

The Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan for WRIAs 22 and 23



May 2003

The Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan for WRIA 22 and 23

Prepared by
the Chehalis Basin Partnership

With Assistance by
Lee Napier, Lead Entity Coordinator, Grays Harbor County
John Kliem, Consultant, Creative Community Solutions

May 2003



Table of Contents

Introduction.....	1
Section1: A Framework for Salmon Habitat Restoration In the Chehalis Basin.....	4
Section 2: SRF Board Salmon Habitat Projects and Activities – Strategies for Developing Projects.....	12
Section 3: Managing Salmon Habitat Recovery Process – Strategies for Developing Projects	20
Section 4: Project Development, Selection, and Funding – Strategies for Funding Projects	29
Section 5: Lead Entity Procedures for Evaluating and Selecting Habitat Project Lists.....	34
Appendix A: The Rationale for Prioritizing Sub-basins	37
Appendix B: Sub-basin General Project Actions for Overcoming Limiting Factors.....	43
Appendix C: Matrix of Technical Assistance and Funding Opportunities	184



Introduction to the Work Plan

The Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan is the Lead Entity strategy for providing guidance to project planners who develop projects and activities that address salmon habitat recovery within Water Resource Inventory Areas (WRIAs) 22 and 23.



The Work Plan has five sections that achieve the document's purpose. The first section is *A Framework for Salmon Habitat Restoration in the Chehalis Basin*, which explains how federal and state laws and policies, as well as the limiting factors analysis, give context to the strategic directions recommended in the Work Plan.



A word on Strategies...

Strategies are broad directions for action that represent our best efforts aimed at accomplishing our goal of salmon habitat recovery.

Project planners use these broad strategies as guidance for developing specific, individual projects.

The next two sections are the "meat" of the Work Plan – *SRF Board Salmon Habitat Projects and Activities* and *Managing the Salmon Habitat Recovery Process*. Each of these sections contains a series of *strategies* that give guidance on how to develop effective projects. These strategies reflect careful consideration by the Lead Entity about the local conditions in the Chehalis Basin, whether that be habitat, political, social, and economic factors.

However, the plan does not end here in providing guidance to project planners. The fourth section in the Work Plan is the *Project Development and Funding Strategy*. It makes recommendations as to how project developers fund effective

and competitive projects, whether that is before the SRF Board or another funding agency or organization.

The last section covers *Operating Procedures for Habitat Project Lists*, the process for submitting salmonid habitat projects and activities for inclusion on habitat project lists that the Chehalis Basin Partnership submits as a Lead Entity to the SRF Board for funding consideration.

To assist the reader, each section contains “sidebars” in the left-hand side of the margin. These sidebars contain additional information resources that a reader may wish to consult to expand their knowledge base on the subject under discussion. In the electronic version of the Work Plan, most of these sidebars have hyperlinks to sites on the World Wide Web that provide more information on a topic, or in the case of laws, the exact citation.

Appendix A provides insight to the reader how the technical advisory group originally used the limiting factors analysis for WRIAs 22 and 23 to create the prioritizations between sub-basins and action steps within sub-basins.

Appendix B contains the sub-basins matrixes that list prioritized systematic action steps for salmonid habitat restoration and preservation as well as technical data assessments needed to improve the knowledge base about limiting factors in WRIAs 22 and 23. These matrixes are available in the electronic version of the report by using the hyperlinks under the sub-basin priority rankings in *Strategic Directions and Systematic Actions for Salmon Habitat Projects and Activities*.



This is an example of a sidebar found throughout the Work Plan.

Appendix C includes the Matrix of Technical Assistance and Funding Opportunities used in Section Four, *Project Development and Funding Strategy*.

Special acknowledgement is due to the following people who worked hard in formulating this edition of the Work Plan:

- Betsy Lyons, Nature Conservancy
- Bob Amrine, Lewis County Conservation District
- Brian Abbott, Interagency Committee for Outdoor Recreation
- Brian Peck, US Fish and Wildlife Service
- Chad Stüssy, Washington Department of Fish & Wildlife
- Chanele Holbrook, Heernett Foundation
- Dan Cenderelli, US Forest Service
- Gary Bell, Washington Department of Fish & Wildlife
- J. Roach, Citizens Advisory Committee
- Janet Strong, Chehalis River Land Trust
- John Sims, Quinault Indian Nation
- Key McMurray, Washington Department of Fish & Wildlife
- Lee Napier, Grays Harbor County
- Lonnie Crumley, Fisheries Consultant
- Lori Morris, US Army Corps of Engineers
- Mike McGinnis-Confederated Tribes of the Chehalis
- Ron Wisner, Grays Harbor County Conservation District

Section One



A Framework for Salmonid Habitat Restoration in the Chehalis Basin

To understand the purpose and scope of the Chehalis Basin Salmonid Habitat Restoration and Preservation Work Plan, a brief overview of the federal, state, and local salmonid habitat recovery process is helpful.

The Endangered Species Act

After decades of declining wild salmonid and steelhead populations in the Pacific Northwest, the National Marine Fisheries Service (NMFS) began a comprehensive review process in 1991 to assess the possible listing of salmonids under the Endangered Species Act (ESA). The destruction and alteration of habitat, as well as the impacts of hatcheries, hydropower, and harvesting, have placed salmonids into a precarious position within many watersheds in Washington State. The eventual outcome of the review was the listing of several salmonids within several geographic areas as a “threatened” species under the ESA in March 1999. The US Fish and Wildlife Service added bull trout for all regions of the state the following November 1999. Both agencies will be developing recovery plans in the near future to recover salmonid populations in the Pacific Northwest so they no longer need legal protection to prevent their extinction.



For an overview of the ESA and ESA Recovery, see these WWW sites:

[NMFS 1](#)
[NMFS 2](#)
[NMFS 3](#)
[FWS](#)



Bull trout are the only “threatened” specie in WRIAs 22 & 23. The draft 2002 SaSI lists the following stocks as “depressed”:

- Satsop summer chinook
- Wynoochee fall chinook
- Hoquiam winter steelhead
- Humptulips fall chinook

A “depressed” stock is a fish whose production level is below expected levels based on available habitat and natural variations in survival rates, but above the level where permanent damage to the stock is likely.

