Water Resource Inventory Area (WRIA) 20
WATERSHED MANAGEMENT PLAN

Prepared for Approval by the Planning Unit

WRIA 20 Planning Unit Approved August 20, 2008

Initiating Governments:

City of Forks
Clallam County
Hoh Tribe
Jefferson County
Makah Tribe
Quileute Tribe

Water Resource Inventory Area 20 Watershed Management Plan
Approved by Planning Unit

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VISION STATEMENT FOR WRIA 20 WATERSHED PLANNING

The water resources of WRIA 20 are a natural treasure to be protected. These resources sustain natural habitat function, self-maintaining ecosystem processes, and a wide range of physical and biological resources used by society. The WRIA 20 Planning Unit is committed to protect, preserve, and/or restore these resources so current and future residents, businesses, and governments may benefit from and enjoy a biologically diverse, prolific, and robust natural ecosystem. Our plan strives for sustainable commerce, residential, recreational, and natural resource uses within WRIA 20 while recognizing Native American treaty uses of natural resources. This watershed plan is intended to be a living document that is based on agreements regarding desired future resource conditions and the means of achieving them over time.

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EXECUTIVE SUMMARY

Watershed planning for Water Resources Inventory Area (WRIA) 20 was officially initiated in 2001 by Clallam and Jefferson Counties, the City of Forks, the Makah, Quileute and Hoh Indian Tribes, and Washington State represented by the Department of Ecology (Ecology). Other representatives participating in the development of the WRIA 20 Watershed Management Plan (Plan) include industry representatives, citizens and other governmental agencies. This Plan represents the culmination of over seven years of effort. In undertaking this effort, the WRIA 20 Watershed Planning Unit (Planning Unit) agreed to address all components of watershed planning identified by Revised Code of Washington (RCW) 90.82, including water quantity, instream flows, water quality and fish habitat.

This Plan has been prepared in recognition that it has no jurisdiction with respect to tribal rights, tribal reservations, tribal water law, Olympic National Park, and the state Forest Practices Act (FPA). This Plan provides specific guidance and recommendations on water resources management that are based on voluntary actions and do not impose obligations on any entity. All recommendations are contingent upon available funding. The state considers actions identified (and agreed to) for state implementation as activities that the state will plan to undertake.

Existing laws, regulations, and local government plans for responsible water resource management are acknowledged throughout this Plan, such as critical areas ordinances (CAOs), comprehensive water system plans, and growth management plans. Water resource planning herein is intended to strike a balance between the freshwater needs of aquatic ecosystems, particularly salmonids (to maintain or return to stable populations) and the instream, out-of-stream, and groundwater needs of people. This balance between ecosystems and humans may be achieved through "ecologically sustainable water management." A definition to consider is:

- "Ecologically sustainable water management protects the ecological integrity of affected ecosystems while meeting intergenerational human needs [cultural and economic] for water and sustaining the full array of other products and services provided by natural freshwater ecosystems. Ecological integrity is protected when the compositional and structural diversity and natural functioning of affected ecosystems is maintained." (Richter et al. 2003).

How this balance is defined, implemented and monitored needs to be the initial primary duty of any implementing body. This effort needs to look at ecological integrity, intergenerational equity, cultural and economic needs, and ecosystem management principles.

Water Quantity

The Planning Unit encourages the state to commence processing its backlog of water right applications. The Planning Unit understands that the state uses several specific evaluation criteria and that not all applications may be approved. Processing of water rights consistent with existing plans, such as comprehensive water system plans, growth management plans, and others is emphasized.

The impact of global warming processes on climate and weather is under study at the University of Washington and at other institutions. Changes in climate may alter regional rainfall patterns and increase water temperature that can result in the severe reduction, if not extinction, of some native salmon runs. Research on climate-impacted flows, and changes to glacier distribution and extent, can be used to provide guidance to successors to this Planning Unit, and to Ecology, in setting or resetting instream flow (ISF) rules. In WRIA 20, summer streamflows essential to fish reproduction may be the most vulnerable to the effects of climate change. Projected trends in summer low-streamflows

pose a serious threat to the continued viability of salmonid runs in both glacier- and seasonal precipitation-dominated watersheds.

Instream Flows

The intent of these recommendations is to fulfill statutory requirements with regard to aquatic habitat and fish populations, while also providing water for people, in a manner that is ecologically sustainable (see above). No existing, valid water rights will be affected by any future ISF rule, as is consistent with the established water law of Washington State. For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods. Policy recommendations for establishing ISF rules may be provided for specific streams including seasonal closures and reservations for future uses that are not subject to an ISF rule. The limitations of establishing ISF rules in the context of global warming are acknowledged.

Water Quality

Water quality monitoring for the purpose of better understanding ambient conditions is encouraged. This Plan acknowledges that local government has certain public health water monitoring obligations. Water quality monitoring programs that comply with standard Quality Assurance Project Plans (QAPPs) are endorsed by this Plan, including programs conducted by the counties and tribes. Individual programs that are endorsed by this Plan include the Cooperative Monitoring, Evaluation, and Research (CMER) program, and Clallam County Streamkeepers (Streamkeepers). A program similar to Streamkeepers should be established in western Jefferson County and expanded in western Clallam County, either through expansion of the existing Streamkeepers program into a bicounty program, and/or establishing a comparable program in Jefferson County. The expansion and maintenance of existing water quality data programs, including providing Internet data sources to the public, is endorsed. Such programs may include those of the Olympic Natural Resources Center metadata catalogue of water quality monitoring programs.

Fish Habitat

Fish habitat protection through county CAOs is embraced, primarily through public education, and secondarily through enforcement. The implementation phase of watershed planning should include a component for participants to prepare and distribute public outreach materials informing landowners of the basis for, and the benefits of, existing regulations for the protection of lake and river banks. This Plan recommends that the counties enforce existing riparian protection regulations.

Voluntary restoration of degraded riparian habitat is encouraged through compensation of private landowners using existing federal, state or local funding programs. Reintroduction of large woody debris in channels and channel migration zones and other in-channel structures to restore properly functioning river processes is promoted when introduced through appropriate design and planning.

Conservation (including land purchase) through RCW 77.85 (salmon restoration) and other programs is encouraged. While watershed planning is not intended to duplicate efforts, the Planning Unit supports land conservation.

Special Projects

Projects endorsed by this Plan include:

- Fish habitat improvement projects identified in the Limiting Factors Analysis of WRIA 20 (Washington Conservation Commission, 2000) and other assessments (e.g., http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm)
- The restoration of threatened (sockeye) and extirpated (chum and Chinook) salmonid species in the Ozette drainage.
- Projects intended to reduce illegal dumping of septage from recreational vehicles. These include establishment of a septage transfer station and RV dump station in the City of Forks, and RV dump stations in private and public camp grounds.
- Support efforts by state and federal park systems to establish/maintain reliable and ecologically sustainable drinking water and sewer/septic services for residents and guests within their boundaries.
- Evaluate alternatives and provide recommendations to support salmonids in WRIA 20 through periods of low flow.

Implementation

It is advised that an Implementation Body (IB) be formed to oversee the implementation of this Plan. The creation of an IB should be formed by consensus of the WRIA 20 Initiating Governments. If consensus cannot be reached, the formation of the successor group can proceed only when five of the six original Initiating Governments consent. Regardless of the manner in which it is created, each of the original initiating governments will be provided a voting position in the successor group.

Quarterly or semi-annual meetings of water quality managers to encourage program coordination should be scheduled in Phase IV of watershed planning after adoption of this Plan. Responsibilities will include assisting and coordinating various water resource management efforts (*e.g.*, salmon recovery, eradication of knotweed and other invasive species from riparian areas, Streamkeepers, *etc.*). The role of watershed planning implementation with respect to these other efforts is to be supportive and to realize efficiencies – it is not intended to replace or assume jurisdiction over these groups.

The IB will also foster public outreach, education and involvement. Dependent upon the final decision of this Planning Unit, the IB may be charged with further development of one or more potential aspects of this Plan including the unresolved issues outlined in Appendix A.

An IB will not have any regulatory or enforcement authority.

Acronyms

AMA	Adaptive Management Area
BMP	Best Management Practice
CAO	Critical Areas Ordinance
CCC	Clallam County Code
CREP	Conservation Reserve Enhancement Program (EPA)
CMER	Cooperative Monitoring, Evaluation, and Research (Committee)
CWA	Clean Water Act (federal)
DNR	Washington State Department of Natural Resources
DNS	Determination of Non Significance
DS	Determination of Significance
EAP	Environmental Assessment Program (Ecology)
Ecology	Washington Department of Ecology
EIM	Environmental Information Management (Ecology system)
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act (federal)
FFR	Forests and Fish Report
FPA	Forest Practices Act
FPR	Forest Practices Rules
GIS	Geographic Information Systems
GMA	Growth Management Act
HCP	Habitat Conservation Plan
HPA	Hydraulic Project Approval
IFIM	Instream Flow Incremental Methodology
IB	Implementation Body
IG	Initiating Government
LFA	Limiting Factors Analysis (by the Washington Conservation Commission or others)
LID	Low Impact Development
LWD	Large Woody Debris
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

Acronyms

NBII	National Biological Information Infrastructure
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOPLE	North Olympic Peninsula Lead Entity
NPS	National Parks Service
NWIFC	Northwest Indian Fisheries Commission
OHWM	Ordinary High Water Mark
ONF	Olympic National Forest
ONP	Olympic National Park
ONRC	Olympic Natural Resource Center (University of Washington)
PHabSim	Physical Habitat Simulation (computer program)
QAPP	Quality Assurance Project Plan
RCW	Revised Code of Washington
RM	River Mile
RMAP	Road Maintenance and Abandonment Plan
RMZ	Riparian Management Zone
SASSI	Salmon and Steelhead Stock Inventory (tribes with WDFW)
SEPA	State Environmental Policy Act
SG	Stakeholder Group
SMA	Shorelines Management Act
SRFB	Salmon Recovery Funding Board
SWSL	Surface Water Source Limitation
TMDL	Total Maximum Daily Load
U&A	Usual and Accustomed Fishing and Hunting Grounds (treaty tribes)
UDC	Unified Development Code (Jefferson County)
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UW	University of Washington
WAC	Washington Administrative Code

Acronyms

WCC	Washington Conservation Commission
WDFW	Washington Department of Fish and Wildlife
WMP	Watershed Management Plan
WPA	Watershed Planning Act
WQMA	Water Quality Management Area
WRATS	Water Rights Application Tracking System
WRIA	Water Resources Inventory Area
WSDA	Washington State Department of Agriculture

Regulations Cited in the Plan

Citation	Title
RCW 36.70A	Growth Management
RCW 34.05	Administrative Procedure
RCW 76.09	Forest Practices
RCW 77.50.050	Reef Net Salmon Fishing Gear – Reef Net Areas Specified
RCW 77.85	Salmon Recovery
RCW 90.03	Water Code
RCW 90.22	Minimum Water Flows and Levels
RCW 90.48.260	Federal Clean Water Act – Department Designated as State Agency, Authority – Delegation of Authority – Powers, Duties, and Functions
RCW 90.54.020	General Declarations of Fundamentals for Utilization and Management of Waters of the State
RCW 90.58	Shoreline Management Act of 1971
RCW 90.82	Watershed Planning Act
WAC 173-500	Water resources management program established pursuant to the Water Resources Act of 1971.
WAC 173-520	Instream resources protection program -- Water resource inventory area (WRIA) 20. (Does not currently exist – possible future rule.)
16 U.S.C. Sec 791 *et seq*	Federal Water Power Act
33 U.S.C. Sec 1251 *et seq*	Congressional Declaration of Goals and Policy

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COMPACT DISK
(in pocket at the back of this report)

Intergovernmental Agreement (MOA) July 2000. This document outlines the agreement between the counties, tribes, city and Ecology to conduct watershed planning.

Level 1 Technical Assessment. Abigail Hook, June 2004: This document contains a compilation of water quality and habitat studies of WRIA 20.

Phase II Technical Assessment. Golder Associates Inc., May 2005: This document provides an overview and characterization of the watershed, including the hydrologic cycle, water use and water rights, water quality and fish habitat.

Multi-Purpose Storage Assessment Water Resources Inventory Area 20. Golder Associates Inc., June 2005: This assessment looks at the storage of water in various forms.

Watershed Conditions and Seasonal Variability for Select Streams within WRIA 20, Olympic Peninsula, Washington. Bureau of Reclamation, September 2005: This document presents the results of an initial, comprehensive appraisal level overview of watershed conditions within WRIA 20.

Water Resource Inventory Area 20 Watershed Management Plan. Golder Associates Inc., March 2007.

1.0 INTRODUCTION

In 1998, the Washington State Legislature passed the Watershed Planning Act (WPA; RCW 90.82), which provides for locally-based watershed planning with the goal of giving local interests a voice and a forum for collaboration.

> **RCW 90.82.010. Finding.** *The legislature finds that the local development of watershed plans for managing water resources and for protecting existing water rights is vital to both state and local interests. The local development of these plans serves vital local interests by placing it in the hands of people: Who have the greatest knowledge of both the resources and the aspirations of those who live and work in the watershed; and who have the greatest stake in the proper, long-term management of the resources. The development of such plans serves the state's vital interests by ensuring that the state's water resources are used wisely, by protecting existing water rights, by protecting instream flows for fish, and by providing for the economic well-being of the state's citizenry and communities. Therefore, the legislature believes it necessary for units of local government throughout the state to engage in the orderly development of these watershed plans.*

The intent of this legislation is to allow citizens, local governments, and tribal governments to develop solutions to water issues in their own watershed, thus providing a more complete picture of the status of water resource availability and environmental integrity statewide. The Water Resource Inventory Area (WRIA) 20 Watershed Management Plan (Plan) has been created under the guidelines, the spirit, and the intent of the WPA.

The rules governing the watershed planning process in WRIA 20 are determined through RCW 90.82, an Interlocal Memorandum of Agreement (MOA) signed by the Initiating Governments (IGs) in WRIA 20 on July 21, 2000, and the Ground Rules for WRIA 19/20 Watershed Planning. Decisions on how to obtain and process information related to water quantity, water quality, fish habitat, and instream flow recommendations have been the function of the IGs and Planning Unit members. While the Washington State Department of Ecology (Ecology) has been a governmental member of the Planning Unit, it is not an IG and its consensus was not required for these duties. However, throughout the planning process, Ecology has served in an advisory capacity and as a technical assistant for many Planning Unit functions, including grant management for the Ecology-funded grants under the statute. The Washington Department of Fish and Wildlife (WDFW) has also provided technical advice and been active in Planning Unit meetings.

Decisions on Plan approval must be made by the unanimous consensus of:

- Initiating Governments: Clallam County, Jefferson County, Makah Indian Tribe, Hoh Indian Tribe, Quileute Indian Tribe, and the City of Forks; and,
- Washington Department of Ecology, because of its governmental role in the Planning Unit, per RCW *90.82.130 §1(a).*

The WRIA 20 Planning Unit also includes stakeholder groups (SGs). The final approval of the Plan requires consensus of the IGs and a majority vote of the SGs. While Ecology has had the role of an SG member (representing state agencies) in this planning process, the statute section cited above also gives it the larger, consensus role in the final Plan approval. Because Ecology represents other state agencies in this process by Memorandum of Understanding (MOU) among the state agencies, it also represents them in this vote http://www.ecy.wa.gov/watershed/misc/MOU.html (Accessed 7/08).

The WRIA 20 MOA states that watershed planning for any watershed lying wholly or primarily within the Makah, Hoh, or Quileute Indian Reservations shall occur outside of the framework of

Chapter 90.82 RCW, and shall not establish any jurisdiction of the State of Washington over on-reservation water resources.

The individuals and agencies participating in watershed planning in WRIA 20 recognize the unique heritage and legacy of the natural ecosystem that exists in this region. Within this ecosystem, a forested landscape, a stable fishery in dynamic equilibrium, and farms and ranches provide the cultural and economic lifeblood to the inhabitants of the WRIA. The community believes that appropriate management is warranted and aspires to do so through this Plan and in support of natural resource management efforts being conducted in other forums.

This chapter presents an overview of the watershed and watershed planning in WRIA 20, provides an overview of the legal framework under which water resource management can occur in watershed planning under RCW 90.82, and acknowledges the people involved in this planning effort.

1.1 Background

WRIA 20 encompasses over 1,000 square miles of the western Olympic peninsula and drains into the Pacific Ocean (Figure 1-1). The waters of WRIA 20 flow through some of the least impacted ecosystems and old-growth forests in the state with:

a) Two-thirds of their source in the snow-capped mountains of the Olympic National Park (ONP);

b) Federal, state, and private timber between the mountains and the Pacific Coast; and,

c) Their terminus at the Pacific Ocean at beaches managed by the ONP and three tribes.

The geographic isolation of, and topographic variation within, the WRIA have created a land of unique ecological diversity. The Olympic Peninsula is home to eight kinds of plants and fifteen animals that are not found anywhere else on Earth, including the Olympic marmot and the Olympic torrent salamander. The watershed also contains the Hoh rainforest, a temperate area protected within the ONP that receives over 200 inches of rain per year in some places, and supports an ancient Sitka spruce ecosystem. The United Nations designated the ONP a World Heritage Site in 1981. Within the WRIA, there are 569 streams (1,355 stream miles; Hook, 2004) and three major lakes: Lake Ozette, Dickey Lake, and Lake Pleasant. The WRIA rivers contain Chinook, coho, chum, sockeye, and steelhead runs as well as cutthroat trout and bull trout. Bull Trout and Lake Ozette sockeye are currently listed as threatened under the Endangered Species Act.

The first inhabitants of these lands were ancestors of the Quileute, Hoh, and Makah Tribes and used much of the land and waters within WRIA 20 for fishing, hunting, and gathering. The tribes today have four separate reservations; however, the Ozette reservation is under the treaty jurisdiction of the Makah Tribe. The Tribes' off-reservation treaty fishing grounds, known as the Usual and Accustomed Areas, or U&As, are located throughout WRIA 20. All of the tribes continue to use natural resources within their respective U&As for subsistence, cultural, and commercial purposes. There are many sites of primary cultural importance within WRIA 20.

European settlement of WRIA 20 began in the latter half of the 1800s. Most of the initial settlement was located on prairies and clearings near the coasts and rivers where the topography was conducive to farming. Both natives and European settlers used fire to clear the way for homesteads, farming, and primitive roads. With the arrival of the railroad in the 1920s, commercial timber logging swept across the area and billions of board feet have since been harvested (Figures 1-2 and 1-3). Extensive road networks accompanied the logging efforts, except in the ONP which has remained relatively

undisturbed. Timber harvest peaked around 1980, and has decreased over the last two decades due to changing dynamics in world timber markets, state and federal legislation, and other factors.

Today, WRIA 20 waters flow through lands managed by the ONP, the Olympic National Forest (ONF) managed by the United States Forest Service (USFS), the Washington State Department of Natural Resources (DNR), and private timber companies, as well as two counties, three tribal reservations, and numerous small farms and settlements on or adjacent to the relatively flat lower river floodplains. Settlements within WRIA 20 are often located where the early settlers homesteaded, the largest of which is the City of Forks (approximate population 3,100). The City of Forks receives about 121 inches of rain per year, and although it is not far (approximately 100 miles) from the more urban areas of Washington State, rough terrain has kept this area isolated and relatively less developed. The residents of Forks have, until recently, traditionally earned their living by working with the natural resources of WRIA 20. Since 1991, government has been one of the largest employers within WRIA 20.

The water resources of WRIA 20 are of varied condition. There are areas within the ONP and certain timber stands that have had limited anthropogenic impact or have had previously impacted areas restored. However, there are also areas with reduced water quality and quantity, caused by both human activities and/or natural causes. Water resource management efforts such as mitigation and/or restoration should focus on areas degraded by human activity.

Changes in forest practices within the last ten to twenty years were intended to result in improvements in water quality and fish habitat. The primary focus of this planning effort is to understand the current state of the watershed and protect what currently exists. The Planning Unit anticipates improved conditions in the future, resulting from the ongoing improvements in forest practices and fish habitat restoration, and supports recovery efforts that also allow for population and economic growth. A secondary focus of this Plan is to support projects that are planned for implementation under existing plans and regulations, such that funding constraints experienced by various land, water, and fisheries co-managers can be overcome.

