7.1 INTRODUCTION

The actions and policies presented in this chapter define what it will take to begin to restore Chinook salmon and ecosystem health in the Green/Duwamish and Central Puget Sound Watershed (WRIA 9) and to begin to meet the population targets recommended in Chapter 4, Scientific Foundation.

Actions in this chapter include both programs and projects. Projects are on-the-ground efforts to protect, restore, rehabilitate, or substitute habitat or the processes that create habitat. Projects can be divided into two types:

- Protection efforts that rely on acquisition, incentives, stewardship, or other tools to preserve the existing habitat value; and
- Restoration, rehabilitation, or substitution efforts that seek to improve the habitat value of degraded habitat. These may involve earthmoving both in and out of the channel, removal of noxious weeds, planting of native vegetation, and placement of large woody debris.

This chapter also includes policies specific to each subwatershed that provide support for the actions and guidance for the development of future projects. (Watershed-wide policies are listed in Chapter 3.)

Chapters 4 and 5 described the scientific "logic train" (Figure 4-3) for development of projects and programs presented in the following pages. The habitat management strategies described in Chapter 5, in particular, provide the connection between the viable salmonid population (VSP) objectives, conservation hypotheses, and the projects recommended in this chapter. The Ecological Synthesis Approach, also described in Chapter 4 (Section 4.5), is the basis for that "logic train."

This Habitat Plan acknowledges the need to increase the certainty that the recommended actions in this chapter will be effective. Monitoring and adaptive management (described in Chapter 9) are key tools for increasing certainty and constitute the *testing* of understanding required under the Ecological Synthesis approach. Another key component to achieving certainty is the ability to refine recommended actions and consider new projects and programs as political, ecological, and funding conditions change.

A hallmark of the Water Resource Inventory Area 9 (WRIA 9) habitat planning process is that it has established and adopted two project evaluation screens – one for science and one for feasibility — that can be used to evaluate future projects. This is an important consideration in implementation of the Habitat Plan. The actions in this chapter passed through one or both of these screens as part of the development of this Plan. As knowledge of the watershed and salmon recovery science increases and as funding priorities change, the Plan must be flexible enough to consider new actions and reconsider previously evaluated actions. Establishing the criteria and methodology for evaluating the ecological benefit and feasibility of proposed projects is therefore an essential tool for Plan implementation and adaptive management.

7.2 METHODOLOGY FOR SELECTING PROJECTS AND PROGRAMS

Technical/Scientific Evaluation of Projects

In November 2004, the WRIA 9 Steering Committee directed Watershed Coordination Services staff to establish a Science Panel that would develop a process and review proposed projects for technical merit. (The detailed results of the Science Panel evaluations are contained in Prioritization of Potential WRIA 9 Habitat Projects (Anchor Environmental and Grette Associates 2005a and 2005b)). Previously, draft habitat projects were developed by ad hoc committees, with each focusing on one of the WRIA 9 subwatersheds: Upper Green River, Middle Green River, Lower Green River, Duwamish Estuary, and Marine Nearshore. The Science Panel charter included an open invitation to all members of the WRIA 9 Technical Committee, as well as technical staff from local governments.

The first priority of the Science Panel was to develop and refine a suite of criteria that captured key technical considerations that would distinguish among habitat projects and identify high priority projects that were, on a technical basis, expected to make the greatest contribution to salmon conservation. A starting point for developing these criteria was to consider the same criteria developed and used by the WRIA 9 Technical Committee for prioritizing the Strategic Assessment conservation hypotheses. Through an iterative process of applying the criteria to sample projects and refining

the criteria, approximately 200 potential habitat projects were prioritized within the WRIA 9 subwatersheds.