For more information see [SaSI](#)

Salmon Recovery, Chapter 77.85 RCW

Because an ESA listing could have such a significant economic impact on the state, the Washington Legislature responded to the ESA review process by passing ESHB 2496 in 1998 and 2E2SSB 5595 in 1999. Together, these two laws became Chapter 77.85, Salmon Recovery, under of the Revised Code of Washington (RCW). The intent of this chapter was "...to retain primary responsibility for managing the natural resources of the state rather than abdicate those responsibilities to the federal government." The state would accomplish this by "...integrating local and regional recovery activities into a statewide plan that can make the most effective use of provisions of federal laws allowing for a state lead in salmon recovery." Furthermore, Chapter 77.85 RCW expands upon the ESA purpose of preventing salmonid extinction by instructing the "...office of the governor to coordinate state strategy to allow for salmon recovery to healthy and sustainable population levels with productive commercial and recreational fisheries." It is important to note that this state law is not a replacement for the ESA process. Instead, the law seeks to make the state a proactive partner in the ESA recovery planning effort.



For the complete text of Chapter 77.85 RCW, follow this link:
[RCW](#)



The term "salmon" in Chapter 77.85 RCW "includes all species of the family Salmonidae which are capable of self-sustaining, natural production.
[RCW 77.85.010\(7\)](#)



Habitat is the physical, chemical, and biological features of an area that supplies food, water, shelter and space necessary for a particular species existence.

One of the central themes of Chapter 77.85 RCW focuses on habitat as a vital component of the salmon recovery effort. To do this, the Chapter states that salmon recovery be accomplished "...in a coordinated manner and to develop a structure that allows for the coordinated delivery of federal, state, and local assistance communities for habitat projects that will assist in the recovery and enhancement of salmon stocks." It is also important to note, however, that the law specifically

entrusted voluntary “lead entities” consisting of counties, cities, and tribal governments to develop the projects necessary for restoring and protecting fish habitat within the state’s 62 Water Resource Inventory Areas (WRIAs).

To institute salmon recovery, Chapter 77.85 RCW set up an organizational framework to guide and implement salmon recovery through salmonid habitat restoration and protection.

This framework involves three main participants:

- The Salmon Recovery Office
- The Salmon Recovery Funding Board
- Local Lead Entities

The Salmon Recovery Office

Chapter 77.85 RCW established the Salmon Recovery Office within the Office of the Governor for the purpose of establishing and coordinating a statewide strategy for salmon recovery. The Salmon Recovery Office, working with the Governor’s Joint Natural Resources Cabinet, accomplished this initial task in September 1999 when it issued its statewide salmon recovery strategy, Extinction is Not an Option. The focal point of the plan is its vision to:

“Restore salmon, steelhead, and trout populations to healthy and harvestable levels and improve habitat on which fish rely.”

Implementing this vision rests on four main areas of emphasis – Habitat, Harvest, Hatcheries, and Hydropower. These four areas, under human control, influence the health of salmonids within Washington’s 62 Watershed Resource Inventory Areas (WRIA). The statewide salmon recovery strategy includes analysis about how each of the four areas of



See:
[RCW 77.85.030](#)
[RCW 77.85.150](#)



Follow this [link](#) to view the report



See [RCW 77.85.020](#)

[2002 State of the Salmon Report](#)



emphasis impact salmonids and proposes goals, objectives, and solutions to address them.

In addition, Chapter 77.85 RCW also requires the Governor to submit biennially to the Legislature a "State of the Salmon Report." The most recent one is a three-volume report for 2002.

The Salmon Recovery Funding Board

The Salmon Recovery Funding (SRF) Board plays a leading role under Chapter 77.85 RCW with its responsibilities for making grants and loans to local lead entities for salmon habitat projects and activities. The SRF Board has 10 members appointed by the Governor and the Interagency Commission for Outdoor Recreation provides staff support and administrative assistance to the board.

Chapter 77.85 RCW clearly outlines the procedures and criteria for the SRF Board to evaluate, rank, and fund salmon habitat projects and activities. The SRF Board must give preference to projects that:

- Rely on a prepared limiting factors analysis;
- Provide greater benefit to salmon recovery based upon the stock status information from the Salmon Stock Inventory (SASSI) and the salmon and steelhead habitat inventory and assessment project (SSHIAP), and any comparable science-based assessment when available;
- Benefit a listed species;
- Preserve high quality salmonid habitat;
- Are cost-effective;
- Have the greatest matched or in-kind funding; and,



See:

[RCW 77.85.110](#)

[RCW 77.85.120](#)

[RCW 77.85.130](#)

[RCW 77.85.140](#)

[SRF Board WWW Page](#)

- Will be implemented by a sponsor with a successful record.

In its own strategy, Mission, Roles, Responsibilities, and Funding Strategy, the SRF Board states that it will accomplish this in a manner "...consistent with the state salmon strategy Extinction is Not an Option." The SRF Board report goes on to add to the Chapter 77.85 RCW criteria by requiring each Lead Entity to have:

- An assessment of current and potential conditions (limiting factors analysis);
- Goals and strategies for salmon habitat recovery in the affect WRIA;
- A project list consistent with the strategy;
- A monitoring program for determining if a project is or is not effective; and,
- Adequate funding to implement the project.

Furthermore, the SRF Board requires lead entities to use the best science available to guide all decisions and actions in the development of habitat project lists.

Local Lead Entities

Chapter 77.85 RCW authorizes counties, cities, and tribal governments to voluntarily join and designate a Lead Entity responsible for submitting habitat project lists to the SRF Board for their funding consideration.

The law requires the Lead Entity to establish a committee of people representing counties, cities, conservation districts, tribes, environmental groups, business interests, landowners, citizens, volunteer groups, regional fish enhancement groups, and other habitat interests. The purpose of this Lead Entity



See the SRF Board
[Mission, Roles, Responsibilities,
 and Funding Strategy](#)
 (In .pdf file format)



[RCW 77.85.050](#)
[RCW 77.85.060](#)
[RCW 77.85.070](#)

committee is "...to provide a citizen-based evaluation of the projects proposed to promote salmon habitat." The committee is supposed to "...compile a list of habitat projects, establish priorities for individual projects, define the sequence for project implementation, and submit these activities as the habitat project list. The committee shall also identify potential federal, state, local, and private funding sources."