1.2 Formation of the Planning Unit

After state legislation provided funding for the formation of voluntary local watershed planning (RCW 90.82), Clallam County received a grant to commence the process for WRIAs 19 and 20 in 1999. Funding was initially awarded for WRIAs 19 and 20 together. (WRIA 19 is located to the north of WRIA 20.) However, the participants later found it more effective to divide the WRIAs and work separately, and created the MOA titled Interlocal Agreement Regarding Local Watershed Planning, prepared in 2000.

RCW 90.82 requires that local governments (counties, largest city in the WRIA, and largest water supplier in the WRIA) must be included as initiating governments (IGs), while the tribes within the program area must be invited (although their participation is not mandatory) to participate as IGs. After Clallam County obtained funding, the Makah, Quileute, and Hoh Tribes met over a year with the mandatory IGs (Clallam and Jefferson Counties, and the City of Forks) and decided to participate. Besides IGs, the statute provides for public participation from: federal, state, and local agencies; industries; landowners; watershed residents; and, other interested members of the public. These entities, along with the IGs, form the Planning Unit. The IGs have a veto right regarding the components of the Plan. Further, the statute requires a unanimous vote by the IGs for any component or proposed change or addition to be accepted as part of the Plan.

Clallam County was designated as the lead agency, and has had the role of grant administrator, contract signatory on behalf of all participants (other than the Interlocal Agreement itself), and overall manager of the budget. Over four years the Planning Unit had hired facilitators and contractors to perform assessments and prepare drafts of the Plan for review; those funds expired, however, and the planning unit continued on its own.

RCW 90.82 provides directives for a Planning Unit. The assessment of water quantity is mandatory, while the assessment of water quality, instream flows (ISFs), and fish habitat are optional. The WRIA 20 Planning Unit voted to undertake assessment of all four components, including a storage component for quantity. The IGs prepared a Scope of Work which paralleled statutory instruction for each category of assessment. Elements of the Scope of Work were transferred to contractors for performance.

The statute also directs a planning unit to provide recommendations for follow-through by local and state government, and for any successor planning body, should one be formed. This successor is called the Implementation Body (IB) in this document.

After the Plan is approved by the Planning Unit, it goes to the two counties for adoption by their commissioners. At this stage, the Plan is submitted for full public comment. If the Planning Unit has not made ISF recommendations, Ecology may proceed with rule-making for ISF rules on its own.

Through the planning process, the goal is to find common ground for planning in each major category by supporting and complementing other ongoing programs in the watershed, and by creating new solutions to issues in the watershed. The statute is explicit that nothing in the plan may contravene Native American treaties with the United States. Further, the plan may not provide for changing provisions of state and federal laws and regulations, such as the federal Clean Water Act or the state Forest Practices Act.

The Planning Unit met at regularly scheduled monthly meetings and at a number of special meetings, during which many issues were considered. These issues were defined during workshops held by the Planning Unit in the fall of 2004. An extended list of issue statements were developed and compiled in a "Framework" document and reviewed by the Planning Unit in November 2004. The Planning Unit ranked these issues in December 2004 and the 17 top-ranked issues were selected at the January 2005 regular Planning Unit meeting for development into components of the Plan.

The initial 17 selected watershed issues along with additional water-related issues that were subsequently introduced were developed by the Planning Unit in meetings between February and May 2005. A preliminary list of action items associated with the issue statements was subsequently distributed. Multiple drafts were prepared between April 2005 and February 2006. The unresolved issues or discussion items deferred for later consideration are preserved in Appendix A.

Information from the Technical Assessment Report and other data collection efforts are contained in a compact disk accompanying this Plan and is included on websites and at physical repositories, locations for which are listed in Section 2.8.

1.3 Acknowledgements

This Plan was developed through the participation and input of numerous stakeholders in WRIA 20 over four years, many of whom spent countless hours providing information, reviewing, and formulating the Plan actions, and attending meetings. These individuals, agencies and entities are listed below:

Table 1-1 WRIA 20 Watershed Planning Participants

Representative	Agency or Organization
**John Miller	Clallam County Director of Community Development
Mike Doherty	Clallam County Commissioner
Mike Chapman	Clallam County Commissioner
Steve Tharinger	Clallam County Commissioner
Andy Brastad	Clallam County Environmental Health Division
Julie Triggs	Formerly with Clallam County
Valerie Streeter	Formerly with Clallam County
**David Sullivan	Jefferson County Commissioner
Phil Johnson	Jefferson County Commissioner
John Austin	Jefferson County Commissioner
Pat Rodgers	Former Jefferson County Commissioner
**Tami Pokorny	Jefferson County Water Quality Division
Craig Schrader	Formerly with Jefferson County
Dave Christensen	Formerly with Jefferson County
**Rod Fleck	City of Forks
**Steve Allison	Hoh Indian Tribe
*Jim Jorgensen	Formerly with Hoh Indian Tribe (now with Quinault Indian Nation)
**Jim Woods	Makah Indian Tribe
**Lyle Almond	Makah Indian Tribe
Jeff Shellberg	Formerly with Makah Indian Tribe
Gwen Bridge	Formerly with Makah Indian Tribe
David Lawes	Formerly with Makah Indian Tribe
**Katie Krueger	Quileute Indian Tribe
Frank Geyer	Quileute Indian Tribe
Chris Morganroth, III	Quileute Tribal Council
*Ed Bowen	Ozette Watershed Resident
*John Richmond	Hoh Watershed Resident
*Carol Young	Hoh Watershed Resident
*DeLos Snodgrass	Sol Duc Watershed Resident
*Gerry Morris	Sol Duc Watershed Resident
*Ted Spolestra	Sol Duc Watershed Resident
Phil Kitchel	Bogachiel Watershed Resident
Bill Peach	Rayonier Inc.
*Ian MacIver	Rayonier Inc.
Mike Breidenbach	Rayonier Inc.
***Christine Hempleman	Washington Department of Ecology
Cynthia Nelson	Washington Department of Ecology
Bob Duffy	Formerly with Washington Department of Ecology
*Jim Pacheco	Washington Department of Ecology
Michael Blanton	Washington Department of Fish & Wildlife
Bob Burkle	Washington Department of Fish & Wildlife
*Terra Hegy	Washington Department of Fish & Wildlife
Dave King	Washington Department of Fish & Wildlife
*Eric Carlsen	Formerly with Washington Department of Natural Resources
*Bill Drath	Washington State Parks
Selinda Barkhuis	Formerly with North Olympic Peninsula Lead Entity
*Jennifer Hagen	Northwest Indian Fisheries Commission
Joe Holtrop	Clallam Conservation District
John Calhoun	Olympic Natural Resources Center of UW

Representative	Agency or Organization
****Eduardo Olmedo	Olympic National Forest, USFS
****Phil DeCillis	Olympic National Forest, USFS
****Jim Jacoby	Olympic National Forest, USFS

* Active Planning Unit member at the time of the release of this document.

** Active Initiating Government representative at the time of the release of this document.

*** The WRIA 20 watershed planning process requires the consensus of the State of Washington in addition to the consensus of the IGs, for Plan adoption. In WRIA 20 the State is represented by Christine Hempleman, Bob Duffy and Cynthia Nelson from Ecology, pursuant to a Memorandum of Understanding among the agencies.

****Olympic National Forest was not an active participant, and the Olympic National Park did not participate in the development of this Watershed Plan.

The following individuals were not members of the Planning Unit but contributed substantively to the development of this Plan:

Table 1-2 Non-Planning Unit WRIA 20 Plan Contributors

Agency or Organization	Representative	Role
Golder Associates Inc.	Chris Pitre	Project Manager
Golder Associates Inc.	Lisa Dally-Wilson	Project Manager
Golder Associates Inc.	Jami Carter	Phase III Plan
Golder Associates Inc. (presently with Carter & Burgess, Inc.)	Sandra Slayton	Phase III Plan
Golder Associates Inc.	Diane Crawford	Phase II, Level 2
Golder Associates Inc.	Andreas Kammereck	Phase II, Supplemental Storage Assessment
Golder Associates Inc. (presently with Sanborn, Head & Associates, Inc.)	Tim White	Phase II, Supplemental Storage Assessment
Bureau of Reclamation	Amy Lieb	Water Balance Report
University of Washington Graduate Student (presently with the Tulalip Tribe)	Abigail Hook	Phase II, Level 1 (Habitat and Water Quality)

2.0 WATERSHED PLANNING ACT PROCESS

This chapter lays out the directives of the statute and then summarizes what has been done by this Planning Unit for each. Detailed discussions of the planning and legal framework under which water and natural resource management can occur in watershed planning under RCW 90.82 are provided.

2.1 Watershed Planning Act

Details of legislation providing the guidelines and funding for watershed planning are described below.

2.1.1 Watershed Planning Act

The 1998 WPA provides a framework for a voluntary, comprehensive watershed planning process that includes a strong component of local involvement. State funding is available for WRIAs that elect to prepare watershed plans. The WPA allows local citizens (individual and corporate or other business entities), local governments, state and federal agencies, and tribes to provide significant input to the creation of these plans, with technical assistance from designated state agencies (in particular, Ecology) available upon request. The WPA signifies the state's commitment to provide for both a growing population and economy and for the integrity of the watershed system, now and in the future.

Watershed planning involves complex water resource issues over a large area. Under RCW 90.82, the Planning Unit is required to gather certain types of watershed information (*e.g.* current water availability, allocation, use and future water needs) and to develop potential strategies for managing the water resources within a WRIA. The law restricts the Planning Unit from changing existing laws, altering water rights or treaty rights, or requiring any party to take an action unless that party agrees.

Twelve state agencies signed the MOU (July 2000) which identified the roles and responsibilities for coordination under the WPA. The MOU commits these agencies to work through issues and to speak with one governmental voice when sitting at local Planning Unit tables. The following Washington State agencies signed the MOU:

- Department of Agriculture
- The Conservation Commission
- Department of Community, Trade and Economic Development
- Department of Ecology
- Department of Fish and Wildlife
- Department of Health
- Department of Natural Resources
- Department of Transportation
- Interagency Committee for Outdoor Recreation
- Puget Sound Water Quality Action Team
- Salmon Recovery Office, within the Governor's Office
- State Parks and Recreation Commission

The WPA was updated by the state legislature in 2003. This update provided direction for Watershed Management Plan (WMP) implementation and continued funding for watershed planning by the state,

including a programmatic State Environmental Policy Act (SEPA) review that can be found on the Internet through Ecology. House Bill 1336 amended RCW 90.82.040 to include Phase IV, Implementation, and annual funding for implementation activities. Senate Bill 5073 authorizes special district entities to expend up to ten percent of their existing water-related revenues and water-related funds on implementation of watershed plan projects.

Amendments to the Watershed Planning Act addressing implementation activities also:

- Require the development of an implementation plan that specifies strategies and interim milestones to provide sufficient water for agricultural, municipal needs, and ISF;
- Allow counties that constitute less than five percent of the watershed to opt out of the planning process or if all other initiating governments within the management area consent; and,
- Allow state agency obligations to be adopted by policy, procedures or agreements.

The watershed planning process consists of four phases:

2.1.1.1 Phase I: Organization and Scoping

To initiate Phase I, the initiating governments appoint a lead agency for the planning process and identify and appoint Planning Unit members. *State funding for Phase 1 is $50,000.*

2.1.1.2 Phase II: Technical Assessment

In Phase II, a Technical Assessment is conducted to assess the status of the watershed with respect to the four statutory components (Section 2.1.2). The Technical Assessment must include the following minimum requirements:

- Estimate of surface and groundwater present, and its availability given seasonal fluctuations and other variations;
- Estimate of water represented by the water rights claim registry, water use permits, certificated rights, existing minimum instream flow rules, federally reserved rights, and any other rights to water;
- Estimate of surface and ground water actually being used, and predicted future needs;
- Identification of aquifers which recharge surface water, and surface areas which recharge aquifers; and,
- Estimate of the surface and ground water available for future appropriation, taking into account adopted minimum instream flows, including the data needed to evaluate flows necessary for fish.

State funding for Phase II is $200,000. Phase II may also include the following optional assessments.

- *Multipurpose Storage.* To conduct a detailed assessment of multipurpose water storage opportunities or for studies of specific multipurpose storage projects that are consistent with and support the other elements of the Plan developed under RCW 90.82.
- *Instream Flow Assessment.* To establish new minimum ISF regulations or amend existing regulations.
- *Water Quality Assessment.* To conduct water quality assessment in fulfillment of RCW 90.82.090 and support the development of the Plan.

State funding for each optional assessment is $100,000. WRIA 20 obtained funding for a multipurpose storage assessment, but did not apply for funding to conduct assessments of instream flow or water quality.

2.1.1.3 Phase III: Watershed Management Plan Development

Phase III consists of consensus-based meetings, review of the Phase II information collected, research of additional necessary data, and creation of goals, policies, programs, and planning statements by the Planning Unit. Phase III culminates in the completion of the WMP for the WRIA.

State funding for Phase III is $250,000.

2.1.1.4 Phase IV: Implementation

Plan implementation is an important component of the watershed planning process. An Implementation Body (IB) is required to develop a detailed implementation plan within one year of the Plan's adoption. Effective implementation, including coordination and oversight, is critical to the success of the watershed planning process. The 2003 legislative update of the WPA provided funding and direction for the implementation phase. The updated RCW 90.82.043 states,

> *(1) Within one year of accepting funding under RCW 90.82.040(2)(e), the Planning Unit must complete a detailed implementation plan. Submittal of a detailed implementation...(2) Each implementation plan must contain strategies to provide sufficient water for: (a) Production agriculture; (b) commercial, industrial, and residential use; and, (c) instream flows. State funding for Implementation is $400,000 distributed over five years, and requires 10% matching funds, which may include in-kind goods and services.*

The amendment provides $100,000 per year for three years to fund Phase IV activities. At the end of the three-year period, a two-year extension may be available of up to $50,000 each year. A ten percent match is required to apply for implementation funding. Matching can take the form of financial contributions or in-kind goods and services directly related to coordination and oversight functions. The match can be provided by the Planning Unit or combined commitments from federal agencies.

2.1.2 Elements of a Watershed Plan

The WPA identifies four planning elements. The water quantity element is required of all Phase III Watershed Plans written under RCW 90.82. The other three elements (water quality, fish habitat, and instream flow) are optional. The WRIA 20 Planning Unit chose to address all of the four elements Additional funding is available for Planning Units who choose to address optional elements. The WRIA 20 Planning Unit obtained supplemental funding for storage assessment.

- The required *water quantity* element of the Plan addresses water quantity by assessing water supply and use in the watershed, and developing strategies for future use (RCW 90.82.070). Watershed plans must address quantity with long-term strategies that would supply adequate instream water for fish and out-of-stream water for future uses and/or development. The law specifies that certain types of information must be gathered and that certain strategies must be addressed.
- The *water quality* element addresses water quality in the watershed by examining or gathering metadata on available water quality studies, and examining the status of water

quality regulation within the WRIA (*e.g.*, Total Maximum Daily Load "TMDLs" and water quality standards under the federal Clean Water Act; CWA). This component then develops both WRIA-wide and local approaches for monitoring and TMDL implementation, where applicable.

WRIA 20: Because TMDLs have not been developed in WRIA 20, the water quality element addresses other water quality concerns in the WRIA. The Planning Unit contracted for the services of Abigail Hook, a graduate student at the University of Washington, to summarize water quality information. Section 2.8 provides reference locations.

- The *fish habitat* element directs the Plan to be developed in a way that will protect or enhance fish habitat. This component "must rely on existing laws, rules, or ordinances created for the purpose of protecting, restoring, or enhancing fish habitat, including the Shoreline Management Act (90.58 RCW), the Growth Management Act (36.70A RCW), the Forest Practices Act (76.09 RCW), and the fish habitat component of the WPA (RCW 90.82.100).

  WRIA 20: The WRIA 20 Planning Unit addressed the fish habitat element by authorizing a summary of existing fish habitat assessments and protection or enhancement initiatives, including but not limited to, watershed analyses and the WRIA 20 Limiting Factors Report (Smith, 2000). The summary, written by Abigail Hook, may be viewed where indicated in Section 2.8. The Planning Unit recommendations are consistent with determinations made in the abovementioned laws and protocols.

- *Instream Flows* are defined as scientifically-based surface water flows set by administrative rules to ensure adequate water for fish and other instream values. The ISF component of a plan should be designed to set minimum ISFs for streams within the watershed. If ISFs are not established during the RCW 90.82 watershed planning process, Ecology will establish them at a later date through a formal public process. Instream flows must be established in each WRIA.

  WRIA 20: While the Planning Unit did not make recommendations for ISF rules within WRIA 20, the siting of gages and protocols for rule development have been discussed and are included in this Plan.

2.2 Plan History and Schedule

A Level 1 WRIA 20 Technical Assessment of water quality and stream habitat was completed by Abigail Hook in 2004. A Phase II Technical Assessment, which incorporated Hook's work and added new sections on groundwater and surface water quantities, water rights and use, and ISFs, was completed by Golder Associates Inc. (Golder) in 2004. Federal managers instructed the BOR to stop work on our WRIA, periodically, and work on the Klamath River controversy (water for farmers and ESA-listed fish). Clallam County received all of the completed BOR material in October, 2005. The Planning Unit has deferred incorporating the partial BOR information to later stages of watershed planning.

Due to the lack of long-term (>30-50 years) stream discharge data at many major river locations in WRIA 20 (e.g., Sol Duc[1] River, Ozette River, Big River), the Planning Unit has deferred the analysis and establishment of instream flow recommendations for many of its ungaged stream sections.

[1] Federal usage applies the term "Soleduck" in reference to geographic features related to the Sol Duc River. The term "Soleduck" is used for historical stream gages established by the USGS, and in the recent BOR report

Water balance work started with the Sol Duc River because there was concern that: (1) its waters may have already been over-allocated by Ecology's granting of water rights; (2) its waters might become a future target for the growing east side of Clallam County; and, (3) a wealth of gage data exists for that river (although some of the data is from gages that have stopped operating). The Planning Unit acknowledges that some of the stream gage data for streams in the WRIA may come from different Pacific Decadal Oscillation periods (long-term Pacific climate variability cycle of 20-30 years). To help correct this situation, a new Ecology flow gage was put in the Sol Duc River not far from its mouth in June of 2005, and a stream gage network was installed by the Makah Indian Tribe in the Lake Ozette watershed in 2003. For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods. It's a very high priority of the Planning Unit to use gage data with a period of record of at least three years (but preferably five) whenever possible prior to setting of ISFs. The state has expressed its commitment to use all accessible, credible data in setting ISFs, including flow data, discharge measurements, glacier studies, or other studies[2]. As a note, at least two local stakeholders indicated their commitment to challenge any rule that fails to utilize such credible data.

The Phase III planning process was initiated with two facilitated one-day workshops in November and December 2004, where the Planning Unit developed ideas for Plan actions. These actions were then developed over a period of six months. A preliminary initial draft was issued in May 2005. A first internal draft of the Watershed Management Plan was issued in June 2005, and included Chapters 1, 2, and 3 of the Plan. The Planning Unit commented on this draft, and comments were reviewed by the Planning Unit at two, day-long workshops in August 2005. The second internal draft of the Plan was submitted for review in October 2005 and incorporated the Planning Unit's comments. A third internal draft was prepared and submitted to the Planning Unit for review in December 2005. Comments were discussed during a Planning Unit meeting in December 2005. A fourth internal draft, which incorporates the comments made during that meeting, was issued in February 2006. A fifth internal draft was issued in May 2006 and presented to the elected officials of WRIA 20 for review. A sixth draft of the Plan was released for public review in June 2006, and presentations to the public were made in July 2006. A seventh draft was produced in August 2008 and approved by the Planning Unit that same month. The plan was submitted to the Clallam and Jefferson County Boards of Commissioners for separate hearings; and will be the subject at a joint legislative session of Clallam and Jefferson County commissioners to adopt and forward to Ecology, at a date to be determined.