As ranking of each individual project proceeded, it became apparent that there were several types of projects included in the WRIA 9 broad definition of "habitat projects" that were uncertain in outcome; therefore, ranking them would be equally uncertain. Consequently, these were not rated by the Science Panel. Other types of projects, such as habitat protection, and in particular land acquisitions that did not have any associated restoration activity (i.e. those proposed for protection only), presented a different problem, but were likewise not amenable to rating within the project criteria. Land protection needed to be evaluated on what would be lost if not protected rather than what would be gained if restored. Accordingly, an alternative approach was developed based on characteristics of the individual parcels proposed for protection. Of the various tools available for habitat protection, acquisition of the habitat is both commonly used and has a high level of predictability of results (i.e. placing the land in public ownership will preclude development or other actions that would harm habitat). Consequently, the Science Panel assumed the use of this tool for protection projects. (It is likely that protection of high value habitats will be carried out using a mix of acquisition, conservation easements, tax incentives, transfer of development rights, education, and other innovative approaches that meet the needs of landowners and stretch scarce public dollars.) One evaluation approach was developed for marine nearshore acquisitions and one was developed for fresh water riverine acquisitions.

Finally, as the process of rating and ranking individual projects on a subwatershed-by-subwatershed basis proceeded, it became clear that the rankings were most appropriately reviewed in the context of the subwatersheds and not across the entire WRIA 9 watershed. However, recognizing this limitation did not lessen the need for a way to inform decisions about priorities among subwatersheds. After considerable discussion, the Science Panel developed a contingency approach based on alternative models of population structure and based on the consideration of habitat limiting factors.[1] This approach led ultimately to the adoption of Policy MS1 (Chapter 5 - Section 5.7) by the Steering Committee to address watershed-wide priorities.

Because of the much lower predictability of habitat results associated with programs (as opposed to projects), the technical screen described above was not applied to programs.

Feasibility and Effectiveness Evaluation of Projects and Programs

In addition to the Science Panel project evaluations, the WRIA 9 Steering Committee authorized Watershed Coordination Services staff to evaluate projects and programs for their political and socioeconomic feasibility. This evaluation served as a secondary screen focused on community values and a "reality check" for those actions that may be scientifically sound but impractical or unwise from a political, social, or economic perspective. Applying this screen to potential projects and programs would help:

- Prioritize the most feasible/effective projects and programs;
- Identify those actions that have problems and correct those problems; and
- Identify actions that are fatally flawed.

In November and December 2004, the Steering Committee approved a set of 11 feasibility and effectiveness criteria. The feasibility and effectiveness screening criteria fell into three broad categories:

1) Determining Serious Flaws;
2) Prioritizing Projects/Programs; and
3) Other

A complete description of the feasibility and effectiveness criteria is found in Appendix H.

In January and June 2005, in accordance with the direction of the Steering Committee, Watershed Coordination Services staff reviewed draft projects and programs using these criteria. The approach used by Watershed Coordination Services staff was similar to that used by the WRIA 9 Technical Committee to

1. This is described in more detail in the watershed-wide guidance section and Table 10 in: *Prioritization of Potential WRIA 9 Habitat Projects* (Anchor Environmental and Grette Associates 2005a) and in *Prioritizing Potential WRIA 9 Watershed-Wide Habitat Actions: Identification of Limiting Habitat and Recommendations Regarding their Priority* (Anchor Environmental 2005).

prioritize conservation hypotheses and by the Science Panel to prioritize on-the-ground, non-programmatic projects. Unlike the Science Panel evaluations, the feasibility and effectiveness evaluations did not result in a numerical ranking. Instead, the goal was to determine whether a project would be included in the project list for the Habitat Plan.

Each project or program was screened individually without consideration of combined or cumulative impacts. Generally, if a project or program had serious flaws it was eliminated from inclusion in the Plan. This typically required at least two negative responses to criteria within the serious flaws category. However, a professional judgment was ultimately arrived at for each project or program, and in some cases a project with two or more serious flaws may still have been included in the Plan because of its overall importance to the watershed and an assumption that the serious flaws could be reduced or overcome. The prioritizing projects/program category allowed for an evaluation of timing and cost considerations. The "other" category addressed coordination and support considerations.