The Lead Entity Committee must develop a habitat project list and habitat work schedule that, according to Chapter 77.85 RCW "...ensures salmon habitat projects will be prioritized and implemented in a logical sequential manner that produces habitat capable of sustaining healthy populations of salmon."

Using the critical pathways methodology, the Lead Entity:

- Prepares a limiting factors analysis for salmonids;
- Identifies habitat projects that sponsors are willing to undertake;
- Identifies how to monitor and evaluate projects;
- Reviews monitoring data, evaluates project performance; and,
- Outlines the adaptive management strategy used in its WRIAs.

Assisting the Lead Entity Committee in its work is the Technical Advisory Group (TAG), a collection of private, tribal, federal, state, and local government personnel with appropriate scientific expertise. The Conservation Commission invites these TAG members, in consultation with local governments and tribes, to help bring the best available science to the overall local decision-making process. At a minimum, Chapter 77.85 RCW gives the TAG two main jobs in assisting the Lead Entity Committee:

- Developing the limiting factors analysis for WRIAs 22 and 23; and,
- Reviewing monitoring data, evaluating project performance, and making recommendations.

The Chehalis Basin Partnership

The Chehalis Basin Partnership designated Grays Harbor County to act as the Lead Entity for WRIAs 22 and 23. The Chehalis Basin Partnership in turn serves as the Lead Entity Committee. In addition, the Chehalis Basin Partnership has a Technical Advisory Group (TAG) who aided in the preparation of the limiting factors analysis and who continues to provide assistance in technical planning, review, and monitoring tasks.

The Conservation Commission published in June 2001 Salmon and Steelhead Habitat Limiting Factors, Water Resource Inventory Areas 22 and 23, by Carol Smith PhD. and Mark Wenger. This comprehensive document compiles data and provides technical analysis on limiting factors for wild salmonid habitat in the Chehalis Basin.

The Chehalis Basin Partnership published its first Plan for Habitat Restoration in April 2001. That planning effort focused on interpreting data from the limiting factors analysis to prioritize sub-basins in the two WRIAs and provide guidance to future project sponsors as to what type of projects each sub-basin needs to overcome limiting factors and achieve the plan's goals.

Since that time, the Partnership has facilitated two project habitat lists for SRF Board consideration. This first effort has proven successful; the SRF Board has funded 20 salmon habitat projects and activities totaling \$3.1 million within the two WRIAs. However, the complexity of the process, coupled by experience,



See

[Chehalis Basin Partnership Information Depot](#)



[Salmon and Steelhead Habitat Limiting Factors, Water Resource Inventory Areas 22 & 23](#)

has prompted the Lead Entity Committee of the Partnership to revisit and refine the first Plan for Habitat Restoration. The result is this document, the Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan.



Section Two

SRF Board Salmon Habitat Projects & Activities Strategies for Developing Projects

Although bull trout are the only salmonid listed as “threatened” in the Chehalis Basin, this is not a clean bill of health for WRIAs 22 and 23 by any means. The limiting factors analysis by Smith and Wenger point out that human activity in the watershed has degraded or eliminated aquatic habitats by altering many of the key natural stream processes that support salmonids (p. 26).

On the other hand, salmonids in the Chehalis Basin have fared far better than in Puget Sound, the Columbia River, and Hood Canal. Comparatively, habitat in the Chehalis Basin is much more intact and has fewer development pressures. For this reason, the Chehalis Basin plays an important role in the long-term success of preserving healthy populations of wild salmonids for the state as a whole. The significance of this fact makes the Chehalis Basin watershed a priority investment for the SRF Board. They can fund projects and activities here that would have far greater impact in fulfilling the overall statewide vision for salmon recovery that is not possible in other WRIAs.

To this end, the Work Plan adopts seven strategies, all equal in value, for addressing the most pressing limiting factors identified within the sub-basins of WRIAs 22 and 23. Salmon habitat projects and activities must meet one or more of these strategies for inclusion on the Habitat Project List for SRF Board consideration. These guiding strategies are:



Statewide Vision for Salmon

Recovery:

“Restore salmon, steelhead, and trout populations to healthy and harvestable levels and improve habitat on which fish rely.”



Wild stocks are fish sustained by natural spawning and rearing in the natural habitat, regardless of parentage (including native).

❖ **Attain a healthy and diverse population of wild salmonids**

The future for salmon, steelhead, and bull trout in WRIAs 22 and 23 depends on self-sustaining populations of wild stocks. First efforts in this direction will primarily focus on restoration and preservation actions within the most potentially productive sub-basins for wild salmonids. These sub-basins have the highest number of anadromous fish stocks and the greatest number of fish miles. It is also important to begin filling the many data gaps to understand how limiting factors impair our achieving healthy populations of wild fish.



An estuary is an area where fresh and salt water mix at the mouth of a river

❖ **Restore, enhance, and protect the Grays Harbor Estuary**

Wild salmonids in the Chehalis Basin depend upon the Grays Harbor Estuary for food, rearing, and migration habitat. It is the gathering point for these fish at the beginning and end of their life cycles. As the health of the Grays Harbor Estuary goes, so does that of wild salmonids.

The condition of the estuary today is indicative of the rest of the Chehalis Basin – a mixture of good and fair, although in far better condition in comparison to other similar habitats in the state. The loss of near shore habitat and degraded water quality are the greatest problems that need work. There is also a great need to develop an estuary management plan that aims at giving greater guidance at what projects are critical for recovery and protection.

❖ **Restore and preserve properly functioning riparian areas**

Past agricultural and forestry practices as well as urbanization have greatly degraded riparian zones along some of the most productive sub-basins in the Chehalis Basin. The Chehalis Basin Partnership needs to expand the number of projects that assist landowners in reducing the impacts of their livestock to riparian areas. There are also many streams and rivers with degraded riparian areas due to a legacy of poor forestry practices in the past. Restoration of these areas is critical.

It is equally important to note that the Chehalis Basin still has many functioning riparian areas that deserve protection. That is why it is critical to make available the resources and support necessary to implement the Forest and Fish Agreements in order to protect and preserve these riparian zones.

