Chapter 10
Restoration Plan

Introduction

Degraded areas from the Inventory and Analysis have been identified including those with impaired ecosystem processes and ecological functions. Of the areas identified those which have a high potential for restoration opportunities have been mapped.

In addition to the Inventory and Analysis conducted as part of this SMP update, regional efforts to restore ecosystem functions and values in response to water quality impairments, water conservation, invasive species, and the listing of threatened and endangered species have identified a multitude of sites for restoration and are underway throughout the county by a variety of agencies and organizations. This restoration plan is intended to provide (jurisdiction) with general goal and policies, a prioritization, and strategies for implementation and coordination of restoration of shorelines.

Overall Goals and Priorities

The governing principals of the shoreline update guidelines require cities and counties containing shorelines with impaired ecological functions to provide goals and policies to guide the restoration of those impaired shorelines. The regional shoreline staff and advisory committee compiled a list of potential restoration sites using data obtained during the inventory phase of the master program update, which identified impaired shoreline areas. Ongoing restoration efforts were included with the inventoried sites to create a comprehensive list of potential restoration opportunities. General and specific goals and policies have been developed and are listed below to address restoration of these various areas.

Goal

The goal of restoration is to achieve a net gain in shoreline ecological functions by providing for the timely repair and rehabilitation of impaired shorelines through a combination of public and private programs and actions including conservation.

Policies

- Restoration projects shall be designed with the intent to achieve no net loss of ecological functions.
- Encourage cooperation between public agencies, private property owners, citizens, and non-profits, volunteer groups for restoration projects.

- Facilitate restoration by expediting and simplifying the shoreline permit process for projects that are conducted solely for restoration purposes, when such projects comply with the statutory authority to grant exemptions.
- Encourage public education of shorelines in conjunction with restoration projects.

Objectives

- Development proposals in the shoreline shall be evaluated as to their potential for voluntary ecological restoration and conservation in context to regional priorities on behalf of the property owner. The jurisdiction shall provide guidance and, where appropriate[1], administrative assistance in voluntary restoration projects.
- Restoration and enhancement of shorelines should be designed using principles of landscape and conservation ecology and should restore or enhance shoreline ecological functions and values at local and watershed scales.
- Coordinate and facilitate restoration efforts on behalf of development proposals as they relate to local plans and policies such as recreation and economic development plans.
- The jurisdiction shall seek funding from state, federal, private and other sources to implement restoration, enhancement, and acquisition projects and where appropriate serve as agency sponsors for restoration plans that affect shorelines and water quality of shorelines, especially shorelines of statewide significance
- Develop review guidelines that will streamline the review of restoration only projects. Exemption guidelines or criteria need to be developed.
- Educate public and private shoreline owners of the benefit of using native, noninvasive wildlife, fish and plants in shoreline areas.
- Ensure that long-term maintenance and monitoring of mitigation sites are included in the original permitting of the project.
- Allow for the use of tax incentive programs, mitigation banking, restoration grants, land swaps, or other programs, as they are developed to encourage restoration of shoreline ecological functions and protect habitat for fish, wildlife and plants.
- Jurisdictions shall pursue the development of a public benefit rating system (PBRS) that provides incentives for the restoration of the shoreline. Guidance for communities establishing a PBRS can be found at http://www.ecy.wa.gov/pubs/99108.pdf
- Jurisdictions shall develop educational materials which promote the stewardship =of shoreline functions including information on permitting and regulations.
- Encourage the agricultural industry to continue to work closely with agencies, such as the Natural Resource Conservation Service and Okanogan Conservation District, with expertise in agricultural practices and restoration to improve degraded shoreline functions.
- Shoreline administrator shall participate in local, regional or national efforts as needed to coordinate restoration efforts in the jurisdiction.

[1] Jurisdictions shall provide administrative a services for restoration projects as local budgets allow.