Of a total of 167 actions evaluated using the feasibility and effectiveness screen, 162 were included in the Plan. Of these actions, 75 are on-the-ground restoration projects that were first evaluated by the Science Panel (of which 56 are priority actions that implement Policy MS1), 57 are habitat protection efforts (including 50 habitat protection areas on Vashon/Maury Island and seven King County-proposed "Last Best Places Middle Green" acquisitions), and 30 are programs (16 watershed-wide and 14 subwatershed). (A list of additional projects for future consideration is found in Appendix G of Volume II.)

7.3 WRIA 9 WATERSHED-WIDE PROGRAMS

There are a variety of programs that can occur across the watershed that would contribute to the recovery of ecosystem health. The 17 WRIA-wide actions listed here are programmatic in nature and range from public education and stewardship to incentives to regulations and regulatory enforcement.

These programs are intended to complement the on-the-ground habitat restoration and protection projects. Many programs will both improve habitat conditions and increase awareness, understanding, and support for a healthier watershed.

Because of their similarities, the first nine programmatic actions are education/stewardship programs that were evaluated as a group using the feasibility and effectiveness criteria discussed previously.

Program WW-1:
Conduct Shoreline Stewardship Workshops and Outreach

Offer shoreline property owners shoreline design workshops to provide information they can readily use to be better stewards of their property. There would likely be different workshops for different parts of the watershed such as Puget Sound beaches and bluffs, Green/Duwamish River mainstem, tributary streams, and lakes. Topics covered could include a tailored mix of the following:

- Natural yard care;
- Shoreline planting design/beach and bluff vegetation management;
- Noxious/invasive weed management;
- Aquatic weed management;
- "Softer" shoreline armoring alternatives to vertical wall bulkheads;
- Salmon-friendly dock design for small, residential docks;
- Environmentally-friendly methods of maintaining boats, docks, and decks; and
- Porous paving options and stormwater management on single-family parcels.

Workshops should be designed to help participants identify and remove the barriers to adopting salmon-friendly shoreline practices. Follow-up with participants should occur to encourage people to act and determine what obstacles continue to stand in the way of salmon-friendly behavior.

Workshops could be tailored to meet the salmon habitat needs for:

- Marine nearshore beach/bluff vegetation (WRIA 9 already has developed a workshop on this topic that could be adopted for other topics);
- Marine nearshore erosion control/soft armoring;
- Urban small streams;
- Rural small streams;
- Rural Green River mainstem; and
- Lakes (WRIA 8 already has developed a workshop on this topic).

LINKAGES

Conservation Hypotheses Addressed

- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Rehabilitate riparian areas in the entire subwatershed*
- *Protect areas with healthy riparian habitat*

Workshops/material distribution should first be focused on the areas where the threats to existing high quality habitat are greatest and areas thought to be limiting habitat factors for salmonid populations.

Materials that help property owners make good decisions about their property should complement workshops. These materials could include videos, brochures, workbooks, direct mailings, "welcome" packets, notices accompanying property tax bills, and websites.

As a complement to the workshops, people who own property on a stream, river, lake, or Puget Sound shoreline should be offered a free evaluation of the condition of their riparian habitat. This approach should maximize the likelihood that the property owner will act on the resulting information. Evaluations and technical assistance could be provided by county/city basin stewards and organizations such as King Conservation District and Washington State University Cooperative Extension.

Program WW-2:
Increase/Expand Water Conservation Incentive Programs

Increase water conservation campaigns promoting the use of more efficient toilets and appliances and water use practices. Expand efforts directed at better landscape irrigation. Offer free landscape irrigation audits for high water users. Offer free indoor water conservation kits for households.