❖ **Restore habitat access**

Existing assessments, incomplete as they are, show that the Chehalis Basin is plagued with numerous culverts on public and private lands that create impassible barriers to wild salmonids. This essentially eliminates access by salmonids to what could be many miles of very prime and pristine habitat. Replacing these dysfunctional culverts is therefore a very high priority. The Chehalis Basin Partnership intends to submit projects for funding that open three miles or more of habitat or provide access to productive spawning grounds. Given the high percentage of publicly owned forestlands in the WRIAs, the Chehalis Basin Partnership intends to encourage and support these entities to replace dysfunctional culverts. The Fish and



Habitat access is the unobstructed upstream and downstream movement of fish at all life stages

Forest Agreement should also be a focal point for fixing culverts on private lands.

The incompleteness of technical assessments documenting the extent of fish barriers in many sub-basins within WRIA 22 and 23 is a major stumbling block to fully and effectively addressing habitat access problems. Therefore, it is a priority to find the necessary resources to have a thorough, basin-wide barrier assessment available as soon as possible.

❖ **Restore properly functioning hydrology**

Years of agriculture, development, and timber management in the Chehalis Basin have negatively affected hydrology in many sub-basins. Ditching, filling, and armoring of stream banks in particular have dramatically created extremes of high flows in the winter and low flows in the summers. These abnormal flow conditions scour spawning grounds, restrict access to rearing habitat, and degrade water quality through sedimentation. Downstream flooding and excessive bank erosion also occurs with greater frequency and affect. Reversing this historic manipulation of streams and rivers landscapes will be important for improving wild salmonid habitat.

Increased water use by people within the Chehalis Basin has critically reduced summertime flows in some sub-basins. The development of water storage projects that augment stream flows during dry periods is major need for these sub-basins. In addition, the development of a watershed management plan will provide more information to better address this overall concern.



Hydrology includes several components of the natural flow regime of streams and rive, that includes:

- Volume – the amount of surface flow;
- Frequency – how often a flow above a given magnitude recurs;
- Duration – the period of time a specific flow condition persists;
- Timing – the regularity or consistency of specific flow conditions; and
- Rate of change – how quickly amount of flow increases or decreases.

All of the components are important to the ecological integrity of rivers, streams, adjacent floodplains, & estuaries.

❖ **Restore floodplain and stream channel function**

Human modification of stream banks in the Chehalis Basin has seriously affected off-channel habitat for wild salmonids. Levees, dikes, revetments, and roads have disconnected valuable floodplains, off-channel habitat, wetlands, and sloughs for fish. This has drastically affected how rivers function by eliminating areas for water storage for floodwaters and summer flows as well as mechanisms for sedimentation control and incision. For the fish, it is a serious loss of habitat for feeding, spawning, rearing, and refuge from floodwaters.



Floodplains are the low areas along a stream or river channel into which water spreads during floods.



Off-channel habitat includes ponds, oxbows, sloughs, and other backwater areas with cover that provide high-quality rearing habitat for juvenile salmonids.

Salmon habitat projects that restore floodplain functions in sub-basins are a major priority. The long-term goal is to remove all levees and fortified structures along rivers to allow fish and rivers to historic floodplains. This need is so great that the Chehalis Basin Partnership would like to see at least one major floodplain restoration project proposed annually. In the short-term, large woody debris projects are important to implement throughout all sub-basins.

❖ **Concentrate habitat projects and activities in those sub-basins that have the greatest salmonid diversity and quantity of habitat**

Making choices about prioritizing sub-basins within WRIAs 22 and 23 is an unfortunate necessity. The Chehalis Basin watershed is the second largest in the state and has many restoration and preservation needs. However, the funding resources available through the SRF Board are insufficient to cover the needs of every sub-basin within the two WRIAs. The concern rightly exists that spreading these limited resources too thinly across the watershed would render little impact on

improving overall salmonid runs in the watershed. Therefore, the Work Plan follows the strategy of focusing SRF Board funding on habitat projects and activities in those sub-basins that have the highest potential for yielding the greatest number and diversity of salmonids.

The basis of the Work Plan prioritization strategy is a ranking of each sub-basin given their number of wild salmonid stocks and potential for producing the greatest quantity of fish given the habitat currently available. Appendix A summarizes the development of this prioritization process. The outcome of the prioritization process is a ranking of sub-basins into “high,” “medium,” and “low” priorities. The prioritization of these sub-basins follows below.

High Priority Sub-basins

- ★ Chehalis River Mainstem
- ★ Satsop River
- ★ Wynoochee River
- ★ Skookumchuck River
- ★ Black River
- ★ Wishkah River
- ★ Grays Harbor Estuary
- ★ Humptulips River
- ★ South Fork Chehalis River
- ★ Newaukum River
- ★ Hoquiam River

Medium Priority Sub-basins

- ★ Cloquallum River
- ★ Mox Chehalis River
- ★ Rock/Williams Rivers
- ★ Lincoln Creek
- ★ Elk River
- ★ Upper Chehalis River (upstream of) Pe Ell
- ★ Johns River
- ★ Elk Creek
- ★ Delezene Creek
- ★ Garrard Creek
- ★ Scatter Creek

Low Priority Sub-basins

- ★ Porter Creek
- ★ Cedar Creek
- ★ Stearns Creek
- ★ Bunker Creek
- ★ Rock Creek (near Crim Creek)
- ★ Salzer Creek
- ★ Newman/Vance Creek
- ★ Workman Creek
- ★ Independence Creek
- ★ Dillenbaugh Creek
- ★ Newkah, Charley, O'Leary, Stafford, Indian, & Chapin Creeks

Furthermore, this strategy also provides a second layer of project development guidance for individual sub-basins. Each sub-basin has a matrix that recommends general projects and technical assessments that reflect its limiting factors analysis.

The matrix for each WRIA 22 and 23 sub-basin, along with an data summary and maps, is in Appendix B at the end of this report.



