nutrients and harmful or toxic substances.
- c. Moderate effects of stormwater runoff.
- d. Moderate system microclimate.
- e. Support and protect plant and animal species and their habitats.
- f. Discourage adverse human effects in wetlands.
- g. Local governments should adopt standards that meet or exceed Ecology’s standards for buffer-zone widths and vegetative character. This explanation should address the concern that buffer-zone widths and vegetative character must provide the necessary functions listed above.

Local ordinances should also include provisions to discourage activities in wetland buffer zones, except where such activities are compatible with and have no adverse effects on the overall functions of the buffer zone. Wetland buffer zones should be retained in their natural condition unless revegetation is necessary to restore the functions of the buffer zone.

G. Standards for use and protection of wetlands

Local governments should establish standards for use and protection of regulated wetlands. The order of preference for management options with respect to the control of regulated activities and their associated effects on wetlands should be as follows:

- a. Avoid the impact altogether by not taking a certain action or part of an action;
- b. Minimize 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;
- c. Rectify the impact by repairing, rehabilitating or restoring the affected environment;
- d. Reduce or eliminate the impact over time through preservation and maintenance operations during the life of the action;
- e. Compensate for the impact by replacing, enhancing or otherwise providing equivalent or greater wetland functions; and
- f. Monitor the impact and take appropriate corrective measures.

The standards should require project applicants to compensate through mitigation for all negative impacts to regulated wetlands. “Compensatory mitigation” means replacing project-induced wetland losses, and the following should be considered:

- a. **Restoration**—actions performed to reestablish a wetland’s functional characteristics and processes that have been lost.
- b. **Enhancement**—actions performed to improve the condition of existing degraded wetlands so that the functions they provide are of a higher quality.

- c. **Creation**—actions performed to intentionally establish a wetland at a site where it did not formerly exist.

The standards which govern the permitting system should include provisions requiring: (1) careful planning of compensation projects; (2) evidence that the project applicant has sufficient technical expertise and financial resources to satisfactorily complete the project; and (3) project monitoring, with corrective action when needed. Special care should be taken to ensure that native wetland vegetation is used in all mitigation projects, and that exotic and invasive species are controlled.

The standards also should specify acreage replacement ratios for projects involving compensatory mitigation. The acreage replacement ratio is used to indicate how many acres of wetlands must be created or restored to achieve full compensation for wetlands that are lost as a result of a permitted project. The following factors should be considered when developing these ratios:

- a. The type, function and wetlands rating of the original and the created or restored wetland.
- b. The size and location of the original and created or restored wetland.
- c. The length of time it takes for a created or restored wetland to approximate the characteristics of the original wetland.
- d. The probability of success of the mitigation efforts.

There is considerable scientific uncertainty with respect to the effectiveness of compensatory mitigation. Follow-up studies of wetlands restoration and creation projects indicate that about half of the projects fail to fully compensate for lost wetlands. Therefore, the acreage replacement ratios should be adjusted to reflect the risk of failure inherently involved in these projects.

In establishing the standards for compensatory mitigation, local governments should address the timing problems inherent in creating and restoring wetlands. Significant time may elapse between the effect or destruction of the original wetland and completion of the compensation project. Time is also required for the created or restored wetland to

become fully functional. Up-front compensation, which is completed before a wetland is destroyed, is the only way to avoid a loss for at least some period of time. Provisions for increasing the acreage replacement ratio in situations where there will be a significant period of time between destruction and replication of wetlands functions may also provide a partial solution. Local governments seeking further guidance in developing acreage replacement ratios should consider those used in the model ordinance and contact Ecology for technical assistance.

Local governments should consider providing flexibility in local mitigation regulations to allow advanced mitigation (mitigation banking), joint mitigation projects, and off-site, out-of-kind projects where the proposed project can demonstrate a greater benefit to the wetlands resource than in-kind, on-site mitigation. Local governments are encouraged to identify potential off-site restoration projects in comprehensive plans. Off-site restoration projects should not promote trade-offs of function from lower to upper watershed or vice versa. Off-site, out-of-kind projects should be considered only after mitigation sequencing has been done, and where criteria for approval have been negotiated among regulatory agencies as per the State of Washington Alternative Mitigation Policy Guidance.

H. Enforcement

Regulatory programs should include provisions for enforcing local wetlands regulations as part of general land-use and growth management programs and local programs for protecting water quality. A combination of permit tracking and enforcement will allow for comprehensive protection of wetlands and monitoring of wetland losses. Local governments should include an educational component in their wetlands protection program to encourage residents to become involved in local preservation programs, and to help them to understand the need for wetlands regulations.

