

6. Habitat Protection Strategy

Existing Habitat Protection Actions

The following is a brief description of the jurisdictions or agencies in the Stillaguamish Watershed that have adopted regulatory or programmatic actions to protect those habitat functions necessary to recover sustainable populations of Chinook salmon. Table 13 is a summary of the various jurisdictions' and agencies' existing habitat protection actions, as linked to the six limiting factors for Chinook salmon in the Stillaguamish Watershed.

City of Arlington

- GMA Comprehensive Plan (developing 10-year update in 2005)
- Critical Areas Regulations
- Land use codes

City of Stanwood

- GMA Comprehensive Plan (developing 10-year update in 2005)
- Critical Areas Regulations
- Land use codes

Snohomish County

- GMA Comprehensive Plan (developing 10-year update in 2005)
- Critical Areas Regulations (under revision in 2005)
- Shoreline Master Plan (scheduled for update in 2005)
- Land use codes

Skagit County

- GMA Comprehensive Plan (developing 10-year update in 2005)
- Critical Areas Regulations
- Shoreline Master Plan
- Land use codes

Washington Department of Ecology

- Developing TMDL water quality plans
- Instream flow rule setting
- Wetlands protection regulations



Without protecting existing habitat functions, restoration activities cannot reverse the decline in Chinook salmon populations.

Washington Department of Fish and Wildlife

- Hydraulic Project Approval permits
- Enforcement officers

Washington Department of Natural Resources

- Habitat Conservation Plan (for state managed lands)
- Forest and Fish Rules (for private forestry)

U.S. Forest Service

- Northwest Forest Plan

Table 13. Relationship of Chinook salmon habitat protection to limiting factors

Jurisdiction/ Agency	Riparian	Estuary	Large Woody Debris	Floodplain	Sediment	Hydrology
City of Arlington	✓			✓	✓	✓
City of Stanwood		✓		✓		
Snohomish County	✓	✓		✓		✓
Skagit County	✓			✓		
WA State Department of Ecology		✓		✓	✓	✓
WA Department of Fish and Wildlife		✓	✓			✓
WA Department of Natural Resources	✓		✓	✓	✓	✓
US Forest Service	✓		✓	✓	✓	✓

Habitat Protection Tools

Protecting existing, functioning habitat in the Stillaguamish Watershed is absolutely necessary to ensure recovery of Chinook salmon populations. The current and future status of Chinook salmon in the watershed depends on protecting the remaining places where good habitat functions still exist. High quality habitat increases salmon population productivity which, in turn, helps maintain adequate numbers. Without protecting existing habitat functions, restoration activities cannot reverse the decline in Chinook salmon

populations. In addition, protection of existing habitat is cost-effective and provides a degree of certainty to achieving salmon recovery objectives.

Protection can be achieved with a variety of tools that provide different levels of certainty for specific habitat attributes and long-term benefits to the environment. It is important to utilize a variety of protection strategies to meet the overall needs of the watershed, as well as to match site-specific conditions. The SIRC has emphasized its desire for a comprehensive approach that balances protection of Chinook salmon habitat with preservation of private property rights. This balance can be achieved through use of a variety of regulatory tools and incentive-based voluntary actions. According to stakeholder interests and landowner needs, a mix of both regulatory and non-regulatory tools should be used in achieving salmon recovery objectives in the Stillaguamish Watershed.

The goal of the strategies described in this section is to protect existing salmon habitat throughout the Stillaguamish Watershed to ensure no net loss and to prevent further degradation. There are a number of policy, regulatory, and programmatic approaches that may be utilized for protection of salmon habitat to achieve recovery objectives. The following are potential mechanisms that would be beneficial to salmon recovery efforts in the Stillaguamish Watershed. Each of these is addressed in more detail below.

- Non-regulatory and programmatic actions, such as incentive-based approaches
- Integration of salmon recovery goals and objectives with local comprehensive plans and land use policies
- Compliance and enforcement of existing regulations
- Revisions to existing regulations or adoption of additional regulatory requirements as necessary

Incentives and Non-Regulatory Approaches

Incentives such as financial, public relations, social, or cultural rewards can be used to encourage positive actions that contribute to salmon recovery and watershed protection efforts. Incentives are often less expensive than investments in costly capital facilities, and provide watershed stakeholders with recognition for their good stewardship. Recovery of listed salmon species and removal from the ESA list will reduce landowner costs through expedited permit processes and by no longer requiring preparation of project-related biological assessments.