Section Three

Managing the Salmon Habitat Recovery Process Strategies for Developing Projects

This Work Plan recognizes that salmon habitat projects and activities that address limiting factors are only one-half of the total solution for bringing about successful wild salmon habitat recovery in WRIAs 22 and 23. The other half involves implementing a wide range of other projects and activities that focus on *managing* the salmon habitat recovery process. In both the short- and long-term, resolving complex social, political, and organizational problems is just as important as “in the field” projects that address limiting factors. In fact, salmon habitat projects and activities may never achieve their full potential if many of these “process problems” remain unresolved. That is why this Work Plan ranks the strategies in this section for developing projects and activities as being no less important to WRIAs 22 and 23 than those previously discussed in Section Two.

Some of the strategies for managing the salmon habitat recovery process are broad in concept while others are very specific in scope. Most projects intended to develop from these strategies are outside of the scope of eligibility for SRF Board funding. However, this Work Plan encourages project planners to consider including elements of these strategies in any projects and activities developed from the strategies in Section Two.

❖ **Adopt strategies for the salmon habitat recovery process that can adapt to change**

The Chehalis Basin Salmonid Habitat Restoration and Preservation Work Plan represents a long-term commitment to salmon habitat recovery in WRIAs 22 and 23. However, it is important to recognize that the Work Plan functions within an extremely fluid environment. It is reasonable to expect that federal and state environmental policy will shift over time and that ongoing technical assessments and monitoring will reveal new dimensions that will change our knowledge base regarding salmon recovery. For the Work Plan to be successful in this kind of environment, it must be capable of quickly adapting to change. Frequent review and maintenance of the Work Plan is a necessity.



RCW 90.82.100, Habitat Component, states, "Where habitat restoration activities are being developed under chapter 246, Laws of 1988, such activities shall be relied on as the primary non-regulatory habitat component for fish habitat under this chapter.

In the near future, the Work Plan must integrate into the basin-wide watershed restoration plan as the habitat component. Moving in this comprehensive direction will force the existing regulatory and future policy framework to align itself more effectively with salmonid habitat restoration and protection efforts. This outcome must be a driving force for watershed planning under Chapter 90.82 RCW.

❖ **Introduce a successful public outreach program about salmon recovery and stream processes**

Citizens play one of the most important roles in salmon habitat recovery. They are sometimes landowners, taxpayers, project contributors, or a combination of all three. People will stand behind and support the salmon recovery process if they understand the needs of wild salmonids, why these fish are

important to everyone, and what we all need to do to save them.

The strategy for winning people over to salmon recovery is through sharing knowledge through active and persistent educational outreach programs. Today's efforts are inadequate and demand expansion to people of all ages everywhere.

Public agencies and project sponsors have a long way to go before they earn the trust of private landowners. Outreach programs need to target landowners in a way that make them feel comfortable about public involvement on their lands. Incentives for involvement will help, but more importantly, agencies and sponsors need to connect personally with landowners – familiarity builds trust.

Salmon recovery is not cheap and the job is beyond the current resources of natural resource agencies and local government. Salmon recovery needs the help of active citizens from a broad section of our communities. The Chehalis Basin Partnership wants to create programs that enlist citizens to become physically involved in designing, implementing, and monitoring salmon habitat projects and activities.

❖ Create a simplified and useable project implementation process

It is an unfortunate reality that the present system for designing, funding, implementing, and monitoring salmon habitat projects and activities is unwieldy and complex. The same is true for some environmental permitting.

In order to get landowners, citizens, and different government agencies working together at the project and permitting table, the overall process needs simplification on all

levels of government. Landowners will become more willing to sponsor salmon habitat projects and activities on their properties if there was a system accessible to them that would facilitate project development and funding in a timely and trustworthy fashion.

There is need to create a more responsive permitting system that aids project proponents rather than intimidates them. Some landowners cause damage to critical salmonid habitat through a lack of knowledge when they by-pass what they perceives to be a long and complex permitting process. It would help if there were technical project facilitators more widely available to provide landowners technical assistance on best management practices as early in the project development phase.

❖ **Create an interactive data management system**

The complexity of juggling a large knowledge base about salmon habitat recovery in an area as big as the Chehalis Basin is a daunting task. This is why such tools as geographic information systems (GIS), the GeoData Viewer, and Ecosystem Diagnosis and Treatment (EDT) offer significant data management benefits for WRIAs 22 and 23. The availability of such a system would provide greater understanding about which technical data gaps within the WRIAs are most important to fill as well as the planning, implementing, and monitoring of projects and activities.

It is important for an interactive data management system to be something more than just a resource tool for technical experts. It needs to be accessible to all citizens by being user friendly, comprehensive, and available in one easy to



Ecosystem Diagnosis and Treatment (EDT): is a method that uses a "rule-based" system that focuses on habitat as the unit of analysis, and estimates salmon performance by using an analytical model that predicts the numbers of fish supported by the habitat over the salmon's life history. It is an "expert system" that captures the state of existing knowledge including areas of incomplete or missing data.

find location, such as the World Wide Web and public libraries. In this way, an interactive data management system can be an important public outreach asset as well.

The Chehalis Basin Partnership has identified and prioritized four levels of Systematic Action Steps for Managing the Salmon Habitat Recovery Process. These are critical projects or processes for the Chehalis Basin Partnership that will support and strengthen salmon habitat projects and activities. Many of these Systematic Action Steps rests on the successful implementation of preceding ones.

❖ **Create an organizational entity for natural resources program coordination**

The ability of the Work Plan to weather change and eventually take on more diverse, phased salmon habitat projects and activities depends on creating a permanent organization capable of securing permanent funding resources. The Chehalis Basin Partnership will create a formal organization capable of planning, coordinating, and implementing federal, state, and local habitat restoration efforts within WRIAs 22 and 23.

This is a direction to push towards locally, along with garnering strong support from the state and federal governments.

❖ **Secure dedicated funding for natural resource programs**

The long-term success of doing habitat restoration and preservation work depends on the availability of permanent and dedicated funding sources. The Chehalis Basin Partnership will investigate opportunities for taxing or bond initiatives at the

county level or tax relief for landowners allowing salmon habitat projects and activities on their property.

❖ **Integrate the classic extension model within natural resources stewardship**

The historic success of agricultural extension programs within the American farming community is a transferable model to natural resources stewardship. In a natural resources stewardship extension model, agents would provide scientific knowledge and expertise to the public through non-resident educational programs. Such programs could build the trust levels of private landowners, encouraging them to apply established and innovative methods to their lands that benefit the overall management of natural resources.