A key role should continue to be played by the Saving Water Partnership, which includes the City of Seattle, Highline Water District, Soos Creek Water and Sewer District, and several other water districts serving WRIA 9. The Partnership already promotes water conservation through education and incentives.

LINKAGES

Conservation Hypotheses Addressed

- *Maintaining adequate flows during low flow periods will to greater salmonid survival (All-7)*

Habitat Management Strategies

- *Protect cool clean water from surface and groundwater sources*

Program WW-3:
Increase/Expand Natural Yard Care Programs for Landscapers

Offer educational programs for landscape designers, contractors, groundskeepers, and property managers about the benefits of and practices of natural yard care and use of native/riparian vegetation. Different programs could address the needs of different audiences: design vs. maintenance, preservation of topsoil vs. building healthy soil, plant selection vs. plant care. Explicitly address the tradeoffs between conventional and natural yard care practices. Existing models for such programs are trainings offered by Seattle Public Utilities on irrigation systems and the Washington Association of Landscape Professionals.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*

Program WW-4:
Increase/Expand the Natural Yard Care Program for Single Family Homeowners

Expand the existing Natural Yard Care program to promote the value of native riparian vegetation for stream health and the cost savings of native drought-tolerant vegetation for upland areas. Through a series of neighborhood workshops, the program focuses on promoting better lawn and garden care among neighbors by removing barriers to change. It builds on the five messages promoted beginning in the early 2000s by local agencies:

1. Build healthy soil;
2. Plant right for your site;
3. Practice smart watering;
4. Think twice before using pesticides; and
5. Practice natural lawn care.

Promote the program by advertising benefits such as healthier conditions for children and pets, improved pest and disease resistance, reduced watering and smaller water bills, better wildlife/bird life habitat, decreased maintenance, and keeping up with the Puget Sound regional landscape style.

The program should also encompass the aesthetic benefits of designs incorporating shade gardening, native plants, xeriscaping (drought-tolerant plant use), rain gardening (gardens that use runoff from roofs), and smaller lawns.

The messages of this program can be promoted using the techniques described in Program WW-1.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*

Program WW-5:
Promote the Planting of Native Trees

Promote the planting of native trees. Coordinate with nurseries, home improvement centers, and arborists to develop a marketing campaign promoting the benefits of native trees. Offer native trees as part of neighborhood improvement projects.

Promote the benefits of trees and increased forest cover. Such benefits include shade in summer, increased property values, improved salmon/wildlife/bird habitat, and improved groundwater recharge.

Cities may wish to identify desired percentages of tree cover to achieve to provide a goal to work toward and measure progress.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*

Program WW-6:
Promote Better Volunteer Carwash Practices

Local jurisdictions should promote volunteer carwashes that keep soapy and oily water out of the storm drain system through:

- Promoting use of car wash kits. The kits include a catch basin and pump to direct the wastewater to the sanitary sewer. Modest incentives or publicity should be used to reward those who use the kits; and
- Encouraging use of car wash coupons for fundraisers (e.g., through the Puget Sound Carwash Association Charity Carwash Program).

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*

Program WW-7:
Increase Public Awareness about What Healthy Streams and Rivers Look Like and How to Enjoy Recreating on Them

Increase public awareness about what healthy streams and rivers look like and practices to be avoided when recreating on them. These efforts should emphasize that healthy rivers include large amounts of large woody debris and have abundant native trees and shrubs on their banks. To make up for the lack of wood, restoration projects include placement of wood in streams and rivers. Protecting native vegetation along stream and river banks will encourage the growth of large trees that can fall into the streams in the long run. Most healthy streams and rivers have salmon in them year round. Messages should emphasize that when enjoying rivers and streams, people should avoid:

- Removing large woody debris;
- Damaging streamside vegetation;
- Driving through stream beds;
- Damaging salmon redds (spawning egg nests) by walking on them or dragging anchors through them; and
- Disturbing spawning salmon by staying out of the river and keeping dogs out of the water.