The following are some potential incentives and other innovative approaches that may be utilized to achieve salmon recovery and watershed protection objectives:

- Develop or continue programs that allow tax reductions for protection and restoration of riparian and forested areas. Examples of eligible activities may include setting aside buffers larger than those required by critical areas regulations, and enhancing degraded riparian buffers or open space parcels.
- Promote recognition programs for local farmers and other landowners to encourage active stewardship and participation in salmon recovery efforts.
- Provide financial incentives and technical assistance for ecologically sensitive alternatives to bank armoring. Snohomish County's Cooperative Bank Stabilization Program provides technical assistance and some material costs. Landowners are responsible for project permitting and construction.
- Promote streamlined permitting processes for restoration projects and for rural residential landowners who plan to develop or re-develop their lots if they agree to engage in voluntary stewardship activities.
- Use transfer or purchase of development rights programs to protect forest cover and minimize development of impervious surfaces. These programs allow willing rural landowners to sell unused development rights to property owners in urban areas, helping to preserve rural land uses and densities, as well as retain agricultural and forest lands in the watershed. Snohomish County and the City of Arlington have a transfer of development rights pilot program.
- Encourage implementation of recovery actions by qualifying implementing agencies for state and federal grant and loan programs.
- Develop incentives to reduce or minimize impervious surfaces through the use of low impact development techniques to reduce stormwater runoff.
- Offer reduction in stormwater fees for those landowners who build and maintain stormwater drainage systems that exceed minimum regulatory requirements.
- Develop incentives to promote water conservation throughout the watershed.
- Create other innovative programs to provide regulatory flexibility and encourage stewardship by individual land owners.

Comprehensive Plans and Policies

Comprehensive plans and policies provide a broad framework that can be used in developing and implementing salmon recovery plans. Planning policies related to salmon habitat include those for natural resources, protection of environmentally sensitive areas and open space, agriculture, and to an extent, transportation. However, as related to protection of salmon habitat, potential conflicts may be found between comprehensive plan policies. For example, preservation of sensitive fish habitat may conflict with designated land uses or densities, agricultural uses, economic development initiatives, or siting of essential public facilities.

Local governments should review and revise their comprehensive plans and policies to incorporate the objectives of salmon recovery planning. Revision of these policies may prioritize salmon habitat protection through conserving resource lands and open space areas, minimizing land use patterns that encourage urban sprawl, and maintaining economic development that supports processing and marketing the capacity of local natural resource production.

Following are some additional recommendations regarding comprehensive plans and policies related to salmon habitat protection:

- Revise existing policies and incorporate new policies to specifically address protection of salmon habitat.
- Incorporate higher levels of salmon habitat protection (such as livestock or vegetation management guidelines) into applicable policies.
- Adopt county or city comprehensive plan goals that integrate salmon recovery objectives with critical areas protection, forest cover retention, habitat connectivity, stormwater management, open space planning, and parks and recreation.
- All cities, counties, state and federal agencies, tribes, and other stakeholder organizations in the Stillaguamish Watershed should adopt policies and objectives to protect and restore salmon habitat and watershed processes. Specific actions supporting these policies and objectives may include:
 - ♦ Support low-density/low impact land uses in rural areas outside of urban growth areas;
 - ♦ Protect and restore appropriate riparian areas;
 - ♦ Maintain and restore natural streambank conditions;
 - ♦ Protect and restore natural watershed functions in the floodplain and channel migration zone;
 - ♦ Retain large woody debris in streams to support salmon habitat and restore natural watershed processes;
 - ♦ Eliminate existing fish passage barriers such as culverts and tide gates and prevent the creation of new barriers;
 - ♦ Achieve no net loss of wetland functions and values, and restore degraded wetlands where possible;
 - ♦ Avoid cumulative adverse impacts to streams, riparian corridors, and wetlands throughout the watershed; and
 - ♦ Address salmon habitat protection in management plans for natural areas and open spaces.