❖ **Lobby for resources and support**

The likelihood of instituting salmon habitat projects and activities and changing how we manage the salmon recovery process will depend on local, state, and federal legislative support. The Chehalis Basin Partnership needs to develop the political savvy and muscle to convince legislators to fund projects and pass the needed legislative reform to ensure the long-term preservation and restoration of salmon habitat projects and activities.

❖ **Exchange information about the importance of natural resource management**

The Chehalis Basin Partnership needs to adopt a program that gets the word out about natural resource successes and partnerships within WRIAs 22 and 23 to encourage greater local citizen and landowner involvement. Possible methods to

accomplish this include regular briefings for elected officials and better utilization of radio, television, and newspaper to reach the public. Establishing a formal community education program for people of all ages is vital for helping people understand how they impact the environment and how they can play a role in restoration and preservation efforts.

❖ **Market the importance of WRIAs 22 and 23 to natural resources in Washington**

The Chehalis Basin needs to communicate to citizens and legislators statewide that the quality and size of this watershed mandates greater public and private investment for its natural resources management. Compared to many watersheds in this state, the Chehalis Basin remains relatively productive and intact. The importance of this basin to the statewide vision for salmon recovery needs greater emphasis.

❖ **Develop a monitoring strategy**

Monitoring the success or failure of salmon habitat projects and activities is a requirement of Chapter 77.85 RCW. However, the many monitoring approaches, as well as their varying degrees of cost, has resulted in inconsistent monitoring guidance at the local and state levels that has confused technical experts and citizens alike. The Chehalis Basin Partnership needs to initiate a study that examines the breadth of monitoring methods and selects a unified monitoring model with minimum standards that is most appropriate for our local resources and expertise. This will help local citizens and technical experts, as well as funding agencies, evaluate the short- and long-term efficacy of salmon habitat recovery.

❖ **Provide guidance for future Salmon Habitat Field Projects and Activities**

Until citizens and project sponsors acquire enough experience in developing and implementing Salmon Habitat Field Projects and Activities, the process will be intimidating to them and a potential recruiting barrier. The Chehalis Basin Partnership needs to facilitate the process by developing a clear process and product, augmented with plenty of one-on-one technical assistance. An easy to read project development handbook, similar in approach to the "Forest Practices Illustrated" published by the Department of Natural Resources, would be extremely helpful. In addition, it would be easier to recruit landowners who express interest in doing projects but not the paperwork if there were resource people readily available to facilitate the project process for them.

❖ **Implement hatchery reform**

The impact of hatcheries on wild salmonids in the Chehalis Basin could negate any efforts focused on salmon habitat recovery. The Chehalis Basin Partnership intends to track and participate in the Hatchery Reform Project currently underway in the State of Washington. Congress created the Hatchery Reform Project to review hatcheries, ensure their activities do not present a risk to ESA listed species, and provide benefits to recovering wild salmonids.

❖ **Make sure environmental laws are consistent**

It is critical for salmon habitat recovery that federal, state, and local enforcement officials be capable of doing their jobs consistently. This entails ensuring that agencies handle all violations without political interference. Elected officials need to

give in-field managers the support and resources they need to enforce the law.

It is also important that local, state, and federal environmental laws be consistent and simple to manage. Differences in application, procedures, and even definitions often result in inadequate protection of salmonid habitat. The Chehalis Basin Partnership will make recommendations to regulatory agencies as to how they can coordinate these permitting systems more effectively in a way that benefits salmon habitat recovery.



Section Four

Project Development, Selection, and Funding Strategies for Funding Projects

The Chehalis Basin Partnership encourages project planners and sponsors to design salmon habitat projects and activities that meet the strategic directions under Sections Two and Three within the Chehalis Basin Salmonid Habitat Restoration and Preservation Work Plan. In addition, this section provides guidance on project development and funding.

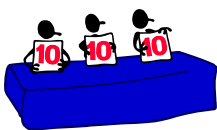
Project Development

When proposing projects, the Chehalis Basin Partnership encourages project sponsors to approach the task as a group effort. There are numerous technical assistance resources available within WRIA 22 and 23 to guarantee that any project utilizes the best science available. Even agencies or organizations with “in-house” technical expertise will profit from consulting with other agencies that could augment the technical merits and resources of a project. Technical experts who do assist project sponsors without the same knowledge level must avoid “talking over people’s heads,” a sure avenue to misunderstandings that could jeopardize the long-term success of projects or activities.



Project Selection

In general, the Chehalis Basin Partnership will give preference to projects that fall within high priority sub-basins for inclusion on the habitat project list submitted bi-annually to the Salmon Recovery Funding (SRF) Board. However, salmon habitat projects and activities in medium and low priority sub-



basins that incorporate Systematic Action Steps for Managing the Salmon Recovery Process will receive strong consideration as well.

Overall, the Work Plan equally promotes projects that overcome limiting factors and process problems to salmon habitat recovery. Many projects that deal with process problems may not be eligible for funding before the SRF Board, but other implementation resources do exist and the Chehalis Basin Partnership encourages accessing them.

Project Funding



Although the Salmon Recovery Funding (SRF) Board is the most prominent public funding source for salmon habitat projects and activities, the Chehalis Basin Partnership encourages project sponsors to consider the wide array of other funding possibilities available. Tapping into these other funding sources is essential for achieving the statewide vision for salmon habitat recovery within WRIAs 22 and 23 for the simple reason that the SRF Board simply does not have enough funding to cover all of the needs within this watershed. Furthermore, a greater mix of funding sources within individual projects can make them more competitive against proposals from other Lead Entities.

Accessing funding for projects is a time consuming and often-tedious task. Private landowners typically will not participate in this task; instead, the Chehalis Basin Partnership encourages public agencies and nonprofit organizations with experienced staff people to provide leadership and assistance in this process.



To help project sponsors of salmon habitat projects and activities, the Work Plan provides a Matrix of Technical Assistance and Funding Opportunities in Appendix C. Using the matrix is easy. As an example, if you are interested in finding out what funding or technical assistance is available for in-stream passage projects or activities, simply go to that column and wherever a dot appears, check that row to find out the agency, program title, contact person, and type of assistance available.