2.3 Decision Making and Plan Adoption

The rules governing the watershed planning process in WRIA 20 are determined by RCW 90.82 and the following documents:

- WRIA 19/20 Initiating Governments Scope Elements Operating Definitions (2000; Scope);
- Ground Rules for WRIAs 19/20 Watershed Planning (Ground Rules); and,
- Final (5/11/00) Intergovernmental Agreement Regarding Local Watershed Planning for the Sol Duc-Hoh Basins (WRIA 20; Watershed Planning MOA).

(2005). State and local applications use the term "Sol Duc." Because this Plan follows a state statute for process, subsequent references use the state nomenclature.

[2] Reference Appendix C: Quileute Tribal Council to Dept. of Ecology, letter of March 10, 2008 and Dept. of Ecology to Quileute Tribal Council, letter of March 28, 2008.

WRIA 20 Stakeholder Group (SG) members actively participate in the watershed planning process and make recommendations to the Initiating Governments (IGs) by majority vote. Decisions during Planning Unit meetings are made initially by consensus of the IGs, with each IG having one vote. Because IGs have veto power, if one objects, there is no need to submit the vote to the larger group. If there is no veto, the final approval of the Plan requires consensus of the IGs and Ecology as a representative of the state, as well as a majority vote of the SGs that are present.

Under the WPA, once key management actions are defined and the Planning Unit approves the plan, it must be submitted to each county with territory in the management area. The county legislative authority for each county is then required to:

- Provide public notice of, and conduct at least one public hearing on, the Plan; and,
- Hold a joint legislative session to either adopt the Plan or return it to the Planning Unit with suggested revisions.

The WRIA 20 Watershed Management Plan will need the approval of the Clallam and Jefferson county commissioners for adoption.

2.4 Obligations and Expectations

"Obligation" is defined as any action required as a result of Plan adoption that imposes upon a government any of the following: a fiscal impact; a redeployment of resources, or a change of existing policy.

After the Plan is adopted by the county commissioners, those participants who opt for continuing participation must work to implement actions prescribed by the Plan. Participants will likely sign an agreement formalizing specific responsibilities. This presumes the formation of an Implementation Body, which is discussed in Section 3.6. However, if Washington State and Clallam and Jefferson Counties adopt a plan, they are required to adopt Plan obligations by rule or ordinance. The following sections from the 2003 update of RCW 90.82 provide details and directives to agencies and organizations about Plan obligations and expectations:

> *All agencies and organizations voluntarily accepting a Plan obligation will need to adopt policies, procedures, agreements, and rules of ordinances to implement the Plan. These organizations should annually review implementation needs with respect to budget and staffing.*
>
> *After a Plan is adopted...the department* {Ecology} *shall use the Plan as a framework for making future water resource decisions for the planned watershed. Additionally, the department shall rely upon the Plan as a primary consideration in determining the public interest related to such decisions.*

Ecology is obligated to adopt comprehensive watershed rules that are consistent with WMP strategies. Ecology will also be required to track its work obligations under the local WMPs and *give priority to making water rights decisions in watersheds that have developed sufficient information to make decisions.*

The following is a summary of the possible obligations for governmental agencies under the Watershed Planning Act (RCW 90.82):

- No Plan element can be passed that creates an obligation(s) for a governmental entity without that governmental entity's representation on the Planning Unit.
- State agencies must adopt by rule the obligations of both state and county governments.
- State agencies are to take other actions to fulfill their obligations as soon as possible after Plan adoption. The Act does not specify what these actions might or should be. It is assumed that a letter(s) of commitment and/or a memorandum of agreement(s) are examples of what constitutes "other actions".
- Counties are to adopt any ordinances necessary for implementation and take other actions to fulfill their obligations as soon as possible after Plan adoption. The Act does not specify what "other actions" might or should be, relative to Plan implementation. It is assumed that a letter(s) of commitment and/or a memorandum of agreement(s) are examples of what constitutes "other actions".
- For many obligatory actions, the state or county can only be held responsible for initiation of the action (*e.g.*, if a public hearing process is necessary to adopt certain rules or program changes, the agency cannot determine the outcome of the public hearing process). Implementation of many actions may be dependent upon funding and adequate staffing.

Tribes and Cities – There is no language in the WPA specific to tribes or cities and how they are to fulfill their obligations. However, tribes cannot enact laws or regulations that govern off-reservation resources (other than tribal trust lands). Tribes have a consultation role as discussed in other parts of this Plan.

In general, a watershed management plan is the preferred tool for future watershed management in each WRIA. Ecology and the Planning Unit expect to use recommendations in this Plan to aid in decisions about water rights permitting within WRIA 20. This Plan is based upon voluntary actions by the state, tribal, and local governments and upon the enforcement of existing regulations. No new regulations or obligations are contained within this Plan.

The Watershed Planning MOA (2000) states that watershed planning for any watershed lying wholly or primarily within the Makah, Quileute, and Hoh Indian Reservations, shall occur outside of the framework of RCW 90.82, and shall not establish any jurisdiction of the State of Washington over on-reservation water resources.

2.5 Plan Implementation Process

The process of Plan implementation, other than obligatory functions by the state and counties, will need to be continued by another entity which the Planning Unit has termed "the Implementation Body" (IB). The IB structure through which this will occur is discussed in more detail in the Management Strategies section of this Plan (Section 3.6). Additional details about Plan implementation can be found in Section 4.6.

Watershed Planning is a locally-based process where those who are most directly involved with the watershed are given a vehicle through which to support policies to benefit the watershed. Per RCW 90.82.120, Plan Parameters, the watershed plan shall not contain provisions that:

- Conflict with existing state statutes, federal laws, federal regulations, or tribal treaty rights;
- Create forest practices obligations or restrictions additional to or inconsistent with the Forest Practices Act;

- Impair existing water rights (a number of types which are described in the statute);
- Modify existing fish habitat restoration/enhancement programs (including fish habitat conservation plans, incidental take permits, recovery plans, and others); or,
- Change local ordinances, state rules, or permits, but a plan may recommend changes that do not conflict with the foregoing.

The limitations of the WPA with respect to tribal, federal and other state jurisdiction are expanded upon in the following sections.

2.5.1 Tribal Treaty Rights

While jurisdiction over off-reservation water quality, quantity, and flow lies with Ecology, several provisions of treaties and federal court cases give federal and tribal agencies a role in water quantity and quality management in WRIA 20 and elsewhere in the State of Washington. When certain native tribes of what is now Washington State ceded lands by treaty to the federal government in the 1800s, they reserved off-reservation rights to fish, hunt, and gather in their ceded lands. The federal courts have subsequently held that the treaty tribes in effect reserved the right to surface and groundwater sufficient to fulfill both cultural needs and the purposes of their reservations as permanent, economically sustainable homelands. These rights include assurance that upstream waters will not be diverted to the extent that such downstream uses are impaired.

In Washington, because of the ceded lands and U&As, treaty tribes have a stake in off-reservation fish and the fish habitat. The water rights are not yet quantified, and are given a priority date of "time immemorial" (*e.g.*, *U.S. v. Adair,* 723 F. 2d 1394 (9th Cir.) and *Winters v. U.S.* 564, 288 S. Ct. 207 (1908)). Pursuant to these leading cases and other court decisions, the tribal water rights are the most senior water rights within WRIA 20 and cannot be abrogated, diminished, or regulated, neither by state action nor by this Plan.

In WRIA 20, the treaty tribes are the Hoh, Quileute, and Makah. Over the past 30 years, federal courts have established and defined the U&As and the co-management role of the Washington treaty tribes with respect to treaty fisheries. Treaty tribes have a right to harvest 50% of the fishery. Most of these fishery decisions are found within *United States v. Washington,* 384 F. Supp 312 (W.D. Wash. 1974), and its ongoing sub-proceedings (case kept open for further refinement of treaties). Therefore, when the state engages in rule-making that impacts the fisheries, including but not limited to ISF rules, it is essential that tribes and all applicable fisheries co-managers be involved in initial planning and timely noticed when the process is formally underway.

2.5.2 Federal Jurisdiction

When the federal government turned over governance of the territory that was to become Washington State, the federal government also reserved sufficient water quantity and quality to fulfill purposes of lands kept in federal ownership, and to meet its treaty obligations with the tribes. Federal control of its portion of water resources is tied to specific federal land reservations and their respective obligations. In the case of WRIA 20, these include the Olympic National Park (ONP) and the Olympic National Forest (ONF), tribal reservations, and historical military activities. For tribes, the priority date of the federal water rights for prior appropriation purposes is the date the reservation was created. Federal water rights are not subject to the requirements of state law. Their use, source, and purpose may change without notification to the state.

As of writing of this plan, no court has addressed the issue of land use jurisdiction associated with fee simple land owners within the boundaries of Olympic National Park. The Planning Unit's understanding of this issue is summarized as follows. One argument is that land use issues associated with building permits, public health, zoning, and environmental issues could fall under the purview of counties. A counter argument is that in the 1940s, when most jurisdictional issues were ceded to the federal government, Clallam County's jurisdiction on these issues was removed. The fee simple owners argue that the state and county retain jurisdiction to serve criminal and civil warrants and collect partial property taxes. Title 36 CFR 7.28 (e) provides that while the federal government retains jurisdiction, it requires that habitations meet the standards of state and county governments for water supply and sewage disposal systems. The superintendent issues permits for such systems only after receiving written notification from the appropriate federal, state or county officer, that the plans for such system meet the above-referenced standards. Inspection is by the state, county or superintendent and enforcement is by the superintendent. If federal jurisdiction was granted under these laws in the 1940s the federal government's implementation of their jurisdiction has been limited or lacking. By voting to approve this plan, no party is bound to these arguments in future proceedings and these arguments are provided as educational and/or illustrative examples.

2.5.2.1 Olympic National Park.

The ONP boundaries are discontinuous. Within WRIA 20, the ONP includes a coastal strip running the length of the WRIA except for what lies within tribal reservations, as well as high-elevation lands and waters on the western slopes of the Olympic Mountains (Figure 1-1). While the ONP water is generally considered to be free of human impact, areas near ranger stations, frequently used trails, and access roads where some limited harvest took place before the ONP was designated, provide local exceptions to this generality. Further, privately and federally managed land lie between the upper and lower ONP ownership boundaries; and activities in this intermediate area may affect the coastal ONP waters.

2.5.2.2 Northwest Forest Plan

The ONF lies between state and private lands of lower elevation and the high-elevation lands of the ONP and comprises a significant portion of WRIA 20. The 1994 Northwest Forest Plan directs land management within the ONF. Typically, harvest under the Northwest Forest Plan is conducted on lands designated as "matrix," defined as that land remaining after all other national forest lands are allocated to conservation purposes. While no lands within the ONF have been designated as matrix lands, limited timber harvest may occur in portions of the timber management areas designated as Adaptive Management Areas (AMAs). Timber harvest has been significantly reduced in the ONF since the adoption of the Northwest Forest Plan. Any harvest conducted in the AMAs is implemented using an adaptive management approach of developing and testing of harvest methods that meet ecological, economic, and social objectives.

Before the Northwest Forest Plan, the average annual timber harvest in the ONF was between 180 and 220 million board feet. About 60-80 million board feet of that amount were harvested inside WRIA 20. Because no lands in the ONF are designated as matrix, harvest within the ONF has dropped by over 90%. The annual timber harvest rates, by land ownership, in the whole of Clallam and Jefferson Counties is illustrated in Figures 1-2 and 1-3 and is discussed in Section 6.3.2 of the WRIA 20 Phase II Technical Assessment (Golder, 2005a).

The ONF uses water quality standards developed by the State of Washington.

2.5.3 State Jurisdiction – Forest Practices Act and Watershed Planning

In 1974, the Washington Legislature passed the Forest Practices Act (FPA) following extensive negotiation among representatives from the timber industry, environmental groups, state agencies, and counties. The FPA recognized the relationship between forest practices and the management of natural resources. The FPA was designed to protect soil, water, fish, wildlife, and amenity resources in addition to timber supply by regulating timber harvest, road construction and maintenance, reforestation, and the use of forest chemicals. The rules that were set forth by the FPA, called the Forest Practice Rules (FPR), were revised in 1982, 1987 (in response to the 1986 Timber/Fish/Wildlife Agreement that brought tribes into the process), 1992, 1996, and most notably in 2001 in response to a 1999 report called the *Forests and Fish Report (FFR).* The resulting rule modifications from this report are often referred to as the Forest and Fish Rules, and are implemented by DNR. These rules apply to forest practices, including timber harvest, that are conducted on non-federal lands in Washington State. Forestry conducted on federal lands in WRIA 20 is governed by the Northwest Forest Plan.

One of the key provisions in the FFR, from which forest practice rule changes in 2001 derive, is the goal that the state's best management practices (BMPs) for forestry meet requirements for water quality as stipulated under the Clean Water Act (CWA) and the Endangered Species Act (ESA). The Environmental Protection Agency (EPA) and Ecology agreed that the FFR would be crafted to protect surface waters from impairment by forest practices. Ecology and EPA have articulated their belief that implementation of the Forest Practice Rules under FFR should:

- Significantly advance forest practices in Washington State;
- Improve water quality in the short term; and,
- Allow water quality standards to be met in the long term.

For this reason, developing Total Maximum Daily Loads (TMDL) for water bodies on non-federal forest land in WRIA 20 that have impacted water quality has been deferred until 2009, to allow evaluation of the effectiveness of the current Forest Practice Rules.

The WRIA 20 Planning Unit acknowledges that the implementation of the Forest Practice Rules, under federally approved Habitat Conservation Plans (HCPs), have as their goal the improvement of water quality and fish habitat while allowing for the continuation of a viable timber industry. Further, the Planning Unit acknowledges that its Plan cannot create obligations or restrictions additional to, or inconsistent with, state forest laws and regulations.

2.6 Public Outreach and Plan Adoption

Once key water resource management actions are defined by the WRIA 20 Planning Unit in a proposed plan, the plan must be submitted to Clallam and Jefferson Counties. The WRIA 20 Planning Unit feels strongly that public involvement and education about the watershed planning process are critical to both the acceptance and the ongoing success of the WRIA 20 Plan. The Planning Unit members will voluntarily be conducting outreach during the development, approval and adoption of this Plan. The county legislative authority for each county is required to:

- Provide public notice of, and conduct at least one public hearing on, the Plan; and,
- Hold a joint legislative session to either adopt the Plan or return it to the Planning Unit with suggested revisions.

Public outreach, education, and involvement are considered the most important components of the implementation of this Plan in Phase IV.

After the Plan is adopted by the Jefferson and Clallam county commissioners, Plan actions may be implemented in several ways. An IB may sign an agreement formalizing specific responsibilities. Formal adoption of the Plan, involving rules or ordinances, requires the consensual acceptance of Washington State, the Hoh, Makah, and Quileute Tribes, the City of Forks, and Clallam and Jefferson Counties. State, county, and tribal commitment to non-regulatory Plan actions may be in the form of cooperative agreements. Other participants in the planning process are not required to implement Plan actions but may voluntarily do so. The WRIA 20 Planning Unit prefers cooperative measures over regulatory measures or other obligations on state and local governments where they may be effective at achieving the desired resource conditions.

2.7 Plan Structure

The WRIA 20 Planning Unit has opted to keep the Plan succinct. Although a variety of issues were discussed throughout the planning process, only selected issues and management strategies were developed as part of the Phase III process and are discussed within this document. Watershed related issues identified during the planning process but deferred for later development are contained in Appendix A.

2.8 Plan and Supporting Documents Availability

The Plan, MOA, and information used to support the Plan are available for review through the sources listed in this section (see also the CD accompanying this report).

The following documents contain technical information compiled and assessed in Phase II of the WRIA 20 Watershed planning process:

- WRIA 20 Technical Assessment Level 1 – Water Quality and Habitat (Hook, 2004);
- WRIA 20 Phase 2 Technical Assessment (Golder, 2005a);
- Hydrologic Analysis and Assessment for WRIA 20 (BOR, 2005)
- Supplemental Storage Assessment (Golder, 2005b)

These documents characterize WRIA 20 in terms of water quantity, water quality and fish habitat information available at the time the work was completed. These documents contain detailed descriptions of the following:

- Groundwater Resources and Geology: Groundwater resources, groundwater-surface water interaction, and groundwater availability.
- Allocated Water Rights: Washington water right rules, and an assessment of water allocation.
- Water Use: Current and estimated future water use in the WRIA.
- Water Balance: Annual and monthly water balance.
- Land Management: Land cover, effects of land use on water resources, and land management in the WRIA.
- Fish Distribution, Fish habitat, and Fish Policy: Fish distribution and factors limiting distribution in each subbasin, and plans and policies affecting fish in the WRIA.
- Water Quality: A discussion of regulatory water quality designations of surface water bodies under the CWA including those listed under 303(d) in 1998, and designations currently being considered.

- Storage: A geomorphological assessment of the Big River drainage[3], municipal water supply for the City of Forks, and water supply to sustain fish runs in the Hoh River.

Because relevant information continues to be collected in the WRIA, this Plan acknowledges that new information may exist that is not reflected in these documents and encourages interested parties to communicate with the IGs, federal and state land and resource managers, and/or any IB for up-to-date information and the current status of programs and processes.

The Plan and technical documents will be available at the following locations.

[3] See, however, the concerns raised in Appendix C, pgs. 19-20. It was identified that potential flaws could exist within this portion of the Geomorphological Assessment of the Big River Drainage, yet funding was not allocated to resolve those concerns found in Appendix C. Future reliance upon and use of this Big River water storage document by any implementing body should occur only after a reassessment of this document.

Table 2-1 Availability of the WRIA 20 Watershed Plan

Hardcopies for Viewing
Clallam County Dept. of Community Development * 223 East 4th Street Port Angeles, WA 98362 development@co.clallam.wa.us
Jefferson County Environmental Health Water Quality Division * 615 Sheridan Street Port Townsend, WA 98368 tpokorny@co.jefferson.wa.us 360/379-4498
Christine Hempleman Washington Department of Ecology Southwest Regional Office 300 Desmond Drive, Lacey, WA 98503 chem461@ecy.wa.gov
Olympic Natural Resources Center University of Washington P.O. Box 1628 1455 South Forks Avenue Forks, WA 98331
Forks Branch - North Olympic Library System 171 Forks Avenue South P.O. Box 1817 Forks, WA 98331
Clallam Bay Branch - North Olympic Library System Highway 112 P.O. Box 106 Clallam Bay, WA 98326
Port Angeles Branch Library 2210 South Peabody Street Port Angeles, WA 98362
Makah Fisheries Management 150 Resort Drive Neah Bay, WA 98357

* Primary location.

These reports are available for review in hardcopy at the above locations, or CDs of the reports may be requested from, Clallam County and the Washington Department of Ecology. Compact discs of

the Plan may be requested from Clallam County Department of Community Development (360) 417-2321 (development@co.clallam.wa.us). Electronic versions may be viewed at Ecology's website (http://www.ecy.wa.gov/apps/watersheds/planning/20.html).

3.0 ACTIONS AND MANAGEMENT STRATEGIES

This chapter provides a concise listing of actions and management strategies that constitute the substance of the Plan. These actions have been organized by the statutory components of the WPA (RCW 90.82) and address: Water Quantity, Instream Flows, Water Quality, and Fish Habitat. Actions were also created through this Plan to address specific needs of local areas or fish habitats (Special Projects) and management techniques (Management Actions). Additionally, Public Outreach and Education actions will be developed later to aid in Plan implementation and overall watershed stewardship.

As more information is learned about the watershed and its specific management needs, it is intended that the Implementation Body (IB) will add to, and revise, this chapter with up-to-date actions pertinent to current issues and events. Plan revisions will be completed according to a schedule created by an IB, if one is created, and revisions will be agreed upon by an IB as will be detailed in their Memorandum of Agreement or other operating procedures.

The original motivation and goal expressed by the Planning Unit in the development of these actions are provided at the beginning of each section in this chapter. Background information supporting the development of these actions is provided in Chapter 4. The reader is encouraged to review the relevant background section in conjunction with the recommended actions to understand the intent of the recommended actions. Issues that were identified but deferred for later development have been compiled in Appendix A.

The actions listed below do not impose an obligation on any entity. Implementation of these actions is entirely voluntary and subject to available resources, including funding. The primary avenues of implementation are through encouragement, enabling and education.