This education should rely on:

- Articles in local media;
- Public service announcements;
- School materials/presentations;

LINKAGES

Conservation Hypotheses Addressed

- *Protecting and improving riparian vegetation (All-2)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (MG-1)*

Habitat Management Strategies

- *Protect areas that provide low velocity and shallow water habitat during juvenile migration*

- Outreach at shows/conventions for fishing, hunting, and off-road vehicles;
- Signage along accessible sections of healthy shoreline or restored shorelines, especially in parks;
- More widespread distribution to streamside property owners and boaters of existing brochures such as King County's "Large Woody Debris and River Safety" and the U.S. Department of Agriculture Forest Service's "Large Woody Material: The Backbone of a Stream;" and
- Warning signs regarding existing and potential log jams and installed large woody debris to notify recreational river users, including kayakers, "tubers," boaters, and anglers. (Signs do not reduce the need to design projects to minimize the risk to recreational river users.)

Program WW-8:
Increase Involvement of Volunteers in Habitat Stewardship

Increase citizen participation in stewardship programs that involve volunteers in restoring, maintaining, and monitoring habitat protection and restoration projects. Continued grant assistance to non-governmental groups will support their volunteer organization.

Involving volunteers helps:

- Provide additional resources to restore and steward habitat, stretching project construction and maintenance dollars;
- Provides the hand labor especially needed for working with native and non-native plants;
- Educates people about the role of habitat in salmon recovery and environmental protection in general;
- Creates a larger constituency for salmon recovery since people who volunteer on salmon habitat projects are more likely to support governmental efforts to protect and restore salmon habitat; and
- Contributes to a sense of community and place.

Non-governmental groups, King Conservation District, and several local jurisdictions have considerable experience in recruiting and organizing volunteers locally. To continue and expand volunteer stewardship, these partners should work to:

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*

- Expand the pool of regular volunteers by providing greater feedback on progress and targeting these individuals for specific projects;
- Expand the number of new volunteers by seeking groups of volunteers from entities such as churches, schools, homeowners associations, businesses, service clubs, and other civic groups;
- Improve the efficiency and integration of volunteer recruiting, referral, and registration across the watershed (and perhaps across WRIA 8 and 9); and
- Provide staff at both non-governmental groups and governments that supports successful volunteer stewardship programs.

Program WW-9:
Green/Duwamish Volunteer Revegetation Program

The Volunteer Revegetation Program in the Green/Duwamish River Watershed will support riparian planting projects through a partnership between the U.S. Army Corps of Engineers and local jurisdictions. This program would improve fish and wildlife habitat throughout the Green/Duwamish River basin by providing significant quantities of native plants to volunteer groups for replanting the riparian habitat along the mainstem Green River and its tributaries. Control of invasive plant species and maintenance will be essential to the success of these projects.

This is a Green/Duwamish Ecosystem Restoration Project.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*

Program WW-10:
Support/Expand the Natural Resource/Basin Steward Programs

Support and expand the natural resource/basin steward programs that work with private landowners to protect and restore salmon habitat and rural resource lands. Expanding these types of efforts will increase the number of people voluntarily improving the health of their land and water.

Key tasks for the stewards include:

- Responding to citizen inquiries concerning their watershed, water quality, and salmon;
- Identifying and securing necessary grant funding for restoration and acquisition projects recommended in the Habitat Plan;
- Working with other jurisdiction staff and non-governmental groups to accomplish WRIA-wide projects recommended in the Habitat Plan;
- Promoting voluntary stewardship on private properties by working one-on-one with property owners to develop farm, forest, and other voluntary and mandatory land management plans;
- Coordinating and implementing on-the-ground projects, including volunteer opportunities; and
- Creating public education opportunities.

Major existing stewardship efforts that should be continued include:

- City stewardship programs (offered mostly by larger cities);
- King County Basin Stewardship, Forestry, and Agriculture programs; and
- King Conservation District programs.