The matrix relies on the SRF Board definition for each project category. To aid you in your research, the Work Plan includes these definitions below.

- **Acquisition**

This includes the purchase of land, access, or other property rights in fee title or less than fee, such as conservation easements. Rights or claims may be acquired, provided the value can be established or appraised. All acquisitions are from willing sellers and all less than fee acquisitions are perpetual.

- **In-Stream Passage**

Includes those items that affect or provide fish migration up- and downstream to include road crossings (bridges and culverts), barriers (dams and log jams), fishways (ladders, chutes, and pools), and log and rock weirs.

- **In-Stream Diversions**

Includes those items that affect or provide for the withdrawal and return of surface water to include the screening of fish from the actual water diversion (dam and headgate), the water

conveyance system (both gravity and pressurized pump), and the by-pass of fish back to the stream.

- **In-Stream Habitat**

Includes those freshwater items that affect or enhance fish habitat below the ordinary high water mark of the water body. Items include work conducted on or next to the channel, bed, bank, and floodplain by adding or removing rocks, gravel, or woody debris. Other items necessary to complete the project may include livestock fencing, water conveyance, and plant removal and control.

- **Riparian Habitat**

Includes those freshwater, marine near shore, and estuarine items that affect or will improve the riparian habitat outside of the ordinary high water mark or in wetlands. Items may include plant establishment/removal/management, livestock fencing, stream crossing, and water supply.

- **Upland Habitat**

Includes those items or land use activities that affect water quality and quantity important to fish, but occur above the riparian or estuarine area. Items include the timing and delivery of water to the stream; sediment and water temperature control; plant removal, control and management; and livestock fencing and water supply.

- **Estuarine/Marine Near Shore**

Includes those items that affect or enhance fish habitat below the ordinary high water mark of the water body. Items include work conducted in or adjacent to the inter-tidal area and in sub-

tidal areas. Items may include beach restoration, bulkhead removal, dike breaching, plant establishment/removal/management, and tide channel reconstruction.

- **Assessments and Studies**

Includes feasibility studies; channel migration studies; reach-level, near-shore, and estuarine assessments; and inventories such as barriers, unscreened water diversions, and landslide hazard area. A feasibility study could include assessing the willingness of landowners to allow access to their land for a habitat restoration project or to consider selling a property interest.



Section Five

Lead Entity Procedures for Evaluating and Selecting Habitat Project Lists

The Habitat Project List Process

The purpose of the Habitat Project List process is to review, prioritize, and select projects submitted by project sponsors for inclusion on a Habitat Project List for WRIAs 22 & 23 by the lead entity, the Chehalis Basin Partnership (CBP), for funding consideration by the SRF Board. The process is simple:

1. A project sponsor identifies and develops a specific habitat project or activity based on one or more of the strategies in Sections Two or Three of the Work Plan.
2. A project sponsor completes and submits the work proposal forms for the habitat project or activity supplied by the lead entity coordinator. In addition to the forms, project sponsors shall submit a project site and vicinity map. Upon receipt, the lead entity coordinator will enter the work proposal form into the salmonid habitat work schedule database and then will distribute copies to all Technical Advisory Group (TAG) members.
3. TAG Members will individually evaluate and rank every work proposal by the following criteria:
 - a. Consistency with the Limiting Factors Analysis, the Work Plan, the Ground Rules for Project Evaluation, and SRF Board Guidelines;

Project Sponsor identifies & develops a habitat project or activity into a work proposal



Project Sponsor submits a complete work proposal to Lead Entity Coordinator



TAG Members evaluate and rank each work proposal in accordance with criteria



- b. Coordination with other existing or proposed habitat projects and activities;
- c. The stock status of the affected salmonid species; and,
- d. Whether the budget and schedule is or is not appropriate.



4. Each TAG member will forward his or her review comments and ranking for each work proposal to the Lead Entity Coordinator by the deadline established by the Lead Entity Committee/CBP. The Lead Coordinator will determine the ranking of each project by: (a) computing the average ranking for each work proposal, and (b) sorting the results of the average rankings from the highest to the lowest. The result shall constitute a prioritized Draft Habitat Project List that the TAG submits to the Lead Entity Committee/CBP for final consideration.
5. The Lead Entity Committee/CBP has the authority to accept or modify the Draft Habitat Project List before its final submission to the SRF Board for funding consideration.

Ground Rules for Project Evaluation

The following Ground rules shall govern the participation of project sponsors, TAG members, and the Lead Entity Committee/CBP in the Habitat Project List process:

Project Sponsors

- Project sponsors must submit a complete proposal in accordance with the scheduled set by the Lead Entity Committee/CBP for each SRF Board funding round. The TAG will not review proposals received after the deadline for the immediate funding cycle.

- A complete proposal includes all required information requested in the project proposal forms supplied by the Lead Entity Coordinator.
- Once the Lead Entity Committee/CBP prioritizes a habitat project or activity, the project sponsor cannot change the scope and budget.

Technical Advisory Group

- TAG members who are also project sponsors do not need to abstain from reviewing their projects. However, each member will conduct an unbiased review of all proposals.
- Any TAG member who stands to gain personally from a funded proposal must excuse himself or herself from the process. If a TAG member is uncertain of a potential conflict of interest, that person shall disclose his or her concerns to the rest of the TAG. The TAG as a whole shall determine if that the TAG member should or should not participate in the review process.
- There will be no minimum quorum requirement for the TAG membership when considering work proposals for preparing the Draft Habitat Project List.

Lead Entity Committee/CBP

- The CBP may reject a work proposal from inclusion on the final Habitat Project List only if it is conflict with established SRF Board guidelines.