Each action has been given a prefix that designates the action category and an action number. These numbers do not indicate any prioritization or ranking of actions, and are for tracking purposes only. The actions are grouped according to the four components of watershed planning: water quantity, instream flow, water quality, and fish habitat. The relevant sections of the WPA are provided at the beginning of each section.

Action categories are:

Water Quantity Actions:

- QTD – Water Quantity Data
- QTR – Water Rights Processing
- QTS – Storage Actions

Instream Flow Actions:

- ISF – Instream Flow Rule Making

Water Quality Actions:

- QLM – Water Quality Monitoring
- QLP – Water Quality Programs
- QLE – Water Quality Education
- QLD – Water Quality Data

Fish Habitat Actions

- HBR – Riparian and Normal Channel Migration and Floodplain Function Restoration
- HBO – Critical Areas Ordinances
- HBI – Invasive Weeds
- HBC – Land Use Conversions
- HBS – Sediment Control

Special Projects: SP

- SP – Special Projects

Management Actions: MGT

- MGT – Management Actions

Actions contained in this chapter are listed in the following table:

Table 3-1 Recommended Actions

ACTION CODE	ACTION
Water Quantity	
Streamflow Data Collection Actions	
QTD-1	Recommended stream flow gaging locations.
QTD-2	Track stream gage funding opportunities or promote additions by Ecology.
QTD-3	Refine stream gage candidate list.
QTD-4	Compile spot measurements of stream flows and/or stage in a central location.
Water Rights Processing Actions	
QTR-1	Timely processing of water right applications.
QTR-2	Pre-submittal consultation with water right applicants.
QTR-3	Public notice of water right applications.
QTR-4	Ecology will process applications insofar as funds, staff, *etc.* provide.
Tribal Consultation for Water Resource Management Decisions Actions	
QTR-5	Ecology to consult with tribes on substantive water resource plans and actions.
QTR-6	Tribal inclusion in applicant pre-submittal scoping.
Citizen Consultation for Water Resource Management Decisions Actions	
QTR-7	Ecology to maintain a website of water right actions, and newspaper notice.
QTR-8	Implementation Body to monitor state actions on behalf of stakeholders.
QTR-9	Ecology to consider maintaining a WRIA 20 e-mail list serve.
Water Rights Database Clean Up Actions	
QTR-10	Identify possible duplicate and unused water right records.
QTR-11	Confirm status of possible duplicate and unused water rights.
QTR-12	Facilitate voluntary relinquishment.
QTR-13	Oppose condemnation of valid water rights.

Table 3-1 Recommended Actions (Continued)

ACTION CODE	ACTION
Storage Actions	
QTS-1	Replace and diversify aging municipal infrastructure; propose water rights as needed.
QTS-2	Conduct a geophysical survey of the Lake Pleasant/Sappho area.
QTS-3	Identify ecologically sustainable drinking water sources for the Lake Ozette area.
QTS-4	Evaluate where in-channel LWD would improve subbasin storage potential.
Instream Flow	
Instream Flow Rulemaking	
ISF-1	WDOE early inclusion of affected parties, explain data and methods to be used
ISF-2	Support of numeric instream flow rule pending adequate data.
ISF-3	Policy components for instream flow rule where Planning Unit approved such.
ISF-4	Prioritization of streams for rule-making.
Water Quality	
Water Quality Data Management Actions	
QLM-1	Participate in a water quality database program.
QLM-2	Commission ONRC to update metadata.
QLM-3	Develop a GIS database of water quality and monitoring locations.
QLM-4	Develop a water quality database to track parameters.
QLM-5	Review/analyze data, fill gaps, and eliminate overlap.
Water Quality Program Actions	
QLP-1	Establish water quality monitoring stations consistent with ratified HCPs within WRIA 20.
QLP-2	Request staff and funds assistance to monitor from local governments.
QLP-3	Support Streamkeepers of Clallam County monitoring and similar.
QLP-4	Participate in Ecology's WQMA program.
Water Quality Data Collection	
QLD-1	Support monitoring activities.
QLD-2	Consider wild fecal coliform sources; care for home sewage systems.
QLD-3	Conduct fecal coliform studies in proposed locations.
QLD-4	Consider recommendations from campground stream study in Sol Duc.
QLD-5	Conduct database queries for available fecal coliform data.
Water Quality Education	
QLE-1	Develop general education/outreach to public.
QLE-2	Direct education/outreach to land owners regarding water quality and fecal matter.
QLE-3	Offer general education on septic systems to the public via counties.
QLE-4	Target education for septic system owners.
QLE-5	Provide a hazardous waste education program regarding illegal dumping, toxics.

Table 3-1 Recommended Actions (Continued)

ACTION CODE	ACTION
	Fish Habitat
Riparian Restoration	
HBR-1	Identify reaches and funding for LWD introduction, off/in-channel work.
HBR-2	Use conservation easements and programs to protect and restore riparian and adjacent channel migration zones, where clearings exist for agriculture.
HBR-3	Find funding for riparian restoration where banks destabilized or buffers degraded.
HBR-4	Restore threatened sockeye and promote reintroduction of extirpated chum and chinook to the Ozette drainage.
HBR-5	Conduct assessments to determine the fish species present and consider role of genetically sensitive hatchery reintroduction efforts.
Critical Areas Ordinances (CAOs)	
HBO-1	Conduct public education on CAOs.
HBO-2	Encourage riparian zone stewardship, restoration and enhancement through education.
HBO-3	Enforce CAO compliance.
HBO-4	Encourage low-impact development (LID).
HBO-5	Validate stream locations and type.
Noxious Weeds	
HBI-1	Support current noxious weed programs.
HBI-2	Obtain state and federal noxious weed control funding.
HBI-3	Provide letters of support on behalf of grant applicants.
HBI-4	Conduct education outreach in schools and to landowners.
HBI-5	Assess WRIA rivers to determine where remaining knotweed eradication is needed.
HBI-6	Incorporate noxious weed control into maintenance/debris activities.
HBI-7	Incorporate noxious weed monitoring into restoration activities.
HBI-8	Facilitate/expedite administrative procedure for noxious weed control projects.
HBI-9	Promote coordination and data-sharing for noxious weed control projects among landowners, operators, and governments.
Maintain Forest Land in the Watershed	
HBC-1	Require full assessment of county zoning changes and/or exceptions.
HBC-2	Encourage zoning practices to preserve working forests.
HBC-3	Develop list of strategies and available programs to protect forest lands.
HBC-4	Encourage leadership in innovative forest projects (*e.g.*, biomass industries).
HBC-5	Allow financial, environmental, and mitigation credits.
HBC-6	Facilitate and expedite zoning and permitting of forest products facilities in a manner consistent with existing adopted plans and regulations.
HBC-7	Develop financial incentives.
Sediment Control Actions	
HBS-1	Conduct outreach program for land managers and contractors.
HBS-2	Prepare compilation of completed restoration and decommissioning projects.
HBS-3	Develop a catalogue of grants for landowners and facilitate applications.
HBS-4	Encourage research into causes, natural and anthropogenic, of sediment loads with goal of designing response actions to reduce sediment loads.

Table 3-1 Recommended Actions (Continued)

ACTION CODE	ACTION
	Special Projects
SP-1	Support completion of fish habitat projects recommended by other processes (*e.g.*, LFAs).
SP-2	Support the recovery of threatened sockeye and extirpated chum and Chinook in the Ozette drainage.
SP-3	Support a septage transfer station near the City of Forks.
SP-4	Support RV dump stations at RV parks throughout the WRIA.
SP-5	Find alternatives/recommendations to support salmonid reproduction; e.g., in Hoh, Ozette, Big, and Quillayute Rivers.
	Management Actions
MGT-1	Determine if to form Implementation Body; incorporation of Appendix A Issues.
MGT-2	Develop a Detailed Implementation Plan.
MGT-3	Plan revision process and schedule.
MGT-4	Prioritize actions for implementation.
MGT-5	Draft agreements for implementation.
MGT-6	Exchange water resources program information through regular forums.
MGT-7	Provide data oversight and management.
MGT-8	Identify alternate funding.
MGT-9	Obtain available Phase II funding in Phase IV through legislative action.

3.1 Water Quantity Actions and Management Strategies

The WPA (RCW 90.82) provides the following guidance for developing water quantity strategies:

> ***RCW 90.82.070 Water quantity component.*** *Watershed planning under this chapter shall address water quantity in the management area by undertaking an assessment of water supply and use in the management area and developing strategies for future use.*
>
> *(1) The assessment shall include:*
>
> *(a) An estimate of the surface and ground water present in the management area;*
>
> *(b) An estimate of the surface and ground water available in the management area, taking into account seasonal and other variations;*
>
> *(c) An estimate of the water in the management area represented by claims in the water rights claims registry, water use permits, certificated rights, existing minimum instream flow rules, federally reserved rights, and any other rights to water;*
>
> *(d) An estimate of the surface and ground water actually being used in the management area;*
>
> *(e) An estimate of the water needed in the future for use in the management area;*
>
> *(f) An identification of the location of areas where aquifers are known to recharge surface bodies of water and areas known to provide for the recharge of aquifers from the surface; and*
>
> *(g) An estimate of the surface and ground water available for further appropriation, taking into account the minimum instream flows adopted by rule or to be adopted by rule under this*

chapter for streams in the management area including the data necessary to evaluate necessary flows for fish.

(2) Strategies for increasing water supplies in the management area, which may include, but are not limited to, increasing water supplies through water conservation, water reuse, the use of reclaimed water, voluntary water transfers, aquifer recharge and recovery, additional water allocations, or additional water storage and water storage enhancements. The objective of these strategies is to supply water in sufficient quantities to satisfy the minimum instream flows for fish and to provide water for future out-of-stream uses for water identified in subsection (1)(e) and (g) of this section and to ensure that adequate water supplies are available for agriculture, energy production, and population and economic growth under the requirements of the state's growth management act, chapter 36.70A RCW. These strategies, in and of themselves, shall not be construed to confer new water rights. The watershed plan must address the strategies required under this subsection.

(3) The assessment may include the identification of potential site locations for water storage projects. The potential site locations may be for either large or small projects and cover the full range of possible alternatives. The possible alternatives include off-channel storage, underground storage, the enlargement or enhancement of existing storage, and on-channel storage.

3.1.1 Water Quantity Background

The Planning Unit engaged the services of the BOR to assess the surface waters of WRIA 20. The BOR did this over a period of three years, being delayed by federal orders to work on the Klamath River, a factor outside of the control of this Planning Unit. Because the BOR believed it would be able to complete the task and conveyed its reassurances to the Planning Unit, we continued to use them in lieu of engaging private contractors. The BOR completed assessments on the Sol Duc River (and a number of its tributaries), the Hoh River, the Calawah River, and portions of the Ozette rivers within the WRIA. In general, the BOR proceeded as follows to develop its reports (from their introductory material):

Preparation...was accomplished using easily accessed information, and reasonably simple methods and procedures. Time-sequenced views of regional climatic conditions, snow cover penetration, and condition of vegetation on the Olympic Peninsula, were examined using the historical archive of Landsat Thematic Mapper imagery available from the U. S. Geological Survey (earthexplorer.usgs.gov). Weather patterns were observed using animated images of atmospheric water vapor content as portrayed in processed satellite imagery of the eastern Pacific that were provided by the Naval Research Laboratory, Monterey, California (kauai.nrhmry.navy.mil).

Watershed assessments were developed on 7.5 minute, 1:24000 scale topographic sheets that are provided in Digital Raster Graphic (DRG) form by the U. S. Geological Survey. The map overlays included with this report were developed using interpretive techniques to delineate sub watershed areas, based on factors that defined watershed characteristics such as elevation, integration of the drainage network, and valley/stream course characteristics. Watershed areas were determined using a Geographic Information System (GIS).

Field data, in the form of precipitation histories and stream flow histories, were obtained from sources documented in this report. These data are available from the U.S. Geological Survey and the National Oceanographic and Atmospheric Administration. Some of the data used in this report was provided on compact disk published by Hydrosphere, Boulder, Colorado. Statistical techniques used to evaluate these data are well documented in the

literature. Results similar to those developed for this report can be achieved using the tools available in spreadsheet software, such as Excel. However, some of the numerical and statistical techniques used in this report are specialized.

Historical and current gaging results, and degree of forest cover, were included in the analyses. Draft reports submitted by the BOR have not been reviewed by the Planning Unit.

Groundwater was not assessed by the BOR. There is currently little data on WRIA 20 aquifers. Golder reviewed materials provided by Ecology on water rights in the WRIA. Golder has also reviewed well data submitted by Planning Unit members. Most of this came from City of Forks and the Quileute Tribe, which use groundwater for drinking water and have been granted state water permits to withdraw such water. Most water use under water rights within the WRIA is from groundwater. The Planning Unit discussed groundwater in the context of obtaining storage for future needs. Water storage potential sites were evaluated and are discussed in Section 3.1.3.

No estimate was made of surface and groundwater available for further appropriation. Under the water quantity component, the Planning Unit is to take into account ISF rules adopted by rule or to be adopted by rule, including data necessary to evaluate fish needs. There are stream gages in place in parts of the WRIA, and toe-width data has been collected. No ISFs rules have been adopted in WRIA 20.

3.1.2 Stream Flow Data Actions

Motivation: The Planning Unit has a concern that while stream flow data may exist for specific reaches at some points in time and can be correlated to such larger global events such as the Pacific Decadal Oscillation (which measures long-term Pacific climate variability of 20-30 years), this existing data (Figures 3-1 and 4-1) may not be as complete for all rivers in which an instream flow could be established. To address this concern and perception, the WRIA participants believe that additional work to validate stream location and type as well as stream gaging data are needed to:

- Develop baseline stream flow data.
- Confirm stream types in areas where growth is projected; and
- Determine whether water is available for withdrawal from streams.

It is the expectation of the Planning Unit that any regulatory body attempting to establish an instream flow in these reaches would be required to work with the individual entities expressing concern over existing data in a collaborative manner that attempts to alleviate those entities' concerns. As new information becomes available prior to rule writing, the Planning Unit recommends that such information be considered during collaborative discussions and the rule making process.

Goal: Establish additional stream flow gages within the WRIA with the goal of having a more complete data set with which to make more informed decisions about water use and water quality, and have a more complete historical data set in the future. In addition to establishing new stream flow gages, the Planning Unit strongly recommends that the four (permanent) active gages be maintained.

Actions:

- **QTD-1:** Recommended stream gaging sites have been identified (Tables 3-2 through 3-4; Figure 3-1). Although some of these streams are currently being gaged by tribal agencies, these installations are considered temporary.
-

Table 3-2: Top Priority Recommended Stream Gaging Sites

Drainage	Subbasin	Period of Record	Comments
Umbrella Creek	Ozette	December 2003 to present	Temporarily gaged by the Makah Indian Tribe. Purpose: to monitor watershed hydrology for instream flow assessment and salmonid recovery, and to understand the dynamic of flooding.
Big River	Ozette	November 2003 to present	Temporarily gaged by the Makah Indian Tribe. Purpose: to monitor watershed hydrology for instream flow assessment and salmonid recovery, and to understand the dynamic of flooding.
Bear Creek	Sol Duc	None.	Big fish producer (coho).
Lake Creek	Sol Duc	None.	Significant coho and sockeye runs on the Quillayute System. Area of applications for new water right applications.
Sol Duc River	Sol Duc	Historical data at Fairholm 1917-1980, at Beaver 1921-1928, at Quillayute Road Bridge 1897-1980. Current data has been collected near the Quillayute gage since June 2005.	Three stream gaging stations have been operated by the USGS. Ecology installed a gage near the historical site of the USGS gage 12042500 in June 2005 in response to a request from the WRIA 20 Planning Unit.
Elk Creek	Calawah	None.	Big fish producer (coho).

Table 3-3 Second Priority Recommended Stream Gaging Sites

Drainage	Subbasin	Period of Record	Comments
Ozette River	Ozette	March 2002 to present	Temporarily gaged by Makah Indian Tribe. Purpose: to monitor watershed hydrology for instream flow assessment and salmonid recovery, and to understand the dynamic of flooding.
Coal Creek	Ozette	February 2004 to present	Temporarily gaged by the Makah Indian Tribe. Purpose: to monitor watershed hydrology for instream flow assessment and salmonid recovery, and to understand the dynamic of flooding.
Crooked Creek	Ozette	December 2003 to present	Temporarily gaged by the Makah Indian Tribe. Purpose: to monitor watershed hydrology for instream flow assessment and salmonid recovery, and to understand the dynamic of flooding.
Category 2 & 3 streams	Ozette		
Sooes River	Sooes	1976-1986	A stream gaging station has been historically operated by the USGS.
SF Sol Duc River	Sol Duc		For water quality; major fork of the River, with significant coho, steelhead and cutthroat trout.
Goodman Creek	Sol Duc		
Sitcum River	Calawah		For water quality; major fork of the River, with significant coho, Chinook, steelhead, and trout.
NF Calawah River	Calawah		For water quality; major fork of the River, with significant coho, Chinook, steelhead, and cutthroat trout.
SF Calawah River	Calawah		For water quality, major fork of the River, with significant coho, Chinook, steelhead, and trout.
Albion Creek	Calawah		
Mill Creek	Bogachiel		Continue water quality monitoring by the community, or through devices like Hobos.
Owl Creek	Hoh		

Table 3-4 Third Priority Recommended Stream and Lake Stage Gaging Sites

Drainage	Subbasin	Period of Record	Comments
Lake Ozette stage at Tivoli Island	Ozette	October 2003 to 2006	Temporarily gaged by the Makah Indian Tribe; support monitoring lake level and oscillation (N-S and E-W, and to understand the dynamic of flooding.
Taft Creek	Hoh		Olympic National Park.
Other significant streams in Olympic National Park	Various		Olympic National Park.

- **QTD-2:** Track funding opportunities for additional stream flow gages in WRIA 20, with the goal of establishing permanent flow gage locations. Sources of this funding may include:
  - Ecology's Environmental Assessment Program (EAP);
  - USGS Coop Program;
  - HR 2309 Title II (subject to renewal of the funding program by congress);
  - Tribal Water Resources Programs; and,
  - Other programs as available.
- **QTD-3:** Periodically refine the list of candidate stream gaging sites based on:
  - The availability of specific funding sources;
  - The motivation of individual entities in a subbasin or basin watershed to promote or champion the establishment of specific stream flow gages; and,
  - Changing priorities for the establishment of stream gages depending on the ability to show benefit and relationship to needs of the subbasin community as a whole. The value of continuous long term streamflow records is high. In any change of stream gaging priorities, stream gaging at any point should not be discontinued without serious consideration of the loss of that value.
- **QTD-4:** Where continuous, automated stream gaging is not conducted, spot measurements of stream flows and/or stage are valuable. These may be collected in conjunction with water quality "grab sampling" and/or other efforts. These data should be compiled in a central location for reference (Section 3.3.2, QLM-1).

3.1.3 Water Rights Actions

3.1.3.1 Water Rights Processing Actions

Motivation: Water rights applications in WRIA 20 are backlogged and are not being processed in a timely manner by Ecology. The average age of water right applications in WRIA 20 is ten years (Figure 3-2).

Goal: Timely processing of water rights applications and a reduction in the backlog of unprocessed applications.

Actions:

- **QTR-1:** The Planning Unit recommends that Ecology diligently address backlogs of unprocessed water right applications, subject to provisions of RCW 90.03; in particular, setting out four approval criteria: (1) water will be put to beneficial use; (2) there will be no impairment to existing rights; (3) water is available; and, (4) water use will not be contrary to the public interest. "Public interest" is a complex term, used in context in RCW 90.54.020 and further in Ecology guidance documents.
- **QTR-2:** Ecology will encourage pre-submittal consultation between potential water right applicants and Ecology Water Resources Program staff to discuss data needs and other permit process information needs. (See also QTR-6; Tribal inclusion in applicant consultations.)
- **QTR-3:** When Ecology begins processing a water right application they will prepare a public notice and provide it to the applicant along with instructions for publication. It is the applicant's responsibility to publish the public notice in the local newspaper.
- **QTR-4:** Ecology permit processing will occur commensurate with funding, staffing, and legislative direction.