This proposal would expand existing programs to provide dedicated stewards to cover all parts of the WRIA 9 watershed as outlined below:

- Upper Green River Subwatershed
  1 steward
- Middle Green River Subwatershed
  1 steward – existing (King County)
- Middle Green (Newaukum)
  1 steward – existing (King County)
- Middle Green (Soos)
  1 steward – shared by Black Diamond, Covington, and Maple Valley
- Lower Green River Subwatershed
  1 steward – shared between Tukwila, Renton, Kent, Algona, and Auburn
- Duwamish Estuary Subwatershed
  1 steward – Seattle staff
- Marine Nearshore Subwatershed
  1 steward – new shared by Burien, Des Moines, Federal Way, Normandy Park, and SeaTac
- Vashon/Maury Island
  1 steward – existing (King County)

The stewards would be employed by and under the direction of local jurisdictions of the watershed. The basin steward programs will assist with implementation of the Habitat Plan.

Stewards could be provided by re-allocation of existing staff (e.g., Black Diamond, Covington, and Maple Valley could each allocate 0.3 share of an existing employee's time to stewardship tasks) or jointly funding a steward position(s) at the subwatershed/WRIA level through an interlocal agreement. The stewards could be provided under contract by King Conservation District, King County, a city, or a non-profit organization.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting and improving riparian vegetation (All-2)*

Habitat Management Strategies

- *Protect areas with healthy riparian habitat*
- *Restore riparian vegetation and buffers*
- *Restore beaches, backshore and associated plant communities*

Program WW-11:
Expand/Improve Incentives Programs

Expand existing incentives and develop new incentives for property owners to protect salmon habitat. The desired outcome of this project is to increase awareness and use of existing incentive programs. This project should occur in two phases:

Phase I: WRIA 9 jurisdictions should evaluate their application of incentives for habitat protection; and

Phase II: Using the information developed in Phase I, a WRIA-wide effort should be considered to enhance the effectiveness of incentives. Incentive options to evaluate include the following:

- Enhance the use and efficacy of the King County Transfer of Development Rights Program throughout WRIA 9. This could include sponsoring a workshop to facilitate information exchange. *It is important that transfers occur within the WRIA so that the density impact and benefit occur in the same watershed*;
- Educate property owners about King County current use assessment programs and encourage them to enroll to protect salmon habitat;
- Develop or continue fee reduction programs that promote forest cover protection;
- Develop or continue fee reduction programs that promote low impact development;
- Publicize the King Conservation District's administration of the U.S. Department of Agriculture's Conservation Reserve Enhancement Program, which provides incentives to restore and enhance salmon habitat on private rural lands;
- Improve the ease/speed of permitting for land owners protecting habitat;
- Waive the cost of permits for restoration projects or projects with a substantial restoration component;
- Offer zoning flexibility;
- Enhance the awareness and use of the cost-sharing program offered through the King County Agricultural Program; and
- Publicize information about incentive programs on websites and in public displays.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting and improving riparian vegetation (All-2)*
- *Protecting and restoring nearshore sediment transport processes (NS-3)*
- *Preserving and maintaining groundwater inflow (LG-3)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (MG-1)*

Habitat Management Strategies

- *Protect cool clean water from surface and groundwater sources*
- *Protect existing water quality from pollutants/contaminants*

Program WW-12:
Improve Enforcement of Existing Land Use and Other Regulations

Improve enforcement of existing regulations that protect salmon and salmon habitat. Complying with existing and future regulations is an important tool to ensure long-term protection of salmon habitat in the watershed. All levels of government should ensure that implementing and complying with policies and regulations are sufficient to achieve their purpose, consistent with long-term salmon habitat protection. Local jurisdictions and state and federal regulatory agencies should:

- Identify where inadequate compliance/enforcement is occurring and identify the root causes;
- Inform citizens about how to report violations using existing hotlines, websites, and complaint response programs;
- Publicize egregious violations;
- Support and encourage the prosecution of violations;
- Revise ordinances to ensure jurisdictions have the ability to enforce regulations in a fair and equitable manner;
- Adopt fines that are commensurate with the harm done or cost of restoration;
- Require that violators fully restore the habitat they degraded;
- Provide adequate staff to conduct field inspections, provide technical assistance, and pursue enforcement as needed to ensure widespread compliance;
- Participate in interagency coordination, technical assistance, and public outreach for more complicated regulatory environments; and
- Develop performance measures for enforcement activities in order to track progress over time and provide information that will help revise enforcement efforts as needed.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting and improving riparian vegetation (All-2)*
- *Protecting and restoring nearshore sediment transport processes (NS-3)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (LG-1)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (MG-1)*

Habitat Management Strategies

- *Protect areas with healthy riparian habitat*
- *Protect areas that provide low velocity and shallow water habitat during juvenile migration*
- *Protect existing water quality from pollutants/contaminants*

Program WW-13:
Increase Use of Low Impact Development and Porous Concrete

Improve water quality generally and reduce the volume of stormwater runoff through low impact development including use of porous paving materials. Promote infiltration to the maximum extent possible as the preferred means of stormwater volume control.

Low impact development techniques can mitigate the harmful effects of increased impervious surface area on stream flows and groundwater recharge. They also reduce the need for retention/detention ponds with the associated costs, maintenance, and risk of mosquito-borne illness.

Low impact development includes the use of:

- Native vegetation and small-scale treatment systems to treat and infiltrate stormwater runoff close to where it originates;
- Clustering of buildings and narrower and shorter roads to reduce total impervious areas and leave larger areas in native vegetation;
- Green roofs and rain gardens;
- Topsoil preservation; and
- Porous or permeable paving materials in areas with well-drained soils. Porous pavement options are not suitable in redevelopment sites where there is unremediated soil contamination.

Local governments can promote low impact development techniques through incentives or require their use in certain instances. Local governments should modify their stormwater ordinances and fee structure to promote or require the use of low impact development techniques where compatible with site characteristics. (See also Policy WQ2 in Chapter 3.)

In addition, local governments should use low impact development techniques for municipal purposes wherever practical and desirable to reduce stormwater volumes and demonstrate the usefulness of low impact development.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting against watershed and upland impacts (All-5)*
- *Protecting against watershed and upland impacts by implementing low impact development techniques (MG-2)*

Habitat Management Strategies

- *Protect cool clean water from surface and groundwater sources*

Program WW-14:
Provide Incentives for Developers to Follow Built Green™ Checklist Sections Benefiting Salmon

Encourage the use of the Built Green™ building program through incentives provided by local governments to developers. Built Green™ provides checklists for building single family houses, multi-family housing, communities, and remodels. Sections of the checklists that improve water quality and salmon habitat include site preparation, stormwater management, and homeowner operations and maintenance. In exchange for reaching certain point thresholds for the relevant Built Green™ sections, local jurisdictions could provide developers with incentives such as reduced permit costs, reduced impact fees, reduced or flexible buffer widths, and other changes that will encourage voluntary participation. Active promotion of these incentives by jurisdiction planning/permitting departments may be necessary to encourage wide-spread use.

Built Green™ has been used to develop 4,600 buildings to date. It is a voluntary program created by the Master Builders Association of King and Snohomish Counties with the participation of King County, other local governments, and environmental groups.

LINKAGES

Conservation Hypotheses Addressed (WW-14)

- *Protecting water quality (All-1)*
- *Protecting against watershed and upland impacts (All-5)*

Habitat Management Strategies (WW-14)

- *Protect existing water quality from pollutants/contaminants*
- *Protect native vegetation in riparian areas*

Program WW-15:
Develop a Coordinated Acquisition Program for Natural Areas

Develop and implement a coordinated natural areas ("open space") identification and protection program. Once key properties are identified and prioritized, pursue grant funding or other means to preserve and protect target areas. Acquisition of additional natural areas should include provision for necessary site management and maintenance.