Land Use Recommendations

Agriculture

Working with these landowners is a critical piece of a comprehensive salmon recovery effort in the watershed. The SIRC has developed a cooperative and collaborative approach to involve Stillaguamish farmers in watershed issues, including salmon habitat protection and restoration. Ongoing efforts to work with this important community should include the following:

- Support policies and programs that contribute to profitable and sustainable agriculture.
- Retain the infrastructure necessary to support sustainable agricultural land potential.
- Avoid subdividing of agricultural land.
- Purchase conservation easements where appropriate from willing sellers.
- Install vegetated riparian buffers, utilizing funding from the Conservation Reserve Enhancement Program, discretionary funds, local cost-share programs, and other sources.
- Provide technical assistance, incentives, cost sharing, and recognition to help implement on-the-ground projects (e.g. removing/replacing culverts or other fish passage barriers; restoring stream banks to natural conditions; livestock fencing).
- Identify the needs and differences between the regulated commercial agricultural community and non-regulated hobby farmers.

Forestry

Approximately three-quarters of the Stillaguamish Watershed is in forestry land uses. The following are recommendations for salmon habitat protection on forestlands under various ownership, including federal and state lands, large commercial lands, and private rural forestlands:

- Protect intact forest lands and minimize forest cover loss.
- Maintain viable forest lands through sustainable forestry.
- Support land use policies that keep forest lands in forestry production.
- Discourage conversion of forest lands to residential development.
- Encourage development of forest stewardship plans, transfer/purchase of development rights, and acquisition to protect and restore forest cover.
- Acquire forested parcels providing high benefit to salmon habitat through fee or easement or acquiring harvest rights.
- Provide education and technical assistance to small forestry operations and private rural forest landowners.

- Utilize monitoring results in an adaptive management process to develop and refine recommended actions.

Rural Residential and Urban Land Use

Rural residential areas make up a large percentage of the Stillaguamish Watershed. These lands are outside of Urban Growth Area (UGA) boundaries and areas zoned for commercial or industrial use. Urban areas in the watershed include the cities of Arlington, Stanwood, and Granite Falls and their associated UGAs, as well as a portion of the Darrington UGA. State and local laws require the protection of existing environmental functions in both urban and rural areas. Focusing growth in existing urban areas will protect remaining habitat in the rural areas of the watershed. Retention of rural land uses is critical to achieving salmon recovery objectives.

Rural residential and urban development can result in decreased forest cover and increased impervious areas, including roads, parking lots, roofs, and driveways. These activities contribute to reduced natural infiltration and evapotranspiration and increased stormwater runoff, which cumulatively lead to degraded hydrologic functions, sediment transport processes, and in-stream habitats. The following are recommendations for rural residential and urban land uses to protect salmon habitat and watershed processes:

- Avoid expansion of Urban Growth Area Boundaries adjacent to critical Chinook salmon habitat areas.
- Avoid creation of high-density residential developments or commercial centers outside established urban growth areas.
- Focus growth and development where infrastructure already exists.
- Protect existing wetlands, riparian areas, forest cover and other habitat areas where possible.
- Encourage higher densities and cluster development in urban areas and away from riparian corridors and wetlands to allow for maximum build-out of developable lands and to maintain maximum forest cover.
- Enforce clearing and grading and tree retention regulations for new development and site alterations.
- Minimize new impervious surfaces and implement low impact development practices to maintain hydrologic function.
- Develop urban forestry programs to retain existing trees, encourage planting, and engage volunteers.
- Provide education and technical assistance to landowners on natural yard care and gardening practices.
- Utilize monitoring results in an adaptive management process to develop and refine recommended actions.

Roads and Utilities

Siting roads and utility corridors across streams, wetlands, riparian and wetland buffers can degrade salmon habitat and restrict fish passage. The following are recommendations to reduce the impacts of these activities on salmon habitat:

- Avoid or minimize effects of existing and future roads on critical areas.
- Apply best available science in construction and maintenance of roads and utilities that minimizes riparian, floodplain, and water quality impacts.
- Develop road mitigation practices consistent with salmon recovery goals.
- Identify alternative siting or designs that reduce impacts to critical areas.
- Limit expansion of urban infrastructure beyond urban growth areas.
- Site new infrastructure away from riparian areas, channel migration zones, and marine shorelines.
- Prevent new barriers to anadromous fish passage.