3.1.3.2 Tribal Consultation Actions

Motivation: Effective government-to-government consultation regarding natural resource management, including notification on water right applications, is a commonly desired goal between state and tribal entities. Current protocols have been less effective than desired.

Goal: Ensure timely, effective and efficient two-way consultation between state agencies and tribes in decision-making that affects WRIA 20 water resources.

Actions:

- **QTR-5:** Ecology must keep tribes informed and provide opportunities for government to government consultation consistent with mutually agreed procedures, accords and protocols, on proposed changes or additions to rules or guidance regarding water quality, water quantity, instream flows, shoreline management, and other areas of mutual interest.
- **QTR-6:** Ecology will invite tribal representatives of affected tribes (those for whom the action lies in their Usual and Accustomed fishing and hunting grounds [U&A]) to water right applicant scoping meetings and make efforts to facilitate scheduling of scoping meetings to accommodate tribal requests.

The tribes are to be consulted for the following areas (Figure 3-3):

Table 3-5 Tribes to be Notified by State Agencies on Water Resource Management

(based on U&A)

Tribal Contact	Subbasin
Makah Indian Tribe	Pacific 1, Sooes
Makah Indian Tribe and Quileute Indian Tribe	Ozette
Quileute Indian Tribe	Pacific 2 and Pacific 3, Quillayute Drainage (Including: Dickey, Sol Duc, Calawah, and Bogachiel subbasins.)
Quileute Indian Tribe and Hoh Indian Tribe	Pacific 4
Hoh Indian Tribe	Hoh, Pacific 5

Tribal Contacts:

Makah Indian Tribe
Russell Svec,
Makah Fisheries Manager
PO Box 115
Neah Bay, WA 98357.
360/645-3156

Quileute Indian Tribe
Mel Moon, Jr.,
Director, Quileute Natural Resources
PO Box 187
La Push, WA, 98350

Hoh Indian Tribe
Steve Allison
Natural Resource Director
2484 Lower Hoh Road
Forks, WA 98331
360/374-5404

3.1.3.3 Citizen Consultation with Water Rights Processing Actions

Motivation: Effective communication between citizens and government regarding water rights processing and notification of water resources management changes is needed in WRIA 20.

Goal: Ensure effective and efficient two-way consultation between citizens and government agencies in decision-making that affects WRIA 20 water resources.

Actions:

- **QTR-7:** Ecology will provide information on water rights applications and status of regulations being proposed on the Water Resources Program web page. Because the Internet is not seen by a number of people in this remote WRIA, and/or dial-up is still used, newspaper notice by the applicant for water rights applications remains an important requirement.
- **QTR-8:** Ecology will consider the development of other useful information on its website where entities and citizens can access current and planned water rights actions and the status of pending and processed water right applications. One duty of an Implementation Body will be to keep citizens informed of actions and developments, by: (1) monitoring the Ecology website(s) and e-mails through server lists; (2) maintaining a local list of concerned citizens for notice purposes; and, (3) keeping those citizens informed of actions and developments.

- **QTR-9:** Ecology will consider maintaining a water resources e-mail list serve for WRIA 20.

3.1.3.4 Water Rights Database Cleanup Actions

Motivation: The water rights database for WRIA 20 appears to contain incorrect, invalid, and redundant water right and claim records.

Goal: Provide an accurate source of water rights information for WRIA 20 that can be used in water rights processing, instream flow establishment, and other water resource decisions in the WRIA.

Actions: As resources permit, the Phase IV IB will:

- **QTR-10:** Use databases, GIS, and other tools to identify:
  - Water rights that are possibly not being used beneficially; and,
  - Duplicate records in Ecology's Water Rights Application Tracking System (WRATS) database (particularly claims).
- **QTR-11:** Contact registered owners of these water rights/claims and confirm the status of the water rights.
- **QTR-12:** Identify those records that the registered water right/claim owner is willing to voluntarily relinquish, and facilitate voluntary relinquishment through Ecology.
- **QTR-13:** Communicate that the WRIA 20 Planning Unit and this Plan oppose the condemnation of valid water rights for any reason.

3.1.4 Storage and Supply Actions

Motivation: The City of Forks has an excellent municipal water supply system. However, updates and maintenance of facilities are needed, consistent with their current Capital Improvements Plan, and water supply may also need supplementation. .

Goal: Maintain a safe and reliable municipal water supply to serve customers within their service area; and apply for water rights as needed.

Action:

- **QTS-1:** Support efforts by the City of Forks to increase the security and reliability of municipal water supply to provide adequate water to fight fires and to provide programmatic support for funds to replace and diversify existing and aging infrastructure, including:
  - Installing a new well to reduce the vulnerability and susceptibility of the municipal water supply to contamination;
  - Replacing and expanding aboveground storage facilities to improve water supply under conditions of interruption of normal groundwater supply;
  - Processing new water rights needed to meet the near-term anticipated demand; and,
  - The parties to this plan agree that providing notice of intentions to pursue expansion of water rights could be advantageous to resolve the potential of any dispute about

those new rights. Therefore, the Washington State Departments of Ecology and Health are to encourage applicants for water right expansions of existing systems like those of the City of Forks to provide notice of their intentions to seek expansion of existing rights to the participating governments, including tribal governments, in this plan.

Motivation: The distribution of productive groundwater zones in the Lake Pleasant/Sappho area is not well understood. As a result, installing productive groundwater wells may require multiple costly efforts.

Goal: Improve the probability of selecting well sites that will result in productive groundwater wells.

Action:

- **QTS-2:** Commission a geophysical survey of groundwater sources in the Lake Pleasant/Sappho area to improve the predictability and probability of siting productive groundwater wells.

Motivation: The hydrogeology of the Lake Ozette area does not readily support productive groundwater wells and residents need to find reliable drinking water supplies.

Goal: To provide a reliable and ecologically sustainable drinking water supply for residents in the Lake Ozette area.

Action:

QTS-3: Commission a study to identify alternative means of securing a reliable and ecologically sustainable drinking water supply that ensures the conservation of native fish in the Ozette watershed.

Motivation: Loss of large woody debris (LWD), from earlier state stream channel management practices and from other riparian activities, has exacerbated down cutting of stream channels, which drains and lowers ambient groundwater levels. This in turn has affected floodplain wetlands and possibly diminished low summer stream flows. The natural storage capacity of reaches within a subbasin can in some cases be improved by strategic placing of LWD and ensuing water retention.

Goal: To identify reaches that are good candidates for such projects.

Action:

- **QTS-4.** Commission a study to identify reaches that are good candidates for storage enhancement by strategic placement of LWD, including an evaluation of adverse impacts on real property that may be created by such a project.

3.2 Instream Flow Actions and Management Strategies

The WPA (RCW 90.82) provides the following guidance for addressing instream flows (ISFs):

> ***RCW 90.82.080 Instream flow component -- Rules -- Report.*** *(1) (a) If the initiating governments choose, by majority vote, to include an instream flow component, it shall be accomplished in the following manner...*
>
> *(ii) If minimum stream flows have not been adopted by rule for a stream within the management area, setting the minimum instream flows shall be a collaborative effort between the department and members of the Planning Unit. The department must attempt to achieve consensus and approval among the members of the Planning Unit regarding the minimum flows to be adopted by the department. Approval is achieved if all government members and tribes that have been invited and accepted on the Planning Unit present for a recorded vote unanimously vote to support the proposed minimum instream flows, and all nongovernmental members of the Planning Unit present for the recorded vote, by a majority, vote to support the proposed minimum instream flows.*
>
> *(b) The department shall undertake rule making to adopt flows under (a) of this subsection. The department may adopt the rules either by the regular rules adoption process provided in chapter 34.05 RCW, the expedited rules adoption process as set forth in RCW 34.05.353, or through a rules adoption process that uses public hearings and notice provided by the county legislative authority to the greatest extent possible. Such rules do not constitute significant legislative rules as defined in RCW 34.05.328, and do not require the preparation of small business economic impact statements.*
>
> *(c) If approval is not achieved within four years of the date the Planning Unit first receives funds from the department for conducting watershed assessments under RCW 90.82.040, the department may promptly initiate rule making under chapter 34.05 RCW to establish flows for those streams and shall have two additional years to establish the instream flows for those streams for which approval is not achieved.*
>
> *(2) (a) Notwithstanding RCW 90.03.345, minimum instream flows set under this section for rivers or streams that do not have existing minimum instream flow levels set by rule of the department shall have a priority date of two years after funding is first received from the department under RCW 90.82.040, unless determined otherwise by a unanimous vote of the members of the Planning Unit but in no instance may it be later than the effective date of the rule adopting such flow.*
>
> *(b) Any increase to an existing minimum instream flow set by rule of the department shall have a priority date of two years after funding is first received for planning in the WRIA or multi-WRIA area from the department under RCW 90.82.040 and the priority date of the portion of the minimum instream flow previously established by rule shall retain its priority date as established under RCW 90.03.345.*
>
> *(c) Any existing minimum instream flow set by rule of the department that is reduced shall retain its original date of priority as established by RCW 90.03.345 for the revised amount of the minimum instream flow level.*
>
> *(3) Before setting minimum instream flows under this section, the department shall engage in government-to-government consultation with affected tribes in the management area regarding the setting of such flows.*

(4) Nothing in this chapter either: (a) Affects the department's authority to establish flow requirements or other conditions under RCW 90.48.260 or the federal clean water act (33 U.S.C. Sec. 1251 et seq.) for the licensing or relicensing of a hydroelectric power project under the federal power act (16 U.S.C. Sec. 791 et seq.); or (b) affects or impairs existing instream flow requirements and other conditions in a current license for a hydroelectric power project licensed under the federal power act.

(5) If the Planning Unit is unable to obtain unanimity under subsection (1) of this section, the department may adopt rules setting such flows.

(6) The department shall report annually to the appropriate legislative standing committees on the progress of instream flows being set under this chapter, as well as progress toward setting instream flows in those watersheds not being planned under this chapter. The report shall be made by December 1, 2003, and by December 1st of each subsequent year.

***RCW 90.82.085 Instream flows** -- Assessing and setting or amending. By October 1, 2001, the Department of Ecology shall complete a final nonproject environmental impact statement that evaluates stream flows to meet the alternative goals of maintaining, preserving, or enhancing instream resources and the technically defensible methodologies for determining these stream flows. Planning Units and state agencies assessing and setting or amending instream flows must, as a minimum, consider the goals and methodologies addressed in the nonproject environmental impact statement. A Planning Unit or state agency may assess, set, or amend instream flows in a manner that varies from the final nonproject environmental impact statement if consistent with applicable instream flow laws.*

3.2.1 Status Quo

Although no ISF rule (WAC 173-520) has been set for WRIA 20, Surface Water Source Limitation (SWSL) letters do exist (Section 4.2). The WRIA lacks information on surface water quantity at this time for many rivers across the WRIA (e.g., Sol Duc River, Ozette River, Big River), The Planning Unit is particularly concerned that Ecology makes wise use of data in the Sol Duc River, an important river for the Quileute Tribe's fishery and for state recreational fishers. In addition to a significant coho, Chinook, steelhead, and cutthroat trout population, the river also contains the unique Lake Pleasant sockeye run (which uses Lake Creek to access Lake Pleasant). The Sol Duc River is vulnerable to allocation for east Clallam County water supply development. This subbasin is also vulnerable to the conversion of timber lands to recreational or residential lots.

Some of the historical gages installed in the WRIA 20 (e.g., Sol Duc River and Ozette River) are no longer operating, although data were accumulated at those sites for several decades. In 2004, at the request of the Planning Unit, Ecology and WDFW took a toe-width measurement of the Sol Duc River in the vicinity of the Maxfield Road bridge (approximately 197 mile marker of US Route 101). After the toe-width measurement was collected, Ecology installed the gage at Quillayute Road, approximately five miles from the mouth (June 2005). The Planning Unit places a high value on a minimum of three years and preferably five years of gage data (historical and current) for setting ISF rules on WRIA 20 rivers (e.g., Sol Duc River, Ozette River, Big River). For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods.

Ecology may draw upon existing and historical gage data to establish ISF rules(Figures 3-1 and 4-1). Gage data are available from the agencies that have installed the gages, and should be incorporated into any planning by Ecology or others, in making ISF rules. USGS gages are generally accessed on the Internet through:

http://waterdata.usgs.gov (Accessed 6/06).

Ecology's gages ("Flow Monitoring Network") can be located at:

https://fortress.wa.gov/ecy/wrx/wrx/flows/regions/state.asp (Accessed 6/06).

The Planning Unit is aware that neighboring WRIAs are experiencing water deficiencies. However, the water resources of WRIA 20 are not viewed by the Planning Unit as a means to solve water planning gaps for other WRIAs. Further, this Planning Unit is concerned that if water is taken from WRIA 20 to solve problems elsewhere, the integrity of the fishery and the ecosystem in WRIA 20 would be placed in jeopardy. Recommendations on the transfer of water between subbasins and basins provisos that follow derive from concerns expressed within this paragraph.

Groundwater is already being moved from one subbasin to another, indirectly, as the City of Forks' water plan includes removal of groundwater from one subbasin of the Quillayute system, to be discharged into septic and sewer systems that re-enter the system in another subbasin. This Plan discourages any commercial removal of water for consumption elsewhere (*e.g.*, bottling) whether of ground or surface origin.

Ecology developed a Guidance Document in September 2004, posted on the web, which illuminates how ISF rules are developed:

http://www.ecy.wa.gov/biblio/0411035.html (Accessed 6/06).

In reviewing proposed closures and/or reservations, below, it is important to recognize that Ecology will consider consumptive uses for even closed streams if: a) an exception is created under the minimum flow rule; b) if a mitigation plan is submitted by an applicant; or, c) if a water reservation is established based on a clear showing that proposed uses are eligible for statutory exemption for overriding consideration of public interest. In such analyses, the state asks (1) if withdrawal for a proposed amount occurs, would it conflict with the minimum IFS rule, and (2) would the loss of fish habitat significantly impact the long-term sustainability of the fish population?

The following is derived from the Department of Ecology's 2004 guidance web page on instream flow policy, regarding closures:

http://www.ecy.wa.gov/programs/wr/instream-flows/isfhm.html (Accessed 6/06).

> *A closure is a finding by Ecology that no water is available for future uses. New water-right applications for a consumptive use from a surface water or ground water source in hydraulic continuity with a closed surface water body or closed basin will ordinarily be denied based on the water availability test pursuant to RCW 90.03.290. Minimum flow rules may provide exceptions to the closure, or a clear showing of eligibility for the statutory exemption for overriding consideration of public interest (RCW 90.54.020) may allow for limited out-of stream withdrawals.*
>
> *In streams where Ecology determines that no water is available for any further appropriations, the stream or a basin can be closed by rule as an alternative to setting flows, or in conjunction with setting instream flows. Most closures are best considered when coupled with the setting of instream flow levels. In that case, an instream flow right is established and the closure indicates that no new water is available from the stream or in the basin.*
>
> *For small streams with less than 5cfs mean annual flow closure might be done without setting instream flows on the stream. For larger streams we recommend setting instream flows in*

conjunction with any full or seasonal closures. The instream flow setting provides additional protection to the stream since it creates a water right that is protected from impairment whereas a closure may not do so.

Only persons with standing to participate in rule-making may be parties to the proceedings, although the rule-making process is a public one that will receive comment from anyone. The entire Planning Unit arguably may not have standing to participate in each rule-making hearing. However, the policies stated below are the opinion of the entire Planning Unit. Because ISF rules have not been established yet in WRIA 20, the Planning Unit proposes the following actions.

3.2.2 ISF Actions

Motivation: Develop ISF rules to protect aquatic habitat and provide guidance in the allocation of future water rights. An ISF rule will be junior to any state water rights existing at the time that the ISF is established, and will therefore only affect state water rights allocated in the future (per WAC 173-500 and RCW 90.22).

Goal: To provide guidance to Ecology for the establishment of ISF rules in WRIA 20 based on specific needs of individual streams in the WRIA.

Each stream in WRIA 20 is unique. Therefore the methodology used to establish an ISF rule for each stream may vary. The details of the ISF rules to be developed are listed in the following actions. The Planning Unit recommends that Ecology use the best practicable scientific methods available in setting ISF rules. At least every five years, Ecology shall review data to determine if the existing ISF rule needs revision.

Ecology shall use stream-specific periodicity for salmonid runs, for each river for which ISF rules are prepared. If migration blocks or temperature are limiting factors, then these should be considered in setting ISFs. For WRIA 20 streams, toe-width or other accepted formulae may be used; but Ecology should consider any data already gathered by other monitoring entities, in addition to the toe-width.

General Instream Flow Policies

- **ISF-1:** Ecology will make all reasonable efforts to invite affected parties to discuss setting instream flows prior to initiating the process of instream flow rule-making. Persons with legal standing to do so may participate as parties in any future ISF rule setting process with Ecology. They may provide input regarding the location of flow control points, the technical analyses used to quantify ISFs, and the conditions included in the rule (*e.g.*, reservations, exemptions, *etc.*) if such data are available. To date, the only quantifications that have been are: (1) toe-width measurements on certain streams; (2) gage data for certain rivers (historical and current); and, (3) synthetic hydrographs developed by the BOR. The rule-making process is a public one that will receive comment from anyone.
- **ISF-2:** The Planning Unit may be supportive of a future numeric ISF rule in WRIA 20. For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods.
- **ISF-3:** The Planning Unit recommends that the following policy components be considered in the development of all ISF rules:

- Closures to the allocation of additional surface water rights during the summer low flow period unless they are non-consumptive. Ecology must have a defensible reason to justify a closure.
- Creative mitigation strategies to allow for the allocation and exercise of water rights during stream closures.
- Creative strategies for storing water during the wet season to provide additional water supply during the dry season stream closure periods (*e.g.*, off stream reservoir storage, wetland and floodplain storage, and others).
- Future reservations for specific uses. Depending on the sustainable needs of the human and aquatic communities associated with a specific stream, the following purposes of use may be considered for the reservation:
    - Domestic Use: Residential water use is applied to interior (*e.g.*, drinking) and exterior (*e.g.*, landscape irrigation) uses. The majority of interior use is returned to the hydrologic system by re-infiltration through septic systems, including municipal waste water by the City of Forks. This results in minimal impact to stream flows, depending on how far removed intakes are from discharge, lag times for the return of flows to streams, and the degree to which water quality is affected. Exterior uses such as landscape irrigation may result in a loss of water to evapotranspiration. Estimates of these losses based on water use patterns of the City of Forks are 10% of annual water use. Therefore the impact of reservations for future residential/domestic use on stream flows is expected to be minimal for interior use, and approximately 10% of total interior and exterior use. However, additional data are needed across the WRIA.
    - Municipal Use: Water delivered through purveyor water systems is subject to better management through conservation requirements and compliance with the Safe Drinking Water Act. If water is not otherwise available for residential and economic development, such water should be made available through a municipal purveyor, recognizing the effects in differences between diversion and discharge.
    - Industrial and Agricultural Use: Forestry and agriculture-related activities are recognized as important to the livelihood and economic development in WRIA 20. A reservation of future water supply for manufactured forest products is consistent with the maintenance of lands in forest use, and sustaining the local economy along with agricultural poroduction and marketing.
- The transfer of water outside of WRIA 20 is strongly discouraged; and,
- The transfer of any water between the watershed sub-areas other than the groundwater exchange occurring under the Forks Municipal Water Plan, (wholly within the Quillayute Basin.) is strongly discouraged (Figure 3-4, Table 3-6).