Restoration Techniques

Table 1. The following provides a list of techniques that are available for shoreline restoration by focusing on enhancement of natural functions

Restoration Goal/Objectives	Function or Value Description	Specific techniques (examples)
Reconnect access to floodplain	Isolated habitats- off channel/side channel, channel cutoffs, avulsion areas, wetlands, and oxbow lakes, areas isolated by instream barriers (culverts) or other artificial obstructions.	Remove anthropogenic instream barriers by culvert modification, levee breaching; excavating new ponds and wetlands, enhance instream processes, and reconnect channel and floodplain function
	Off-channel/ side channel - alcoves, ponds, wetland, seasonally flooded areas that are still in connection. Usually these off-channel habitats are altered by agriculture, urban land use, flood control, and roads.	Use instream enhancement structures to improve channel connectivity and habitat conditions
Enhance hydrologic and sediment processes	Enhance natural timing, frequency, and duration of peak flows and low flows, and redirect flows to enhance natural processes. Restores sediment process functions that deliver coarse and fine sediment to the aquatic system.	Road improvement : removal, upgrade stream/culvert crossings, reduce road drainage to stream, use natural systems engineering techniques to protect infrastructure and improve/ enhance habitat and ecosystem function, traffic reduction; decommissioning of forest roads Riparian Enhancement: fencing[1], reforestation, conifer conversion[2] wetland restoration impervious surface reduction
Nutrient enhancement	Primary productivity increases with nutrients and provides multiple benefits to the capacity	Carcass placement, stream fertilization, LWD and engineered log structures

	and diversity of the aquatic food web.	
Instream habitat enhancement	Over time, watershed process will restore channel complexity naturally, but the installation of channel structures may be necessary to increase habitat quality as a near-term action.	Log structures, natural LWD placement, engineered log jams, boulder placement, channel reconfiguration, channel roughness elements, floodplain enhancement structures

1 Exclude livestock: grazing can alter natural riparian and channel processes, increase streambank erosion, channel sedimentation and widening, increase stream temperature due to reduced natural vegetation, decrease stream water quality (Elmore and Beschta 1987; Platts 1991).
2 A long-term opportunity is the concept of conifer conversion in areas where hardwoods have replaced the natural conifer vegetation. However, little scientific information exists since this takes decades to 100 years. (Emmingham et al. 2000).

Prioritization

Shorelines of Statewide Signficance

Prioritization is based on a number of factors, including the needs of individual species, locations of refugia, and cost-effectiveness, response time of techniques, and the probability of success (Beechie and Bolton 1999). Those techniques that have a high probability of success, low variability among projects, and relatively quick response time should be implemented before other techniques. In general, reconnect high-quality isolated habitats, then riparian enhancements, and lastly road restoration.

Roni et al., 2002 described a methodology for prioritizing site-specific restoration strategies in a watershed. This methodology describes three key knowledge components needed to prescribe appropriate site-specific restoration, principles of watershed processes, protection of existing high-quality habitats, and the current knowledge of the effectiveness of specific natural system engineering techniques such as placement of engineered log jams and instream channel roughness elements. While the state of the science on the use of this approach is recent, examples from the past three years include work within the Elwha, Yakima, Nooksack, Quinault river systems. It is recommended that shoreline enhancement projects should include a monitoring plan.

Timelines and funding

Multiple entities are responsible for systematically identifying, securing funding, designing, and constructing projects that provide regionally important watershed scale improvements to water quality and habitat improvements. The funding and timing with respect to design and construction of potential restoration projects is a continuous process.

Existing Efforts and Ongoing Programs

This section lists the programmatic measures within Okanogan County designed to foster shoreline restoration, achieve a no-net loss in shoreline and upland ecological processes, functions and habitats. There are many programs in place that occur in Okanogan County that are related to Natural Resource Conservation Service or Conservation District programs. The jurisdictions do not anticipate leading most restoration projects or programs. However, the SMP represents an important vehicle for facilitating and encouraging restoration projects and programs that could be led by public,
private and/or non-profit entities.

Federal Programs

Natural Resources Conservation Service

Conservation Reserve Enhancement Program (CREP) – is a joint partnership between the state of Washington and U.S. Department of Agriculture (USDA) that is administered by the Washington State Conservation Commission and the Farm Services Agency (FSA). The agreement was signed in 1998 and provides incentives to restore and improve salmon and steelhead habitat on private land. The program is voluntary for landowners; the land enrolled in CREP is removed from production and grazing under ten- or 15-year contracts. In return, landowners plant trees and shrubs to stabilize the stream bank and to provide a number of additional ecological functions. Landowners receive annual rent, incentive and maintenance payments and cost share for practice installations. These payments made by FSA and the Conservation Commission can result in no cost to the landowner for participation.

Conservation Reserve Program – provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with federal, state, and tribal environmental laws, and encourages environmental enhancement. The program is funded through the Commodity Credit Corporation (CCC). CRP is administered by the FSA, with National Resources Conservation Services (NRCS) providing technical land eligibility determinations, Environmental Benefit Index Scoring, and conservation planning.