Regulatory and Programmatic Actions

A variety of regulatory and programmatic tools may be applied for protection of salmon habitat and watershed processes. These include local Growth Management Act land use regulations and programs, as well as other state and federal regulations such as the Shoreline Management Act, Department of Natural Resources' Habitat Conservation Plan (HCP), Clean Water Act, Fish and Forest Rules, and the Northwest Forest Plan. Environmental regulations should be used wherever applicable to provide the necessary levels of protection, but should also be flexible to adjust to local environmental conditions and functions based on the best available science. The following are regulatory and programmatic tools that can be utilized to protect the Chinook salmon habitat and reduce the impacts of the habitat limiting factors in the Stillaguamish Watershed.

Riparian

- Include all riparian zones around streams as fish and wildlife habitat conservation areas in critical areas regulations.
- Avoid clearing and development in riparian buffer areas, except for projects that will restore natural processes and native vegetation, through critical areas regulations.
- Maintain sufficient buffers along fish-bearing streams based on site-specific biological assessments or best available science when local regulations are not available.
- Protect wetlands and their functions and values that support salmon habitat and other watershed processes through critical areas regulations.
- Avoid, minimize, restore, and mitigate for impacts to wetlands.

Large Woody Debris

- Prohibit removal, relocation, or modification of large woody debris in aquatic habitats and adjacent banks.
- Remove or re-locate large woody debris posing an imminent threat to infrastructure and essential facilities. Place wood back into the system at a location where it will not pose an immediate hazard and where the lack of large woody debris has been identified as a problem.
- Install large woody debris in a manner that does not prevent navigation.

Floodplain

- Discourage new development in the floodplain through critical areas regulations or flood hazard management regulations.
- Identify channel migration zones as critical areas because they are important fish and wildlife conservation areas.
- Only allow development where these activities will not increase flood elevations, decrease storage capacity, prevent restoration of historical floodways, or restrict natural erosion and accretion processes.
- Inform those wishing to build in these areas of the value of natural floodplains and channel migration zones for salmon habitat and the potential hazards of development.
- Where development is allowed in the floodplain, encourage restoration and enhancement of floodplain processes and habitat where feasible.
- Prohibit new dikes, levees, tide gates, floodgates, pump stations, culverts, dams, water diversions, and other floodplain alterations unless these activities will not impair floodplain processes, restrict adult or juvenile habitat access or escape, or it has been demonstrated that no feasible alternative exists.
- Incorporate large woody debris or other habitat enhancements into flood control and bank stabilization measures to protect and enhance salmon habitat.
- Consider setbacks and the use of bioengineering techniques where it is not feasible to decommission existing flood control facilities.
- Locate new development away from shoreline areas wherever feasible to reduce the need for future bank stabilization measures.
- Allow bank stabilization of natural shorelines with equivalent mitigation only after demonstrating a threat to existing residential or commercial structures or public facilities.
- Require bioengineering techniques that incorporate vegetation and woody debris when there is no feasible alternative but to stabilize banks or repair existing dikes or levees. These techniques have lower long-term maintenance costs and provide a more suitable environment for salmon than riprap or other bank hardening structures.

- Where shorelines have been modified, encourage re-development activities to include salmon habitat improvements through methods such as bioengineering and construction of setback dikes and levees.
- Use the Washington State Department of Fish and Wildlife Integrated Streambank Protection Guidelines as guidance for shoreline modifications.

Sediment

- Identify and map landslide hazard areas for protection through critical areas regulations.
- Prohibit clearing and grading activities and building of new roads in landslide hazard areas except where necessary for public health and safety.
- Stabilize human-caused slope failures or landslides only to the extent necessary to prevent damage to people, property, and salmon habitat. Bioengineering methods and materials should be used where feasible.
- Adopt clearing and grading ordinances to limit impacts of sedimentation and to encourage development and retention of mature conifer forests, especially in riparian zones and headwater areas.
- Require effective erosion and sedimentation controls, such as silt fences, hydroseeding, and slope stabilization.
- Develop seasonal rules that reduce risk during high precipitation periods.