Table 3-6 WRIA 20 Watershed Sub-Areas
(Reference Figure 3-4)

Watershed Sub-Area (The transfer of water between Watershed sub-areas is not allowed.)	**Included Subbasins** (The transfer of water between subbasins within a single Watershed sub-area is allowed.)
North WRIA 20	Sooes, North Pacific 2
Middle WRIA 20	South Pacific 2, Dickey, Sol Duc, Calawah, Bogachiel, Pacific 3
South WRIA 20	Pacific 4, Hoh, Pacific 5
Ozette WRIA 20	Ozette Basin, Pacific 1

- **ISF-4:** Prioritization of streams for rule-making should be by the following criteria (no ranking to the order of paragraphs below), which should be given due weight by Ecology in working on streams within this WRIA.
  - Streams from which allocations are being considered that would result in the transfer of water outside of WRIA 20.
  - Streams that contain salmonid stocks. This WRIA values both the presence of stable salmonid stocks and improvement in their numbers, as well as those stocks already experiencing reduced populations, and recognizes the need to quickly protect commercially viable populations from pressures of reduced water supply: and,
  - Streams where there may be an existing or impending impact to existing stream flows, due to development pressures and/or land use changes, that should lead to prioritizing ISF research on such streams.

With respect to proposed stream closures and/or reservations by policy, Ecology should consider the recommendations of state, local, and tribal governments (with a jurisdictional interest in the area comprised and already affected locally by the issue). Decisions by Ecology should be based on: (1) the quality of the premise by which the recommendation is made; and, (2) consultation with stakeholder groups (SGs) with standing within the river basin in question to substantiate whether credible facts (such as specific proposed development projects proposed for an area with compatible land use designation) directly contravene such a decision.

3.3 Water Quality Actions and Management Strategies

The WPA (RCW 90.82) provides the following guidance for addressing water quality:

> ***RCW 90.82.090 - Water quality component.*** *If the initiating governments choose to include a water quality component, the watershed plan shall include the following elements:*
>
> *(1) An examination based on existing studies conducted by federal, state, and local agencies of the degree to which legally established water quality standards are being met in the management area;*
>
> *(2) An examination based on existing studies conducted by federal, state, and local agencies of the causes of water quality violations in the management area, including an examination of information regarding pollutants, point and nonpoint sources of pollution, and pollution-carrying capacities of water bodies in the management area. The analysis shall take into account seasonal stream flow or level variations, natural events, and pollution from natural sources that occurs independent of human activities;*
>
> *(3) An examination of the legally established characteristic uses of each of the nonmarine bodies of water in the management area;*
>
> *(4) An examination of any total maximum daily load established for nonmarine bodies of water in the management area, unless a total maximum daily load process has begun in the management area as of the date the watershed planning process is initiated under RCW 90.82.060;*
>
> *(5) An examination of existing data related to the impact of fresh water on marine water quality;*
>
> *(6) A recommended approach for implementing the total maximum daily load established for achieving compliance with water quality standards for the nonmarine bodies of water in the management area, unless a total maximum daily load process has begun in the management area as of the date the watershed planning process is initiated under RCW 90.82.060; and,*
>
> *(7) Recommended means of monitoring by appropriate government agencies whether actions taken to implement the approach to bring about improvements in water quality are sufficient to achieve compliance with water quality standards.*
>
> *This chapter does not obligate the state to undertake analysis or to develop strategies required under the federal clean water act (33 U.S.C. Sec. 1251 et seq.). This chapter does not authorize any Planning Unit, lead agency, or local government to adopt water quality standards or total maximum daily loads under the federal clean water act.*

3.3.1 Status Quo

The Planning Unit engaged Abigail Hook, a graduate student at University of Washington School of Forestry, as a contractor to summarize the work done in the WRIA on water quality. Several watershed analyses have been completed under the state and federal programs for timber harvest, as well as the "Salmon and Steelhead Habitat Limiting Factors in the North Washington Coastal Streams of WRIA 20" prepared in 2000 by the Washington Conservation Commission (sometimes called the "Limiting Factors Analysis" or "LFA"). The availability of Ms. Hook's work is provided in Section 2.8. Ms. Hook relied on a number of other sources and included them in a bibliography. In addition to the materials compiled by Ms. Hook, other entities, including tribes, have conducted their own water quality assessments, data from which has been submitted to Ecology or to the funding agencies (*e.g.*, USEPA).

There are no Total Maximum Daily Loads (TMDLs) set in WRIA 20 under the federal Clean Water Act (CWA) at this time. Industrial use of rivers is minimal. The only city is Forks, which has a plan for waste disposal (*i.e.*, solid waste, liquid waste, sewage, household hazardous waste, *etc.*). Pursuant to the Forest and Fish Report (FFR), TMDLs related to timber operations are not required to be considered until 2009.

The Planning Unit observes that for most of the WRIA, water quality has not been sampled in recent years. Some data are over a decade old. For a number of streams we do not have any data. Future monitoring and other aspects of water quality planning are discussed in the subsequent sections.

3.3.1.1 Factors That Influence Water Quality

Specific streams in the WRIA have been listed as impaired waters under CWA 303(d), and may be found on Ecology's website. Water quality impairments in this WRIA include temperature, low dissolved oxygen, pH and fecal coliform. Sediment loads are also a concern.

Temperature exceedances can be attributed to lack of forest cover over streams caused by a variety of human activities. Elevated temperatures decrease the available dissolved oxygen in streams. Pollution, instream flows and biological activity (growth, productivity, respiration, and decomposition) can also lead to decreases in the available dissolved oxygen in streams. While it is difficult to correct riparian shade issues immediately, the Forest Practice Rules (FPR) discussed in Section 2.5.3 were designed to improve temperature conditions. Anthropogenic sediment loads can be attributed to land clearing practices and road use associated with a variety of human activities. Nonpoint source stream pollution can also originate from natural mass wasting (landslides), wherever slopes are steep and comprised of unconsolidated or fractured and faulted material. The DNR FFR and current forest practice rules prescribe the means to curtail sediment loads from forestry operations on lands under state jurisdiction (e.g., roads and mass wasting).

Fecal coliform loads may be attributed to both natural and anthropogenic causes. There are small cattle ranches located in some of the basins that could be contributors to the fecal coliform found in surface waters. However, the WRIA also has a number of elk herds, deer, and numerous sea gulls on the coast and other wildlife that are also sources of fecal coliform. No study has been done yet to identify the precise source of the fecal coliform.

A factor that can influence water quality in WRIA 20 is rainfall. This WRIA lies within a temperate rain forest with rainfall over 100 inches per year. Most of the rainfall occurs from October through May, lessening in June and generally being quite low in July through September. In months of higher precipitation, in which flooding is a factor, one can expect increased runoff and sediment loads from both natural and anthropogenic causes. Any dissolved oxygen deficits, higher temperatures, and other pollutant concerns (except for sediment) will likely increase in the summer months when river flows are lowest.

3.3.1.2 Status of Marine Beaches

The Planning Unit has not prepared a list of uses of marine beaches nor developed a list of how their waters may be impacted. The Pacific Coast in this WRIA is almost exclusively wilderness (with a few government-operated resorts). Except for tribal reservations, all of the beaches in this WRIA are part of the ONP. The Planning Unit believes that stream pollution within these areas is minimal, with the exception of potential sediment loads, especially after winter storms. Therefore, water quality and fish habitat conditions along the coast are considered to be a result of natural conditions along the ONP Costal Strip, or a result of upstream conditions. Marine beaches are particularly vulnerable to

oil spills. Preliminary analysis of documented effects of the 1989 *Exxon Valdez* oil spill to juvenile pink salmon includes reduced growth in oiled areas and at least short-term population declines. Laboratory experiments further support the conclusion that ingestion of oil can adversely affect growth and survival of juvenile salmon. Oil spills can affect the populations of prey species such as forage fish as well. The Planning Unit recommends that the IB work with NOAA to explore the impacts that local oil spills have had and will likely have on WRIA 20.

Water Quality Data Management Actions

Motivation: Encourage integration and coordination of water quality data management, collection, and dissemination between multiple entities to improve efficiency and effectiveness of water quality monitoring efforts. These entities include: the Makah Tribe, Hoh Tribe, Quileute Tribe, Clallam County, Jefferson County, City of Forks, ONP, ONF, WDNR, Clallam Conservation District, private landowners, and others. Additionally, this coordination will assist with the implementation of the Forest Practices Act, Habitat Conservation Plans, and regulations managed by the EPA (per the Clean Water Act,) and Ecology.

Goal: Integrate and coordinate the management, collection and dissemination of water quality data among agencies and other interests in WRIA 20.

Actions: Actions proposed by the Planning Unit include:

- **QLM-1:** Participate in an existing water quality data clearing house. Several options exist for improving the availability and dissemination of water quality data. All of the recommendations presented below involve participating in existing water quality data management programs, which may include one or more of the following:
  - Ecology's EIM program. This program contains many kinds of environmental data including: water quality, stream flow, air water quality, groundwater, soils, sediment, *etc.* This program is currently operating and would benefit from a local technical facilitator.
  - STORET (format used by EPA; currently primarily for water quality). This program can integrate Excel and Access data, but like GIS, is not a program readily self-taught; and,
  - Clallam County Water Resource Database. Is accessible through the Streamkeepers of Clallam County website, http://www.clallam.net/streamkeepers (accessed 6/06): and,
  - Others that may later be identified.
- **QLM-2:** Commission the Olympic Natural Resources Center of the University of Washington (ONRC) to update the existing metadata clearinghouse hosted at:

  http://www.onrc.washington.edu/clearinghouse/ (accessed March 2007)

  The clearing house should be updated and expanded to include water quality monitoring information in WRIA 20 (*e.g.*, programmatic metadata). Facilitate on-going updates to this system with new information so that it serves as a comprehensive list of available water quality data in the watershed. Metadata parameters may be consistent with National Biotic Information Infrastructure (NBII) protocol. Minimum information should include:
  - Entity collecting data, including contact information;

- Purpose of water quality monitoring program; and,
- List of water quality parameters.

Inclusion of the following supplemental metadata parameters would be beneficial:

- Frequency and period of available data;
- Location of water quality data points; and,
- Program funding and planned program extension (temporal and/or spatial).

- **QLM-3:** Develop a WRIA-wide GIS database of water quality monitoring locations (*e.g.*, spatial metadata). This could be coordinated with Streamkeepers, and/or another entity.
- **QLM-4:** Create or use an existing water quality database (such as at Ecology or the Northwest Indian Fisheries Commission [NWIFC]) to store and track water quality parameters across WRIA 20. This action could involve coordination with Clallam County/Streamkeepers and should include data from the portion of the watershed within Jefferson County.
- **QLM-5:** Use the above metadata and databases to review spatial, temporal and parameter coverage of current programs, and improve data collection efforts by eliminating overlap, closing data gaps, and extending complementary analyses.

3.3.2 Water Quality Program Actions

- **QLP-1:** Support establishing water quality monitoring consistent with ratified HCPs within WRIA 20. Potential partners include and are not limited to Streamkeepers, Ecology, USGS, Tribes.
- **QLP-2:** Request Streamkeepers and analogous groups provide staffing to monitor streams in the WRIA. Local governments may have funding available and may enter into agreements to carry out such monitoring activities.
- **QLP-3:** Support current and future funding applications by Streamkeepers and like organizations for monitoring activities conducted in WRIA 20.
- **QLP-4:** Encourage participation in Ecology's Water Quality Management Area process in future program cycles by recommending specific research and/or restoration projects within the WRIA through the Watershed Plan.

3.3.3 Water Quality Data Collection Actions

Motivation: The ambient baseline water quality conditions and variability within WRIA 20 are not well understood.

Goal: Gain a better understanding of natural ambient baseline conditions and variability within WRIA 20. The purpose of additional data collection is: (1) to gain a better understanding of annual ambient baseline conditions and variability within the watershed; and, (2) to collect data needed to address specific water quality problems.

Action:

- **QLD-1:** The Planning Unit supports the following water quality monitoring efforts through logistical support where available resources allow, and endorsement of the following programs in the application of grants:
  - Streamkeepers of Clallam County or, should an analogous organization be formed, in Jefferson County;
  - Independent monitoring by the state, tribes, and local governments and/or landowners; and,
  - Cooperative Monitoring Evaluation and Research (CMER).

Motivation: Elevated fecal coliform in surface water may be an indicator of increased exposure to human or other problematic sources of bacteria. Elevated bacterial levels could lead to an increased risk of exposure to human pathogens. Possible sources in some instances may be wildlife (*e.g.*, elk), livestock (*e.g.*, cattle), septic systems, and/or pets. There is a need to better understand the source of fecal coliform, and to implement BMPs or other form of mitigation, if needed.

Goal: Mitigate human, pet and livestock sources of fecal coliform in the surface waters of WRIA 20.

Actions:

- **QLD-2:** Encourage those responsible for noting water quality violations to consider the variety of sources of fecal coliform exceedances (*e.g.*, wildlife) to avoid undue concern about potential enforcement against septic system owners. Owners should properly install and maintain on-site sewage disposal systems.
- **QLD-3:** Conduct fecal coliform studies with established protocols (*e.g.*, Ecology's methods) in the following locations to determine where regulatory limits may be exceeded.
  - Floodplain reaches of Big River;
  - Lower Lake Creek (downstream of Lake Pleasant);
  - Cattle grazing areas in the Sol Duc, Bogachiel, and Hoh drainages;
  - Hoh River (Taft Creek), downstream of Hoh Rainforest Ranger Station of the ONP; and,
  - Water bodies whose quality is listed as impaired under Section 303(d) of the Clean Water Act.
- **QLD-4:** Review the study results and potential actions generated by Clallam County's pending study of fecal coliform in streams near campgrounds along the Sol Duc River.
- **QLD-5:** Query environmental surface water quality databases for information regarding fecal coliform in WRIA 20. Databases maintained by the ONRC, Streamkeepers, the EPA (*e.g.*, in the establishment of the 303(d) list), and Ecology (*e.g.*, EIM) should be queried for additional information related to fecal coliform monitoring.

3.3.4 Water Quality Education and Outreach Actions

Motivation: Realize significant improvement to water quality in WRIA 20 through education.

Goal: Coordinated and effective water quality education in WRIA 20.

Actions:

- **QLE-1:** Develop a water quality outreach program by pursuing the following options:
  - Combine or coordinate water quality outreach and education with the currently on-going invasive weeds public outreach effort;
  - Support the maintenance and expansion of on-going educational (K-12) efforts in local schools;
  - Develop a water quality education booth for local festivities and events; and,
  - Create a list of contacts (*e.g.*, resource managers, scientists and others working for various agencies and stakeholders) to conduct water quality monitoring field trips for interested groups including school children.
- **QLE-2:** Establish an outreach and education plan that includes landowner education about the variety of causes of water quality problems, including elevated fecal coliform levels, to be managed by:
  - Clallam County Streamkeepers and Jefferson County equivalent;
  - Clallam and Jefferson Counties or Conservation Districts; and/or,
  - Washington Department of Ecology.
- **QLE-3:** Encourage Clallam and Jefferson Counties to provide educational opportunities to septic system owners, such as "Septic 101" classes, which cover basic operation and maintenance of septic systems.
- **QLE-4:** Inform homeowners of their responsibility and benefits of maintaining their septic systems.
- **QLE-5:** Develop, adopt, and/or support a hazardous waste education program that includes education about illegal dumping and the potential toxic effects of hazardous waste in the watershed.

3.4 Fish Habitat Actions and Management Strategies

The Watershed Planning Act (RCW 90.82) provides the following guidance for addressing habitat:

> ***RCW 90.82.100 Habitat component.*** *If the initiating governments choose to include a habitat component, the watershed plan shall be coordinated or developed to protect or enhance fish habitat in the management area. Such planning must rely on existing laws, rules, or ordinances created for the purpose of protecting, restoring, or enhancing fish habitat, including the shoreline management act, chapter 90.58 RCW, the growth management act, chapter 36.70A RCW, and the forest practices act, chapter 76.09 RCW. Planning established under this section shall be integrated with strategies developed under other processes to respond to potential and actual listings of salmon and other fish species as being threatened or endangered under the federal endangered species act, 16 U.S.C. Sec. 1531 et seq. Where habitat restoration activities are being developed under chapter 246, Laws of 1998, such activities shall be relied on as the primary non-regulatory habitat component for fish habitat under this chapter.*

3.4.1 Prior Work on Fish Habitat

Fish habitat information was summarized from a number of completed assessments, including publications by timber landowners and resource managers (governmental and private, producing the Department of Natural Resources' watershed analyses), counties, the state LFA, NWIFC, other tribal data, and other agencies' works (Hook, 2004). The assessments provide a list of proposed restoration activities. In the case of the watershed analyses, which were reviewed by peers and approved by the participants, the restoration was often mandated. Local watershed analyses may be found in the Forks branch of the North Olympic Library System, as well as within libraries of agencies such as Clallam County and the participating governments of the analyses. The Quileute Tribe, with the assistance of Rayonier, Inc., has just scanned the analyses for their U&A and can make these available electronically.

Subsequent assessments have been performed since the analyses described above. A list of relevant assessments and partial lists of restoration priorities was complied by the North Olympic Peninsula Lead Entity (NOPLE; responsible for coordinating salmon recovery efforts on the North Olympic Peninsula in the context of the Salmon Recovery Act, RCW 77.85) and can be found in Appendix F.

Individual agencies and tribal governments are also continuously updating their restoration priorities. The USFS publishes restoration and/or project work in the ONF periodically. The latest publication (January through March 2006) is available for review at:

http://www.fs.fed.us/sopa/components/reports/sopa-110609-2006-01.html (Accessed 12/07).

Major landowners and government agencies (federal state, tribal, and local) may be specifically contacted for restoration suggestions. The NOPLE website is one source of contact information regarding such entities. Because of other government activities in salmon recovery in the WRIA, the Planning Unit has not taken an active role.

3.4.1.1 Applicable Land Management Statutes

The Planning Unit acknowledges the importance of the Shoreline Management Act, Growth Management Act, planning documents prepared by the counties in accordance with these, and the regulations developed by the DNR to implement the goals of the FFR. Compliance with these laws is vital for fish habitat protection and preservation.

3.4.1.2 Listed Fish Species

In WRIA 20, the Lake Ozette sockeye and bull trout are listed as "threatened" under the Endangered Species Act. The former occurs in Lake Ozette and associated tributaries to the lake. Involvement in the Lake Ozette Sockeye Steering Committee includes the ONP, private timber companies, the Makah Indian Tribe, local landowners and other stakeholders. Critical habitat has been designated along the Ozette River, Big River, Umbrella Creek, Crooked Creek, and Lake Ozette. NMFS and the Lake Ozette Sockeye Steering Committee are in the process of finalizing a recovery plan. The plan is supported by the biological viability criteria developed by the NMFS Puget Sound Technical Review Team (PSTRT), as well as the draft Lake Ozette Sockeye Limting Factors Analysis (http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm).

Impacts to bull trout habitat in the Hoh watershed are regulated by the USFWS. Within this WRIA, the only designated critical fish habitat is in the Hoh River and some adjacent shoreline. The species is also known to occur in watersheds south of the Hoh River. The recently published critical habitat

map of the USFWS does not include the Quillayute watershed. USFWS has developed draft recovery plans for this species. Because of federal agency involvement in recovery of these listed species, and because their range is limited in the WRIA, our Planning Unit has not made specific plans for bull trout recovery.

3.4.1.3 Planning Unit Involvement

To complement other entities in salmon recovery, the Planning Unit recommends the following actions.

3.4.2 Riparian Restoration Actions

Motivation: Historical clearing of land in riparian zones has altered stream channels. In addition, prior to the 1970s, state agency policies included removal of large woody debris (LWD) and clearing of land in riparian zones. Large woody debris is now recognized to perform valuable functions, including, but not limited to, stream channel diversity and pooling for refugia.

Goal: Restore the natural function of stream channels by reversing stream channel degradation, increasing floodplain storage, increasing low summer stream flows, and improving aquatic habitat conditions.