Comprehensive Nutrient Management Plans (CNMPS) – helps Animal Feeding Operations owners and operators to achieve their production and natural resource conservation goals through development and implementation of CNMPs.

Conservation of Private Grazing Land Program – is authorized by the conservation provisions of the Federal Agricultural Improvement and Reform Act (1996 Farm Bill). The intent of this provision is to provide accelerated technical assistance to owners and managers of grazing land. The purpose is to provide a coordinated technical program to conserve and enhance grazing land resources and provide related benefits to all citizens of the United States. Currently, funds have not been appropriated for this program. However, the 2002 Farm Bill mandates establishment of a separate funding line-item for this purpose.

Emergency Watershed Protection (EWP) Program – helps protect lives and property threatened by natural disasters such as floods, hurricanes, tornadoes, and wildfires. The program is administered by the NRCS, which provides technical and financial assistance to preserve life and property threatened by excessive erosion and flooding. EWP provides funding to project sponsors for such work as clearing debris from clogged waterways, restoring vegetation, and stabilizing riverbanks. The measures that are taken must be environmentally and economically sound and generally benefit more than one property owner. NRCS provides up to 75 percent of the funds needed to restore the natural function of a watershed. The community or local sponsor of the work pays the remaining 25 percent, which can be provided by cash or in-kind services.

Environmental Quality Incentives Program (EQIP) – provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial manner. The program provides assistance to farmers and ranchers in complying with federal, state, and tribal environmental laws, and encourages environmental enhancement. The EQIP program is funded through the CCC. The purposes of the program are achieved through the implementation of an EQIP plan of operations, which includes structural and land management practices on eligible land. Contracts of up to ten years are made with eligible producers. Cost-share payments may be made to implement one or more eligible conservation practices, such as animal waste management facilities, terraces, filter strips, tree planting, and permanent wildlife habitat. Incentive payments can be made to implement one or more land management practices, such as nutrient management, pest management, and grazing land management.

Farmland Protection Program – provides matching funds to help purchase development rights to keep productive farm and ranchland in agricultural uses. Working through existing programs, the U.S. Department of Agriculture (USDA) partners with state, tribal, or local governments and non-governmental organizations to acquire conservation easements or other interests in land from landowners. USDA provides up to 50 percent of the fair market easement value. To qualify, farmland must: be part of a pending offer from a state, tribe, or local farmland protection program; be privately owned; have a conservation plan for highly erodible land; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and agricultural support services; and have surrounding parcels of land that can support long-term agricultural production. Depending on funding availability, proposals must be submitted by the eligible entities to the appropriate NRCS state office during the application window.

Wetlands Reserve Program – is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA's NRCS provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the

program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. The program offers three enrollment options:

- Permanent easement – conservation easement in perpetuity. This program pays the lowest of either agricultural value of land, established payment cap, or an amount offered by the landowner and pays 100 percent of wetland restoration costs.
- Thirty-year easement – 75 percent of permanent easement and 75 percent of restoration costs.
- Restoration cost-share agreement – agreement to re-establish degraded or lost wetlands for minimum of 10 years. The program pays 75 percent of the restoration costs.

Wildlife Habitat Incentives Program (WHIP) – is a voluntary program for people who want to develop and improve wildlife habitat primarily on private land. Through WHIP, USDA's NRCS provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements between NRCS and the participant generally last from five to ten years from the date the agreement is signed. The 2002 Farm Bill provides for up to 15 percent of annual WHIP funds for increased cost-share payments to producers using agreements with a duration of at least 15 years.

U.S. Fish and Wildlife Service

North American Wetlands Conservation Fund – has funds for local governments with at least a 50 percent match to: (1) acquire real property interest in lands or waters, including water rights, if the obtaining of such interest is subject to terms and conditions that will ensure that the real property will be administered for the long-term conservation of such lands and waters and the migratory birds and other fish and wildlife dependent thereon; and (2) restore, manage, or enhance wetland ecosystems and other habitat for migratory birds and other fish and wildlife species if such restoration, management, or enhancement is conducted on lands and waters that are administered for the long-term conservation of such lands and waters and the migratory birds and other fish and wildlife dependent thereon.

Cooperative Conservation Initiative – has funds available to support efforts to restore natural resources and establish or expand wildlife habitat. The program pays up to 50 percent.