Hydrology

- Protect and restore hydrologic processes, groundwater recharge and natural storage areas.
- Promote natural infiltration wherever feasible.
- Adopt grading ordinances that protect natural drainage swales that provide measurable storage during storm events.
- Develop and/or adopt a stormwater design manual, equivalent to the Washington State Department of Ecology's Stormwater Management Manual for Western Washington (Washington State Department of Ecology 2001). This manual should include standards for development activities during both the construction and post-construction phases, including management of stormwater runoff and maintenance of stormwater management facilities.
- Develop stormwater comprehensive plans that inventory and prioritize retrofitting or replacement of stormwater management facilities as needed.
- Minimize impervious surfaces to reduce stormwater flows and pollution.
- Use low impact development techniques to manage stormwater from new development or re-development activities wherever feasible.
- Protect and restore wetlands.

Water Quality

- Identify water quality problem areas and existing pollutant sources.
- Reduce or eliminate pollution sources that affect salmon (i.e., dissolved oxygen, turbidity, suspended solids, and heavy metals).
- Participate in regional and local water quality monitoring efforts through TMDL, NPDES, and wellhead protection programs.
- Protect and restore wetlands.

Noxious Weeds

- Implement a comprehensive Integrated Pest Management program to eradicate noxious weeds through removal, technical assistance, education, outreach, and volunteer programs.
- Develop a process that assures land management activities and restoration projects include a noxious weed control component.

Mitigation

- Mitigation for impacts to salmon habitat and wetlands should be directed to watershed restoration and protection efforts.
- Consider the potential for mitigation banking to preserve functioning habitat in the watershed.
- Develop an application and qualification process for SIRC stakeholders to access mitigation funds resulting from regulatory violations.

Acquisition

To achieve adequate habitat protection, the existing inventory of sensitive riparian habitats used by Chinook salmon can be refined using assessments and new information. This updated inventory can be used for the development of a priority list for acquisition. Priorities for habitat protection should focus on habitat linkages and ecosystem connectivity. Critical habitats can be acquired by willing landowners using fee simple or conservation easements.

Compliance and Enforcement

Compliance and enforcement of existing regulations is essential to prevent continuing habitat degradation and to ensure long-term salmon recovery and watershed protection objectives. All federal, state, local, and tribal governments and other stakeholder organizations in the Stillaguamish Watershed should ensure that compliance with existing regulations is enforced to the maximum extent practicable. This should include inter-jurisdictional cooperation to meet regulatory goals and additional emphasis on enforcement. Lack of enforcement personnel and funding is a significant contributor to current poor habitat conditions. Local jurisdictions must have the capacity to enforce regulations in order to prevent further degradation and loss of

Chinook salmon habitat. Existing local government zoning, critical areas, and other development regulations should be enforced to:

- Protect riparian areas and wetlands
- Prevent resource extraction or development in streams and wetlands
- Prevent increases in sediment transport and increased stream temperatures
- Prevent increase in stormwater flow frequency and transport

Priorities for regulatory enforcement should include areas that have high restoration potential and areas that maintain habitat linkages.

Another enforcement issue is poaching of threatened salmon including Chinook salmon at over 30 public access sites on the Stillaguamish River. Both the Stillaguamish Tribe and WDFW have a limited number of enforcement officers to catch all violators and often have to rely on citizen reports. Illegal nets are confiscated on a regular basis during peak fishing time. A combination of more enforcement officers, stiff fines for violations, and citizen education will be essential to solve this problem.

Potential opportunities for improved compliance and enforcement of existing regulations include:

- Provide adequate funding for technical assistance, field inspection, and enforcement staff (e.g., ongoing code compliance, erosion control inspection).
- Increase coordination and consistency between agencies for development review issues related to protection of salmon habitat and aquatic resources.
- Provide additional training as necessary for permit review, inspection, monitoring, and enforcement staff in the latest best management practices.
- Maintain a 24-hour phone line, web address, and other mechanisms to report violations related to Chinook salmon.
- Consider adequacy of mitigation requirements and penalties for code violations. Significant impacts to existing conditions must be mitigated or compensated for.
- Adopt common scientific performance measures to track effectiveness of enforcement activities over time.
- Review results of violations reporting in an adaptive management process triggered by data gathered during monitoring activities indicating failure to meet desired targets.
- Utilize monitoring results in the development of recommended actions.
- Establish an annual review of the various adaptive management processes.
- Disqualify those stakeholders for state and federal grant and loan programs who do not follow or meet their commitments to this Plan.