Appendix A The Rationale for Prioritizing Sub-basins

The Chehalis Basin Plan for Habitat Restoration is the product of a 1½-year effort by the Technical Advisory Group (TAG), a committee comprised of a broad range of professionals and community representatives working in such fields as fisheries, forestry, wildlife, conservation, and water resources. The formation of the TAG came about through the requirements of RCW 77.85.070, in which the Conservation Commission, in consultation with local governments and tribes in the WRIAs, invited individuals with appropriate expertise to work at creating Habitat Project Lists and work schedules within WRIAs. The TAG had to accomplish this task using the Critical Pathways Methodology to ensure projects created habitat capable of sustaining healthy populations of salmon and steelhead. In addition, the TAG had to implement these projects in a logical, sequential manner.¹

Foundational to the TAG's work in developing the strategy was the early research compiled for what would become the report *Salmon and Steelhead Limiting Factors: Chehalis Basin and Nearby Drainages, Water Resource Inventory Areas 22 and 23* (Smith and Wenger, 2001). Limiting factors are those conditions that limit the ability of habitat to fully sustain populations of salmon. The contents of this report listed known limiting factors within 34 sub-basins within the two WRIAs, as well as noting significant gaps in information necessary for

assessing the health of a sub-basin to support healthy populations of salmon.

The TAG's first step at developing the strategy was to develop a technically based process for evaluating the strength of each sub-basin in the WRIAs to fully sustain populations of salmon. The intent of the group at this step was to find a standard that eventually would allow them to make objective comparisons between sub-basins. Upon finding the comparative standard, the group could use it to rank or prioritize each sub-basin as to its ability to meet the goals in this plan.

This process began with the group brainstorming twelve different attributes or factors influencing a watershed's ability to fully sustain salmon populations. These included:

- Access
- Minimum and maximum flows
- Fish stocks, status, abundance, and presence
- Data availability and needs
- Relative health or degradation of sub-basin
- Riparian conditions
- Potential for partnership
- Sedimentation
- Habitat complexity
- Land use impacts
- Water quality

Group members next worked in teams to investigate the usefulness of using each attribute for sub-basin comparison purposes. Each team was responsible for finding as many quantifiable measures as possible for each attribute. For example, some of the quantifiable measures "sedimentation" were: road density; DNR and US Forest Service mass wasting

potential; sediment delivery rates; bank erosion data; gravel recruitment; and permit review.

However, the TAG soon became acutely aware of the uneven availability of quantitative data for sub-basins throughout the WRIAs. In the example above for sedimentation, data was available for some sub-basins and not others. This forced the group to decide that whatever data set they would use for comparative purposes had to be available for at least most, preferably all, of the sub-basins in WRIAs 22 and 23. In addition, the data would have to be specific to the drainage it represented; that is, it would not be acceptable to use data modeled from another sub-basin. Last of all, it was important that the data set be relational to the plan goals.

The only attribute that eventually passed these filters was “fish stocks, status, abundance, and presence”. Within this attribute, there were two quantifiable measures with WRIA-wide data: the number of anadromous fish stocks and the number of anadromous fish miles. Data on the number of anadromous fish stocks throughout WRIAs 22 and 23 was readily available through the Salmon and Steelhead Stock Inventory (SASSI). SASSI identified seven different stocks of salmon and steelhead throughout the two WRIAs and listed how many of the stocks appeared in each sub-basin.

The number of anadromous fish miles represents the linear miles of habitat in a sub-basin capable of producing salmon. The source for this data came from GIS information within the Salmon and Steelhead Limiting Factors report that showed known salmon and steelhead habitat.

To use these quantifiable measures in a prioritization scheme, the TAG assigned a point system for each one. The

point system favored sub-basins that best reflect the plan goals; that is, productive sub-basins that currently display the highest diversity in salmon stocks or the greatest quantity of salmon habitat. Table 2 displays each quantifiable measure and how the TAG distributed the points.

Table 2: Quantifiable Measures and Points Awarded

Quantifiable Measure	Points
Number of anadromous fish stocks:	
• Four-to-five stocks	6
• Two-to-three stocks	4
• 1 or less stocks	2
Number of anadromous fish miles:	
• >70 known miles	6
• 20-to-69 known miles	4
• <20 known miles	2

Adding the assigned points together for each sub-basin revealed a high, medium, and low priority hierarchy between sub-basins in their ability to achieve plan goals. The TAG decided that “high priority” sub-basins had a score of 12. Sub-basins scoring eight to ten points received a “medium priority” while sub-basins scoring six or less received a “low priority”. The application of this point system to the sub-basins resulted in the prioritization of the sub-basins as shown in Section 2 under the goal:

“Concentrate habitat projects and activities in those sub-basins that have the greatest salmonid diversity and quantity of habitat.”

With the inter-sub-basin prioritization complete, the next step for the TAG was to develop a system that would prioritize future project actions within each sub-basin, which became the individual sub-basin matrixes in Appendix B. Having such a system in place would give the Technical Advisory Group (TAG) an ability to evaluate future project proposals on its technical

merits of meeting the overall goal. It would also assist groups in choosing and designing projects that met specific needs.

The Salmon and Steelhead Limiting Factors report was again instrumental in helping the TAG complete this task. The group noted that the report identified and assessed habitat conditions within each sub-basin that influence its capacity to support healthy salmon populations. For working ease, the group condensed these habitat conditions into eight broad limiting factor categories: fish passage, floodplain conditions, sediment, large woody debris, riparian, water quality, water quantity, and biological process.

The TAG surmised that future project habitat lists addressing the needs of these habitat conditions in individual sub-basins would likely include activities that:

- Overcome limiting factors (Restoration Actions),
- Prevent a limiting factor from happening (Preservation Actions), and/or
- Collect missing assessment information (Data Gap Actions).

The TAG concluded that it would be an impossible task, given current resources and time, to create a thorough, detailed list of projects for each habitat condition in every sub-basin. Instead, the group focused on creating very general Restoration, Preservation, and/or Data Gap Actions under each habitat condition. These actions are focused objectives rather than projects; that is, specific intermediate steps to measure and evaluate the progress of future projects in achieving the overall goal. By providing guidance in this way, prospective project planners can look at any sub-basin and see a list of objectives by habitat condition that will help them in designing an effective project. Likewise, the TAG evaluates all projects in light of their

ability to meet the objective before recommending it for inclusion on the habitat project list.

It is important to note that the TAG views the development process for the Chehalis Basin Habitat Restoration Plan as an evolutionary one. The TAG anticipates that as information resources grow for the WRIAs by steadily completing Data Gap Actions, the strategy itself will assume a more sophisticated system of inter-basin comparisons and intra-basin objectives. Therefore, the TAG intends to meet annually to evaluate whether amendments are necessary to the strategy or prioritization processes.