Private Stewardship Grants -– provides grants or other assistance on a competitive basis to individuals and groups engaged in private conservation efforts that benefits species listed or proposed as endangered or threatened under the Endangered Species Act, candidate species, or other at-risk species on private lands within the United States. The program pays up to 90 percent.

Cooperative Endangered Species Conservation Fund (Recovery Land Acquisition Grants) – is authorized under the Endangered Species Act. This fund provides grants to states and territories to support their participation in a wide array of voluntary conservation projects for listed species, as well as for species either proposed or candidates for listing. By law, the state or territory must contribute 25 percent of the estimated program costs of approved projects, or 10 percent when two or more states or territories undertake a joint project. One of the three grants available is the Recovery Land Acquisition Grants ($17.8 million). These grants provide funds to states and territories for acquisition of habitat for endangered and threatened species in support of approved recovery plans.

Bonneville Power Administration

Wildlife Mitigation for the Federal Columbia River Power System – provides funding to acquire fish and wildlife habitat above Bonneville Dam.

Bureau of Reclamation

National Fish and Wildlife Foundation – the environmental restoration challenge grants program uses challenge grants, where recipients match funds, to encourage partnerships among federal agencies, tribes, state and/or local governments, nonprofit organizations, and individual landowners. The program offers reclamation awards grants for on-the-ground efforts to recover or conserve endangered or sensitive fish, plant, and wildlife species; restore riverine, wetland, riparian, or upland habitats; improve water quality; and control noxious weeds. All projects receiving reclamation funds must be connected to the waters or lands the Bureau of Reclamation administers.

State Programs

Washington State Conservation Commission

Conservation Reserve Enhancement Program – a joint partnership between the state of Washington and USDA that is administered by the Washington State Conservation Commission (WSCC) and the FSA. See Federal programs above.

Conservation Easements program (SHB 2754) – the WSCC is creating a Washington purchase of agricultural conservation easements program that will facilitate the use of federal funds, ease the burdens of local governments launching similar programs at the local level, and help local governments fight the conversion of agricultural lands.

Washington State Department of Ecology

Water Quality Financial Assistance – The state Department of Ecology administers funding from three programs:

- The Centennial Clean Water Fund (Centennial), which provides low-interest loans and grants for wastewater treatment facilities and fund-related activities to reduce nonpoint sources of water pollution.
- The State Revolving Loan Fund (SRF), which provides low-interest loans for wastewater treatment facilities and related activities, or to reduce nonpoint sources of water pollution.
- The Section 319 Nonpoint Source Grants Program (Section 319), which provides grants to reduce nonpoint sources of water pollution.

Examples of the type of projects that they have funded in the past:

- Planning, design, and construction of wastewater and stormwater treatment facilities.
- Agricultural best management practices projects.
- Stream and salmon habitat restoration.
- Local loan funds for water quality projects.
- Watershed planning.

- Water quality monitoring.
- Water reuse planning and facilities.
- Lake restoration.
- Wellhead protection.
- Acquiring wetland habitat for preservation.
- Construction of public boat pump-outs.
- Public information and education.

Salmon Recovery Funding Board

Salmon Recovery Funding Board (SRFB) – grants to provide funding of habitat protection and restoration projects and related programs and activities that produce sustainable and measurable benefits for fish and their habitat. Local governments, private landowners, conservation districts, Native American tribes, non-profit organizations, and special purpose districts are eligible to receive funding. Private landowners are eligible applicants only when the project takes place on their own land. All projects must come through the local lead entity group and a Technical Advisory Group to the SRFB for final funding decisions.

Interagency Committee on Outdoor Recreation

Washington Wildlife and Recreation Program – funds for municipal subdivisions, tribes, and state agencies in seven categories, including critical habitat and natural areas. They must be able to document at least a 50 percent match in funding for a project.

Washington State Department of Natural Resources

Aquatic Land Enhancement Grants – grants to state agencies, tribes, and local governments. The project sponsor must document a minimum 50 percent match in funds. Eligible projects must be associated with navigable waters and are limited to aquatic habitat acquisition projects (including conservation easements), restoration projects, and public access and development projects. Acquisition projects have first priority and restoration projects second priority.

Types of Local Government Programs

Comprehensive Land Use Plan Policies – Policies in the plan requiring use of incentive programs to encourage water quality and habitat protection.