Actions:

- **HBR-1:** Identify candidate stream reaches for reintroduction of LWD and pursue funding opportunities to conduct such projects. Identified reaches to date include:
  - Multiple reaches of Big River; and,
  - Multiple reaches of the Quillayute, Hoh, and Ozette systems. The priority should be to examine documents that address this issue, determine priorities, and support additional LWD assessments and studies throughout the WRIA.
- **HBR-2:** Identify riparian zones that have been cleared for agricultural use. Conduct public outreach to obtain conservation easements for reestablishing riparian vegetation, for example, by using the United States Department of Agriculture's (USDA) Conservation Reserve Enhancement Program (CREP) and other applicable programs to provide natural recruitment material for large woody debris. Coordinate with the Clallam and Jefferson County Conservation District on these projects. Identified reaches to date include:
  - The middle reach of Big River (*i.e.*, Reach C) identified in the Multi-Purpose Storage Assessment Water Resources Inventory Area 20 (Golder 2005); and,
  - The lower reaches of the Sol Duc, Calawah and Bogachiel Rivers in the vicinity of the City of Forks.
- **HBR-3:** Obtain funding and conduct riparian zone restoration in degraded stream channel riparian buffers (as defined in relevant Critical Area Ordinances; CAOs) to provide natural LWD recruitment material. Bank stabilization through vegetation projects is critical to short and long-term restoration. Solicit conservation districts to actively pursue funding for consultation and design, acquisition of seedlings and plugs, and public outreach/community development of such projects.
- **HBR-4:** Promote the reintroduction of salmonid species (chum and Chinook) where extirpated from their original natural distribution in the Lake Ozette drainage basin. This

will involve fish habitat restoration projects tailored to stream reach conditions in the respective tributaries, much of which may be premised on the Lake Ozette Sockeye recovery plan in process (Dlugokenski, 1981; Crewson and others, 2002; USFWS, 2004; NOAA website for Lake Ozette sockeye draft documents related to recovery: http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm).

- **HBR-5:** Conduct assessments to determine the fish species present in the system and to consider the role of hatchery supplementation as a tool for restoration and/or reintroduction of a species to the system at large. The goal is to support stable wild stocks for current and extirpated species in the WRIA reaches.

3.4.3 Critical Areas Ordinance Implementation Actions

Motivation: Land use regulations are not always fully implemented and/or enforced. The Clallam County code is available for review at:

http://www.clallam.net/Board/html/code.htm (Accessed 12/07).

The Jefferson County Code is available for review on the Jefferson County webpage, under the "Quick Links" option. The webpage is available at:

http://www.co.jefferson.wa.us (Accessed 6/08).

Department of Natural Resources maps of stream locations and types may be incomplete or inaccurate and need ground-truthing to validate, particularly where population growth is occurring or anticipated.

Goal: Effective implementation of critical areas regulations, particularly those that affect water quality and fisheries habitat (stream buffers).

Actions:

- **HBO-1:** Initiate and implement a public education campaign about CAO protections along streams. Include local maps of the protected streamside areas in the campaign. Education should address BMPs, Low Impact Development (LID), and other considerations. Public education about the CAO is supported in the Clallam and Jefferson County Comprehensive Plans.
- **HBO-2:** Through education, encourage landowners and public agencies to be good land stewards through restoration and enhancement work in riparian buffers that are already protected through CAOs. Education will include information about incentive programs available to landowners.
- **HBO-3:** Recommend that Clallam and Jefferson Counties enforce existing CAO regulations with respect to timber harvest in riparian zones.
- **HBO-4**: For Clallam and Jefferson Counties, find ways to encourage LID practices and, to the extent possible, remove disincentives to LID in the permitting process and include incentives. The WRIA 20 Planning Unit encourages LID and/or use of native plants in landscaping whenever possible.
- **HBO-5:** Clallam and Jefferson Counties, and the City of Forks, work with the Department of Natural Resources and non-governmental groups to validate the stream locations and typing designations in WRIA 20 with ground-truthing, especially where population growth is occurring or anticipated.

3.4.4 Invasive Weeds Actions

Motivation: Invasive weeds that negatively impact watershed health, such as knotweed, adversely affect fish habitat.

Goal: Control or eradicate knotweed and other noxious weeds that affect fish habitat.

Actions:

- **HBI-1**: Strongly support the mission of the Olympic Knotweed Working Group and the Clallam and Jefferson County Noxious Weed Control Boards. Encourage the formation of other cooperative partnerships for the control of noxious weeds, and the favorable consideration of all funding applications to support and implement programs and efforts to control/eradicate the noxious weeds.
- **HBI-2:** Obtain increased support for WRIA 20 in statewide and federal noxious species control efforts, including:
  - Washington State Department of Agriculture (WSDA) Noxious Weed Control Board and Knotweed pilot program. (Currently the $500,000 allocated annually for the WSDA program is used largely in Clark, Skamania, Lewis, Pacific, Grays Harbor, Thurston, Pierce, and Mason Counties; but some remainder funds in 2005 were divided among other applicants, including Clallam County, pursuant to a new funding allocation.)
  - The Title II program from the USFS to counties for the promotion, education and restoration of watershed health (pending congressional reauthorization). This source only funds projects on lands adjacent to USFS lands when a direct link/benefit to the USFS ecosystem can be demonstrated.
  - Forest Health Protection Fund: requires a 1:1 non-federal match, but must be used on non-USFS lands in ways that enhance forest health and restoration.
  - Salmon Recovery Funding Board (SRFB). Encourage SRFB to support noxious weed eradication; and,
  - Bureau of Indian Affairs watershed assessment and restoration projects.
- **HBI-3**: Send letters of support to state and federal elected officials (in conjunction with grant applications submitted by third parties) to request additional funding for noxious weed eradication in WRIA 20.
- **HBI-4**: Support noxious weed education in conjunction with public outreach efforts for water quality such as:
  - Those sponsored for schools and county fairs; and,
  - Those for landowners, to facilitate access to private lands for eradication efforts/programs.
- **HBI-5:** Except for areas within the ONP boundary (where work has been completed), conduct surveys to locate and prioritize areas for additional knotweed eradication work, with immediate attention on the Quillayute System including: the Sol Duc, Bogachiel and Calawah Rivers, and the Quillayute mainstem; and, the Big River of the Ozette drainage.
- **HBI-6:** Incorporate noxious weed prevention and removal measures into road, forestry and construction maintenance activities within riparian and aquatic environments (*e.g.*,

develop a committee to examine vegetation management practices) and encourage the use of "clean" materials in road maintenance and handling of debris (to reduce introduction of invasive weeds).

- **HBI-7:** Incorporate noxious weed control and monitoring into restoration projects.
- **HBI-8:** Facilitate and expedite permitting and consultations for noxious weed control projects.
- **HBI-9:** Promote collaborative noxious weed control projects and data-sharing opportunities among landowners and among governments (including interlocal agreements).

3.4.5 Land Conversion From Forest Actions

Motivation: Conversion from forestry to other land uses may lead to development that does not have parallel regulations to protect fish habitat and water quality. Further, conversion to other land uses may reduce the traditional recreational uses in this watershed, which the Planning Unit desires to maintain.

Goal: Find ways to protect, encourage and maintain forest land in the watershed.

Actions:

- **HBC-1:** Subject land use proposals that require a change or exception from current Clallam or Jefferson County zoning to a full environmental and comprehensive plan review/update. As per existing law, for conversions, include affected party input. Discourage conversion of forest land to non-forest land uses.

  At the same time, property rights and fiduciary obligations of forest land owners must be respected and recognized by local, state and federal governments. As a result, these rights and obligations may allow the forest land owner to convert forest lands to other uses.

- **HBC-2:** Counties should continue land use zoning practices that encourage the maintenance of working forest lands within WRIA 20. For example, commercial forest zones carry a minimum lot size. Consider additional uses associated with secondary forest uses (recreation, low-impact development, *etc.*) as a means of providing additional economic incentive to slow conversions.
- **HBC-3:** Create a list of strategies for working timber land protection that could be used including state, county, and federal programs (*e.g.* DNR's Forest Legacy Program and other protection organizations).
- **HBC-4:** Forest agencies and private landowners should take a leadership role in establishing and evaluating innovative forestry pilot projects. Explore, develop and promote emerging or non-traditional income sources to include ecotourism, specialty forest products, and entry permits. Encourage biomass industries which bring an innovative approach in use of resources. As the developers of these industries determine what is needed to implement the ideas, promote parallel processes regarding innovative uses of the water resources to ensure the best support for those ideas.
- **HBC-5:** Local, state and federal governments should develop and/or enhance incentives through financial and/or mitigation credits to maintain forest lands within the WRIA including conservation or other easements that compensate landowners for maintaining forests, such as carbon credits, habitat credits, and sustainability certification credits.

- **HBC-6:** Facilitate and expedite zoning, permitting and industrial infrastructure critical to siting of forest products facilities in a manner consistent with adopted plans and regulations.
- **HBC-7:** Request that the economic development entities (state and county) consider the development, enhancement, and/or promotion of alternative financing options designed to develop capital investment in infrastructure (*e.g.* matching grants, low interest loans, small business loans and other financial vehicles). In developing criteria for applicants, include cooperative stewardship agreements across ownerships, forest restoration activities, establishing new and/or creative forest product markets, SRFB projects, and others.

3.4.6 Control of Sediment Actions

Motivation: Both natural processes and human activities can generate sediment in streams. Anthropogenic sediment inputs should be controlled.

Goal: Encourage the implementation of existing laws, guidelines, and voluntary actions.

Actions:

- **HBS-1:** Working with the ONRC, Clallam and Jefferson Counties should develop a sediment control education program oriented toward landowners, contractors, and workers tailored to WRIA 20. This program will explain existing laws, rules, BMPs, the desired outcomes of management activities, and how to most effectively execute daily work routines to maximize efficiency and minimize adverse impacts to WRIA 20 water resources. Existing materials from the UW College of Forest Resources, Ecology, DNR, and other entities that deal with reduction of human-generated sediment migration into streams can be incorporated into the program.
- **HBS-2:** Prepare a compilation of completed restoration and abandonment projects. This document will describe before and after conditions and will encourage more extensive effectiveness monitoring in future efforts. This document will also highlight lessons learned and provide guidance for stakeholder interaction and communication.
- **HBS-3:** Develop a catalogue of grants applicable to WRIA 20 that landowners may pursue with willing partners in WRIA 20 in order to conduct desirable restoration and/or abandonment projects.
- **HBS-4:** Encourage investigations into causes of sediment loading, natural and anthropogenic, with a focus on whether elimination of preventable causes would be desirable or not from both a water resource management and fisheries protection standpoint. Such investigations should evaluate the impact of human actions regarding upland stabilization. Evaluate if the response actions might benefit sediment load control but impair significant water storage capacity. All studies should be conducted consistent with established state or federal protocols and other peer-reviewed methods.

3.5 Special Projects

Special projects are those which are sufficiently well defined and are supported by the WRIA 20 Planning Unit. The order and numbering of the projects does not reflect any relative prioritization. Projects may be prioritized by the Phase IV IB and/or advanced by individual stakeholders throughout the planning process.

Motivation: Specific projects have been identified that will have beneficial effects on the water resources of WRIA 20. The Planning Unit wishes to facilitate the realization of these projects.

Goal: Assist in the completion of projects that will improve water resources.

Actions:

- **SP-1:** Review the list of fish habitat improvement projects developed in:
    - Limiting Factors Analysis of WRIA 20 by the Washington Conservation Commission (Smith, 2000)
    - NOAA Draft Lake Ozette Sockeye Limiting Factors Analysis (http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm)
    - DNR and USFS- sponsored watershed analyses;
    - The NOPLE web page; and,
    - Other programs.

  Support projects not yet addressed and obtain funding to complete these projects. This effort has already been initiated by the Quileute Indian Tribe for their U&A, which is a major portion of WRIA 20. Incorporate the results of that review into Plan updates.
- **SP-2:** Support of the restoration of threatened and extirpated salmonid species (sockeye, and chum/Chinook respectively) in the Ozette drainage.
- **SP-3:** Support the City of Forks in their efforts to add a septage dump or improve transfer station support.
- **SP-4:** Support appropriate RV dump stations within camp grounds, public and private, within the WRIA.

Motivation: Annually recurring low flows of sufficient duration impede the migration of anadromous salmonids returning to spawn. This may disrupt the continued viability of this fishery.

Goal: Maintain the viability of anadromous salmonid runs in all streams in WRIA 20.

Action:

- **SP-5:** Evaluate alternatives and provide recommendations to support migration and reproduction of salmonids in WRIA 20 rivers during periods of low flow. Examples of rivers of concern include the Hoh, Ozette, Big and Quillayute Rivers.

3.6 Management and Implementation Strategies

Motivation: It is unclear how implementation of the Plan will occur.

Goal: Establish an Implementation Body to facilitate and coordinate the successful implementation of the WRIA 20 Plan.

Action:

- **MGT-1:** Determine whether or not there exists a need for the development of a locally-based Implementation Body to coordinate implementation of the watershed management plan (see Section 4.6). Follow through on the decision, including an MOA.

The recommended action items listed below address management functions for the IB in Phase IV of the watershed planning process.

- **MGT-2:** Develop a Detailed Implementation Plan, which will also address the cost of a member's participation (*e.g.*, per diem, travel). A member can be someone, or an alternate, who is committed to attending a majority of meetings per year and who either (1) is a member of an agency who signed the IB initiation agreement, (2) is a member of a stakeholder group or other governmental entity or (3) is a member of the public who is a resident of the WRIA and who indicates their interest to the IB in writing and actively engages in the process.
- **MGT-3:** Build an implementation schedule and revision process for the Plan. Ensure that new Plan actions are scientifically based and can be integrated in the future. If additional updates are necessary based on the availability of data or unforeseen water-related issues, the process should be designed such that these updates are possible.
- **MGT-4:** Prioritize Plan recommendations including educational needs, outreach, projects, policies, and management strategies for funding and implementation.
- **MGT-5:** Develop recommendations (such as cooperative agreements) for entities identified as responsible for Plan actions.
- **MGT-6**: Organize regularly scheduled (*e.g.*, semi-annual) forum meetings on water resources programs being conducted by various entities to exchange information and encourage coordination among efforts, including preparation of strategic grant applications.
- **MGT-7:** Recruit entities to establish data management protocol, and custodians to store and manage data, and generally oversee these efforts into the future.
- **MGT-8:** Identify alternate funding sources (alternative to watershed planning funds), and assign responsibility for coordination and preparation of grant applications (Appendix B).
- **MGT-9:** Recommend that the state legislature make unused Supplemental Phase II Watershed Planning funds available during Phase IV implementation.

4.0 ISSUE BACKGROUND AND DEVELOPMENT

Actions and corresponding motivations and goals developed through the Plan are listed in Section 3. This chapter contains background information to support the development and implementation of these actions, and is included separately from the actions in order to allow a concise presentation of the recommended actions in Chapter 3. Chapter 4 is intended to be used in concert with Chapter 3, and will help to provide context and intent to the actions listed in Chapter 3.

As more information is learned about the watershed, it is hoped that the Implementation Body will add up-to-date background information to Chapter 4. Plan revisions will be completed according to a schedule created by the Implementation Body and revisions will be agreed upon by the Implementation Body as will be detailed in their Memorandum of Agreement or other operating procedures.

4.1 Water Quantity Strategies

Water quantity studies prepared to support the development of this Plan are:

- Surface water assessment (BOR, 2005);
- Stream flow data (BOR, 2005 and Golder, 2005); and,
- Water rights processing, and water storage (Golder 2005a, 2005b, and 2005-2006).

Background and action development for each of these issues is discussed in this section.

The BOR completed surface water assessments for the Ozette, Calawah, and Sol Duc basins in WRIA 20, and gave presentations to the Planning Unit on two occasions. Their data can be found per Section 2.8 and are to be used by Ecology, the Planning Unit, and IB in forming recommendations and decisions related to ISF rules.

4.1.1 Stream Flow Data Needs (QTD-1 through QTD-4)

WRIA 20 has relatively few stream gages. Historically, stream flow data collection has for the most part been sparse and sporadic in WRIA 20 (Figures 3-1 and 4-1). There are currently three active USGS gages (Hoh, Bogachiel and Calawah Rivers) and one active Ecology gage (Sol Duc River) in the WRIA. The Planning Unit strongly recommends that these active gages be maintained. It is important to establish a more complete stream flow data set in this WRIA because:

- For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods.
- Numeric data sets over time provide a better understanding of watershed dynamics with respect to stream flow and water supply;
- Numeric data sets over time will improve flood forecasting;
- A historical stream flow data set will be an important asset in the future when any environmental decisions are to be made pertinent to fish, wildlife, water rights, water resources, or general watershed studies;
- The Olympic Peninsula presents a unique environment to assess global processes because:
    - It is located on the eastern side of the Pacific Ocean receiving prevailing winds representing global processes;

- It is one of the largest and most significant glaciated regions in the lower 48 states; and,
- The Olympic National Park within the Olympic Peninsula was designated by the United Nations as a World Heritage Site and contains unique ecosystems.

Technical challenges in establishing these gages include flooding, log jams, channel migration, high flow conditions in some rivers, and the need for cable ways, access, maintenance requirements and responsibilities, and other site-specific issues.

Stream gaging data are necessary in understanding the dynamics of streams, including the natural variability and long term trends. Such information is often used in the development of numeric ISF rules and general resource management. Gage data is becoming increasingly important in determining, and managing for, the responses of hydrologic systems to climate variability. Climate change may significantly influence the future relevance of any ISF rule, especially glacier-dependent systems. Research on how climate change is likely to influence flows, as well as existing and anticipated trends in glacier distribution and extent, is desired to provide guidance to successors to this Planning Unit, and to Ecology, in setting or resetting instream flow (ISF) rules.

The Planning Unit has prioritized locations for additional stream gages. Installation of new stream gages will be an important component of Phase IV and will necessitate cooperation among entities to obtain installation sites, access agreements, and acquisition of funding for installation and on-going maintenance and operation. The value of stream gaging data increases significantly with the length of the record produced. Therefore, re-establishment of historical stream gaging stations is particularly beneficial.

Obtaining funding and ensuring the continued operation of individual gages will require persistent and coordinated efforts. The willingness of individual stakeholders within the Planning Unit to promote and champion the establishment of stream gaging stations may therefore significantly influence the success of efforts. The IB can facilitate such efforts by coordinating efforts, identifying candidate funding sources and assisting in the application of grant applications.

Ecology's Environmental Assessment Program (EAP) installed a long-term telemetry stream-flow and temperature gage in June 2005 that will transmit data in three-hour intervals on the Sol Duc River. The gage is located just upstream of the bridge over the Sol Duc River on Quillayute Road west of the junction with Highway 110.

The USGS has a program to install and maintain stream gages, but generally 50% matching funds must be provided. Average gaging costs are used as a standard, regardless of the actual costs. Because conditions in WRIA 20 may result in gage installation costs higher than average, this program offers the possibility of significant cost savings. For reference, Table 4-1 lists approximate stream flow gage costs as of 2004.

Table 4-1 Estimated USGS Stream Flow Gage Costs

Prepared and submitted to the WRIA 19/20 Planning Unit by Montgomery Water Group, 2004.

Item	Cost
Installation	$10,000-$20,000
Equipment.	~$7,000: Can be purchased directly from vendor. Installation costs depend upon gage permanence; long term walk-in shelter versus short term (<5 years) smaller box.
Total Capital Costs	**$17,000 - $27,000**
Operation and maintenance: station maintenance, data collection, data compilation, data review, quality assurance, and data publication.	Per year: Discharge measurement: $7,370 (seasonal)-$11,320 (daily) Satellite telemetry: $2,030 Temperature: $2,840 Precipitation: $1,700
Total Annual Maintenance and Operation Costs	**$12,000-$16,000**

4.1.2 Water Rights (QTR)

4.1.2.1 Improvement in Water Right Application Processing (QTR-1 through QTR-4)

Timely processing of water right applications is expected by the applicants in WRIA 20. Currently, there are pending applications that were submitted as far back as 1989 that have not yet been processed. It is recognized that Ecology's cost reimbursement process allows for more expedited processing than other channels through Ecology. Recommendations are provided by this Plan for the timely processing of water rights including providing applicants with reasonable expectations. It is recommended that Ecology eliminate the current backlog of water right applications as soon as possible under current and future funding constraints (QTR-1) and with due consideration of the actual availability of water in the affected streams.

Although implementation of the recommendations relating to the processing of applications may improve the speed that they are processed, these recommendations provide no assurance that the applications will be approved. Pre-application consultation (QTR-2) is intended to improve communication between Ecology and applicants.

In WRIAs where ISF rule making is under way, Ecology is holding all pending applications for new surface water rights and new ground water rights that may be in hydraulic continuity with the surface water. Decisions on those applications will be made after ISF rules are adopted. New water rights may contain provisions that are conditioned on streamflows.