Because this coordinated effort would necessarily be a collaborative process, it should include the creation of a stakeholder group. The group would include elected officials from local jurisdictions and representatives from citizen groups and businesses to identify and pursue funding.

Essential prioritization criteria would include those emphasizing upland and riparian habitat characteristics important to salmonid health.

The Transfer of Development Rights Program and the King County Green Print provide opportunities for the identification and potential acquisition of key habitat.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting and improving riparian vegetation (All-2)*
- *Protecting and restoring nearshore sediment transport processes (NS-3)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (LG-1)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (MG-1)*
- *Protecting, restoring, and enhancing habitat along the mainstem and major tributaries (UG-2)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*
- *Protect native vegetation in riparian areas*
- *Protect cool clean water from surface and groundwater sources*

Program WW-16:
Develop Salmon Restoration Tools Consistent with Agricultural Land Uses

Develop a suite of tools that will allow and encourage voluntary projects by farmers to protect and restore habitat while preserving agriculture. Although the primary focus of the program would be the larger farms on the Green River mainstem, it also could include smaller, "hobby" farms adjacent to tributary streams. King County Basin Stewards, County agricultural programs staff, and WRIA 9 staff should work with the agricultural community to prepare incentive and public outreach programs tailored to the issues of farms. The program would likely:

- Identify and contact willing farm owners and work with them individually to develop ideas so that they are personally invested in solutions to specific problems involving their land;
- Work with King Conservation District on appropriate incentives programs linked with farm plans;
- Prepare a grant application to the King Conservation District for a WRIA 9 Agricultural Opportunity Fund to pay for a significant percentage of costs associated with restoration of mainstem Green River properties (including fencing if livestock are involved), control of invasive plant species, native plants for riparian buffers, short term irrigation of newly planted areas (if appropriate), woody debris and other costs associated with riparian corridor restoration;
- Use first projects as demonstration sites and work with property owners to make sites visible or available for other property owners to see. Include cooperating farms in tours of restoration sites so decision makers and other interested citizens can see the contributions being made by farmers (and have a greater opportunity to purchase from farmers who make voluntary sacrifices in production);
- Work with incentives programs (e.g., Public Benefit Rating System, Native Growth Protection Easements, Conservation Reserve Enhancement Program, etc.) for members of the agriculture community willing to restore mainstem properties;
- Promote existing stewardship programs such as those offered by the King Conservation District, Washington State University Cooperative Extension, and Horses for Clean Water; and
- Work with members of the agriculture community to identify and remove blocking culverts or other barriers that limit fish use of habitat.

LINKAGES

Conservation Hypotheses Addressed

- *Protecting water quality (All-1)*
- *Protecting and improving riparian vegetation (All-2)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (LG-1)*
- *Protecting and creating/restoring habitat that provides refuge, habitat complexity (MG-1)*

Habitat Management Strategies

- *Protect existing water quality from pollutants/contaminants*
- *Protect native vegetation in riparian areas*
- *Restore water quality where degraded conditions exist*
- *Rehabilitate riparian areas in the entire subwatershed*

7.4 SUBWATERSHED-SPECIFIC POLICIES, PROGRAMS, AND PROJECTS

The remainder of this chapter lists policies, programs, and projects specific to each of the five WRIA 9 subwatersheds.

Each subwatershed subsection begins with a brief introduction to the subwatershed. For more information on the characteristics and habitat issues in each subwatershed, please see Chapters 3 and 4.

While all of the following projects are important to protecting and restoring salmon habitat, Table 8-2 lists the priority projects that implement watershed-wide management strategy Policy MS1 (Chapter 5 – Section 5.7) and the tier 1 conservation hypotheses in each subwatershed.