Land Acquisition or Purchase of Conservation Easements – County and city programs for acquisition funded by conservation futures or other local funding sources and federal and state.

Long-Term Lease – Land trust/governmental agency leases property from the landowner, thereby preventing other uses of the property during the lease term.

Restoration of Habitat Projects – Projects to create fish passage at culverts, restore floodplains, etc., with conservation futures or other local funding sources and federal and state funding noted above.

Purchase of Development Rights – Jurisdictions may develop a program that would allow the purchase of development rights if allowed under current zoning from the landowner with conservation futures or other local, state, or federal funding sources.

Transfer of Development Rights – Okanogan County may develop a program in the whereby development rights may be transferred from agricultural land to an area where higher densities are encouraged.

Incentive Programs

Develop a preferential tax incentive through the Public Benefit Rating System administered by the County under the Open Space Taxation Act (RCW 84.34) which would encourage private land owners to preserve and restore shoreline areas for "open space" tax relief. The Department of Ecology has a guidance document (http://www.ecy.wa.gov/pubs/99108.pdf) for local governments to use any portion of the criteria to tailor their public benefit rating system to the watershed issues they are facing. Another option is to incorporate restoration in accordance with the performance based cluster platting Okanogan County Code 16.14. This would encourage development to be clustered outside of critical habitat areas to protect them. This program also promotes restoration opportunities, recreation opportunities, and public access opportunities.

Implementation and Monitoring

In addition to project monitoring required for individual restoration and/or mitigation projects, the cities and the county should conduct system-wide monitoring of shoreline conditions and development activity, to the degree practical, recognizing that individual project monitoring does not provide an assessment of overall shoreline ecological health.

The following approach is suggested:
1. Track information using GIS and the permitting software as activities occur, such as:

a. New shoreline development, by permit type
b. Unresolved compliance issues
c. Mitigation areas
d. Restoration areas

The county or city may require project proponents to monitor as part of project mitigation, which may be incorporated into this process. Regardless, as development and restoration activities occur in the shoreline area, the municipalities should seek to monitor shoreline conditions to determine whether both project specific and SMP overall goals are being achieved.

2. Periodically review and provide input to the regional ongoing monitoring programs/agencies, such as:

- Washington Dept of Ecology water quality monitoring
- Methow Watershed Council
- Methow Restoration Council
- Upper Columbia Regional Fisheries Enhancement Group
- Okanogan Basin Watershed Planning Unit
- Okanogan Conservation District
- Washington Department of Fish and Wildlife

- Upper Columbia Salmon Recovery Board
- Confederated Tribes of the Colville
- Yakama Nation

Through this coordination with regional agencies, the municipalities should seek to identify any major environmental changes that might occur.

3. Periodic review of environmental processes and functions at the time of SMP updates to, at a minimum, validate the effectiveness of the SMP. The review should consider what restoration activities actually occurred compared to stated goals, objectives and priorities, and whether restoration projects resulted in a net improvement of shoreline resources. Under the Shoreline Management Act, the SMP is required to result in no net loss of shoreline ecological functions. If this standard is found to not be met at the time of review, county or city will be required to take corrective actions. The goal for restoration is to achieve a net gain in ecological function. The cumulative effect of restoration over the time between reviews should be evaluated along with an assessment of impacts of development that is not fully mitigated to determine effectiveness at achieving a net improvement to shoreline ecological resources.

To conduct a valid reassessment of the shoreline conditions every seven years, it is necessary to monitor, record and maintain key environmental metrics to allow a comparison with baseline conditions. Each jursidiction needs to establish metrics as part of this plan to measure overall success of SMP. Most of these were measured during the inventory and analysis. Examples:

- Linear feet of harden bank
- Linear feet of shoreline protected by easement or dedication
- Linear feet of shoreline with intact riparian vegetation
- Number of restoration sites
- Number of mitigation sites
- Number of NDPS permits
- Acreage of floodplain accessible
- Number of public access points
- Linear feet of shoreline accessible to public
- Number of structures in Shoreline and uses
- Crossings and culverts
- Stormwater or pollution abatement facilities

Evaluation of shoreline conditions, permit activity, GIS data, and policy and regulatory effectiveness should occur at varying levels of detail consistent with the Regional Shoreline Master Program update cycle and the Comprehensive Plan amendment cycle which takes place every five years. A complete reassessment of conditions, policies and regulations should be considered every seven years.