4.1.2.2 Tribal Consultation (QTR-5 and QTR-6)

As co-managers of the fishery (which depends on water), tribes have the right to be consulted on a government-to-government basis to ensure protection of their treaty-reserved resources. Formal points of contact are provided for each tribe. The state or local governmental entities responsible for applying regulations and granting permits for any resource issue shall inform the listed tribal contact, to set up consultation and also notice the affected tribal council(s) for a particular issue. Where the U&As of different tribes overlap, consultation shall be made with all of the tribes with U&As in that area. The state or local agency should assume that formal contact (Tribal Council) is the default procedure. In the absence of a tribal response, the formal contact with tribal government will be recorded by the date of the letter sent by the agency.

In no case should the state or local agency person assume that contact with anyone within the tribe, or its staff, represents consultation with the tribal government. All contact shall be viewed as informal, other than that made either to the Council directly or to a tribal contact person specifically acting on behalf of the tribal government. The tribal council has the discretion to designate another as the formal contact. Formal tribal response to the agency shall be in writing, whether electronic or hard copy.

Ecology strives to enhance consultation and interaction with tribal governments on an ongoing basis and looks forward to continuing to do so in the future. The Centennial Accord and related guidelines will be used to ensure consistency in communications. Ecology and each tribe in WRIA 20 should develop a Centennial Accord Plan which includes the details of the recommendations QTR-5 and QTR-6.

4.1.2.3 Citizen Consultation (QTR-7 through QTR-9)

Citizens have a right to be contacted regarding water resource management decisions to ensure protection of their private property rights and their public trust resources. Consultation with interested citizens will be ensured through outreach efforts by maintaining a publicly available web site that can be accessed by anyone, and will include a sign-up capability for people who wish to be directly noticed and informed on activities. Further, Ecology and other state agencies will keep the WRIA 20 IB directly noticed and informed of water resource plans and actions. This IB will in turn act as a local outreach vehicle to keep local citizens informed of water resource plans and actions. Consultation with interested citizens will be ensured through outreach efforts by maintaining a publicly available web site where anyone can request to be informed of water management activities in WRIA 20.

4.1.2.4 Water Rights Database Cleanup (QTR-10 through QTR-13)

Ecology's Water Rights Application Tracking System (WRATS) database contains many water rights that are no longer used, erroneous records, and duplicate records of water right claims. The WRATS database is used as a first step in the statutory evaluation of potential impairment of senior water rights in considering the approval or denial of water right applications. The WRATS database is also used in the evaluation of the relative degree of allocation of watersheds. Cleaning up the WRATS database will improve its useful and efficient application in these analyses.

All water rights, with some exceptions, are subject to relinquishment if they are not beneficially used for five continuous years. Relinquishment means that the water right as issued to the applicant is no longer valid, and the water right reverts to the state. Relinquishment proceedings may be undertaken

by Ecology, or relinquishment may be voluntary. This Plan recommends only that voluntary relinquishment be considered in water resources management.

This Planning Unit did not address transfer of valid water rights:

> ***RCW 90.03.380(1):*** *The right to the use of water which has been applied to a beneficial use in the state shall be and remain appurtenant to the land or place upon which the same is used: PROVIDED, HOWEVER, That the right may be transferred to another or to others and become appurtenant to any other land or place of use without loss of priority of right theretofore established if such change can be made without detriment or injury to existing rights. The point of diversion of water for beneficial use or the purpose of use may be changed, if such change can be made without detriment or injury to existing rights. A change in the place of use, point of diversion, and/or purpose of use of a water right to enable irrigation of additional acreage or the addition of new uses may be permitted if such change results in no increase in the annual consumptive quantity of water used under the water right.*

The underscoring has been added for emphasis and to provide the limitations to such transfers.

Water right claims are claims to surface water rights whose use was established before the Surface Water Code was enacted in 1917, or groundwater rights whose use was established before the Groundwater Code was enacted in 1945 (*i.e.*, water use that was grandfathered in before applications for water rights were required). There have been at least four separate claim registration periods. Although a claimant to a water right only needed to register once, some claimants have registered as many as four claims for the same right. Analysis of the WRATS database could be used to identify redundant water right claim records.

If an Implementation Body is formed, it may contact the holder of apparently redundant claims to ascertain whether these records are redundant. If confirmed as redundant, the water right claimant should submit a relinquishment form to remove the redundant records from the database.

Some water rights and claims to water rights within WRIA 20 may not have been used for significant periods of time. Irrigation water rights represent approximately 40% of all anthropogenic water use in WRIA 20 (Phase II Technical Assessment, Golder 2005a). Comparison of the distribution of irrigation rights (Figures 3-7 and 3-8 of the Phase II Technical Assessment) with a review of aerial photographs and/or discussion with knowledgeable people (*e.g.*, Conservation District staff) could identify where no agricultural irrigation is being conducted and therefore where no irrigation water rights are being used. The water right holders and/or claimants would then be contacted to inquire as to whether the water rights are being used, and, if not, whether the person is willing to voluntarily relinquish the water right or claim.

All efforts will be conducted by the IB to ensure that all relinquishment is conducted by the water right holders or claimants on a voluntary basis. This will minimize concern of regulatory actions, which is not the intent of these recommendations. County conservation districts usually have well established constructive relationships with the agricultural community and may be best suited to conducting the public outreach component of these recommendations and initiating contact with the water right owners.

4.1.3 Storage Strategies

Storage is needed in WRIA 20 for both the maintenance of municipal water supply and the natural sustenance of instream flows. Efforts must be directed to the long term.

4.1.3.1 Storage for Water Supply (QTS-1 through QTS-3)

Water supplies for municipal and domestic use were analyzed in the supplemental storage assessment (Golder 2005b), primarily in the Lake Pleasant and Sappho, City of Forks, and Lake Ozette areas. The related recommendations are oriented toward reducing the cost of installing wells, and improving the reliability and safety of public water supplies, while also pursuing ecological sustainability.

The geology of the Lake Pleasant and Sappho areas is complex and not well understood. The geology contains large sequences of fine-grained materials that do not support productive yields of groundwater to wells. Small discontinuous strata of sands and gravels are hosted within the fine-grained materials. As a result, efforts to install private domestic wells and small community system wells are often unsuccessful and may require the installation of several unproductive wells before a well with adequate yield is successfully installed. This imposes a significant financial burden on private individuals and the local community because it increases the effective cost of wells by two or three times the cost for a well of similar depth in soils of greater permeability and porosity. It is recommended that a geophysical survey of the valley sediments extending from the vicinity of Sappho to Lake Pleasant be conducted to delineate productive aquifer zones. Such a survey will better characterize the aquifer system and allow for a higher probability of installing productive wells. This information will also be useful in evaluating the degree of hydraulic continuity between groundwater and surface water for use in future water right decisions and the understanding of instream flows.

The City of Forks has highly productive wells. Currently, most of the wells are aligned along a narrow groundwater flow line. This alignment makes all of the wells susceptible to a single contamination source. Several recommendations are provided to reduce the susceptibility of the City's water supply wells to contamination. An additional well located north or south of the current east-west line of wells is recommended. The aboveground storage capacity should be expanded to extend the time of service that the City can continue providing water should the existing sources be interrupted. Future demand projections indicate the need for additional or new water rights, in particular for fire control. Therefore, it is recommended that arrangements be started now to process anticipated water right applications by the City of Forks.

The Ozette area addressed is located on the east shore of Lake Ozette in the Ozette subbasin. The shallow depth and limited extent of unconsolidated sediments limits easily developable groundwater supplies. Wells completed in both the glacial drift and marine sedimentary rock yield small quantities of water to wells or are dry. Siting of wells could consider large scale (*e.g.*, mile-scale) geomorphic (topographic) features that may indicate the presence of sediment-filled bedrock valleys. Insofar as the law provides, siting of wells should also consider the connectivity of groundwater with stream surface water and potential impacts to dry season (summer) instream flows.

4.1.3.2 Streambank Storage (QTS-4)

Increasing natural storage in the watershed through placement of LWD is addressed in Fish Habitat, below, but deserves mention here for the reason that strategically placed LWD can help to retain water within subsurface channel and off-channel features. In areas devoid of LWD, down-cutting of stream channels by up to six feet below historical floodplain conditions has occurred. This in turn has caused draining of floodplain gravels. Water table changes in this range can significantly alter the function of floodplain wetlands and lower summer stream flows. Restoring the natural function of LWD is expected to increase and restore groundwater storage.

4.2 Instream Flow Management (ISF-1 through ISF-5)

The WRIA 20 Planning Unit decided to address the optional watershed planning component of ISF. The minimum effort to satisfy this responsibility is to include policy guidance to Ecology for the establishment of an ISF rule in the Plan. The most complete effort would involve drafting substantive components of a rule. Because of the lack of data and limited time available before completion of this Plan, ISF rule development through this Plan is currently restricted to policy-based considerations. Additionally, the Plan makes recommendations to gather additional data if numeric ISF rules are to be made in the future.

Instream flow regulations can be created through Ecology (WAC 173-500) or WDFW (RCW 77.50.050). Ecology (and its predecessor agencies) has historically requested comment from the WDFW on the issuance of surface water rights. Because the tribes are co-managers of the fishery, they must also be consulted in a timely manner. Recommendations from WDFW to Ecology on the denial of, or seasonal/flow dependent restriction on the use of, surface water rights are usually based on the opinion of fisheries biologists for the protection of fish, and are filed by Ecology as Surface Water Source Limitation letters (SWSLs). Tribes may also work with WDFW to file a SWSL. These letters have the force of law as authorized under the Fisheries Code (RCW 77.50.050). There have been six SWSLs written for water bodies in WRIA 20 between 1989 and 1993 (two on the Sol Duc River, and one each on the Bogachiel River, Lake Pleasant, Snider Creek and Beaver Creek).

4.2.1 Planning Unit Participation in Instream Flow Rule Making (ISF-1)

This Plan provides guidance to Ecology on the setting of ISF rules across WRIA 20. It is acknowledged that additional details remain to be resolved. Some of these details may include siting of compliance points, selection of appropriate studies, and quantification of future water right reservations. The Planning Unit must be engaged by Ecology in the establishment of any ISF rule. How these rules should be established is detailed in the following sections. Specifically:

- RCW 90.03.247: "In establishing such minimum flows, levels, or similar restrictions, the department [Ecology] shall, during all stages of development by the Department of Ecology of minimum flow proposals, consult with, and carefully consider the recommendations of the Department of Fish and Wildlife, the Department of Community, Trade, and Economic Development, the Department of Agriculture, and representatives of the affected Indian tribes." See also the letter of March 28, 2008 from Jay Manning, which supports this process for instream flow rules; and the letter from the Quileute Tribe to Jay Manning. Both letters may be found in Appendix C. The WRIA 20 Planning Unit is committed to working with Ecology in the establishment of instream flow rules.

- The State of Washington will develop instream flow rules using the best available science and information present at the time of rule development. The Planning Unit recognizes that cost considerations of final methods used to develop ISF rules for a particular stream may prove to be important factors as to methodology adopted in a rule-making proposal by the state or other entities. However, time should be afforded for grants to be developed for detailed studies, before the most cost-efficient means of developing evidence for ISF rules development are selected as definitive.

- The State of Washington will invite tribal and agency fish biologists, hydrologists, other scientists, and others interested in instream flow rules to participate in the development of such rules.

- The State of Washington shall consider all reasonably accessible and creditable data in preparing instream flow rules.

Based on the Planning Unit's development of this document, it should be noted that considerable debate has been given to one method in particular used in the ISF process, namely the toe-width method in terms of its adequacy (i.e., standard error) and applicability to certain rivers and streams of WRIA 20. Therefore, the Planning Unit recommends that the state work with it to identify the most appropriate method for determining instream flows for a particular stream.

Numeric Instream Flow Rules (ISF-2)

For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods. Once data are available, the Planning Unit is supportive of numerical ISF rule establishment.

"Numeric regulation" here refers to the establishment of specified flow numbers. There are a wide range of methods that can be used to set ISF, each with varying degrees of technical qualification and a wide range of cost. Scientific methods of estimating flow needs adequate for fish habitat have a degree of uncertainty. Methods may be based on streamflow statistics, hydraulics analysis (flow), or fish habitat simulation models, in increasing order of relevance to fish habitat needs. Stream channel morphology is an important variable to beneficial fish habitat that the habitat and hydraulic methods consider, but which the streamflow statistical method does not consider.

The establishment of any numeric standard must be carefully applied with the understanding that natural climate variations and possible predicted future changes are beyond the control of water use patterns within the WRIA (*e.g.*, global warming climate trends). Numbers set on historical and/or current conditions may not be as relevant or appropriate under future conditions.

Among the most sophisticated methods is the Instream Flow Incremental Methodology (IFIM) that uses the **P**hysical **Hab**itat **Sim**ulation (PHabSim) computer program to quantify favorable fish habitat under various conditions (including stream depth, velocity, cover and substrate). For cost efficiencies, the methods are usually based on assumed flow/habitat relationships that are extrapolated from regional studies, although studies can be conducted to develop stream specific flow/habitat relationships. Other methods for establishing a numerical ISF include toe-width and statistical methods.

Table 4-2 lists streams (Figure 4-1) with at least five years of continuous stream flow records. These data represent the beginnings of data desirable for establishing a numerical ISF rule (ISF-2).

Table 4-2 Streams with at Least Five Years of Continuous Stream Flow Records

Stream	System	Comments	Maximum Period of Continuous Record
Hoh River	Hoh	2 stations	44 years
Sol Duc River	Quillayute	2 stations	38 years
Bogachiel River	Quillayute	2 stations	5 years
Dickey River	Quillayute	2 stations	11 years
Calawah River	Quillayute	1 station	20 years
Sooes River	Sooes	One historical USGS station	10 years

4.2.2 Policy Components of Instream Flow Rules (ISF-3)

In Chapter 3, ISF-3 recommends that policy based considerations be included in any ISF rule. Policy components of the ISF rule are streamflow controls based solely on policy conditions that focus on water use, rather than focused on actual stream flow. This precludes the need to establish stream gaging points for monitoring and enforcement purposes.

The following are examples of policies that may be considered in an ISF rule.

- **Out-of-WRIA Transfers:** This policy would prevent the transfer of any WRIA 20 waters outside of the WRIA 20 drainage, for any purpose, and by any entity.
- **Intra-WRIA Transfers:** These policies prevent the transfer of WRIA 20 surface water between certain WRIA 20 subbasins (called watershed sub-areas; Table 3-6 and Figure 3-4). The definition of watershed sub-areas recognizes that a limited transfer of groundwater currently happens in the collective area between the confluences of the North and South Fork Calawah River, the Calawah River and Bogachiel River, and the Sol Doc and Quillayute Rivers. This is all within WRIA 20 and moreover, all within the Quillayute Basin. Additional transfers in the future among these rivers and the Dickey River (also in the Quillayute Basin) may occur as the service area of the City of Forks expands. This Plan does not wish to conflict with existing approved Water System Plans.

  It is specifically recommended that the transfer of surface water between watershed sub-areas is not allowed. There is no specific recommendation to allow or disallow the transfer of surface water between subbasins within a watershed sub-area. However, this Planning Unit opposes such transfers unless part of an approved Municipal Water Plan. The transfer of groundwater between watershed sub-areas is not addressed in order to allow more deliberate consideration of the implications of such a policy. The concern of the Planning Unit is to avoid disruption of ISF planning by such transfers. For this WRIA, many subbasins are comprised of rivers, not just creeks, and are important habitat for viable fish populations.
- **Seasonal Closures:** Seasonal closures would limit future allocations of water withdrawals for uses that would result in a reduction of stream flows during critical periods (*e.g.*, during critical fish life cycle periods).
- **Mitigation:** Allowing for certain mitigation options may actually provide motivation to project proponents to implement projects beneficial to the watershed. However,

mitigation must provide equal or greater protection to water resources or aquatic habitat. Mitigation of water withdrawal impacts may not be feasible or justifiable where water withdrawals cross habitat suitability thresholds such as minimum instream flows (e.g., stream dewatering) or temperature criteria for salmonids.

- **Future Reservation:** The WRIA 20 Planning Unit recognizes that some water use is desirable for future human use, including residential (*e.g.*, drinking water), municipal use and for manufactured forest products. "Future reservation" refers to establishing water rights for specific uses that are effectively exempt from the ISF rule. Reservation rights have specified purpose(s) of use, and quantity. Reservations may be earmarked for uses that the Planning Unit determines are important to the WRIA and are within the ability of Ecology to approve.

4.2.3 Prioritization of streams for rule-making (ISF-4)

It is understood that when instream flow rules are prepared for WRIA 20, applicable rules will be prepared to cover all streams in the WRIA when feasible. However, the resources available for rulemaking may be limited. In the case that instream flow rules are not developed for all streams, effort should be focused on streams that are subject to significant development pressure (existing or planned), that support or are known to have supported native salmonid runs, and from which allocations are being considered that would result in the transfer of water outside of the WRIA.

4.3 Water Quality

The WRIA 20 Planning Unit decided to address the optional watershed planning component of Water Quality. The water quality component of a watershed plan should include: an examination (based on existing studies) to which water quality standards are being met in the WRIA; an examination (based on existing studies) of pollutants and the point and nonpoint sources of pollution in the WRIA; examination of uses of nonmarine bodies of water; an examination of any total maximum daily load (TMDL) established for the nonmarine bodies of water; an examination of what impacts fresh water is having on marine water quality; recommendations for implementing TMDLs to achieve compliance; and, recommendations for the monitoring of water quality by government agencies (RCW 90.82.090).

4.3.1 Water Quality Data Management Programs (QLM and QLP Actions)

Table 4-4 lists streams in WRIA 20 with reaches on the 2004 Candidate CWA 303(d) list (as reported to the EPA by Ecology in 2005). Stream segments noted with an asterisk were also included on the 1996 and 1998 lists. This list is not presumed to be a comprehensive list of all water quality problems in the WRIA, but is included here to illustrate the types and locations of water quality violations that may be occurring within the WRIA. The Planning Unit acknowledges that for many streams, the water quality data have not been measured for five years or more. For a number of streams, no water quality data have been collected.

Waterbodies listed according to Section 303(d) of the federal Clean Water Act must have a TMDL established for the listed parameters. The WPA (RCW 90.82) requires development of a framework for proceeding with TMDL development for 303(d) listed waterbodies. However, where such waterbody impairment might be attributed to forest practices, evaluation for TMDLs in WRIA 20 has been deferred to 2009 in accordance with the FPA and regulations promulgated thereunder.

Because of the lack of a WRIA-wide water quality data set, the Planning Unit has identified that coordination between monitoring entities, coordination of metadata and data documentation, and additional collection of water quality data are necessary in the WRIA.

Table 4-3 WRIA 20 Stream Segments on Draft 2002/2004 303(d) List

Water Body Name	Parameter
Ozette Subbasin	
*Coal Creek – 2 segments	Temperature
*Crooked Creek, N.F.	
Coal Creek	pH
Crooked Creek	
Big River	
Siwash Creek	Dissolved oxygen
South Creek	
Quillayute System	
Bogachiel	
*Bogachiel River – 7 segments	Temperature
*Maxfield Creek	
Calawah	
Calawah River, S.F.	Temperature
Sitkum River – 2 segments	
Dickey	
* Dickey River, E.F. – 2 segments	Temperature
* Dickey River, M.F. – 2 segments	
* Dickey River, W.F. – 2 segments	
Dickey River	Fecal Coliform
Sol Duc	
*Beaver Creek	Temperature
*Lake Creek – 2 segments	Dissolved oxygen
*Lake Creek – 2 segments	Temperature
Sol Duc River	pH
*Sol Duc River – 5 segments	Temperature
Bear Creek	Dissolved oxygen
Hoh Subbasin	
*Alder Creek	Temperature
*Anderson Creek	
*Elk Creek	
*Fisher Creek - 2 segments	
*Line Creek	
*Maple Creek	
*Nolan Creek	
*Owl Creek	
*Willoughby Creek	
*Winfield Creek	

*Streams also included on the 1996 and 1998 lists.

4.3.2 Water Quality Data Collection (QLD)

The baseline ambient water quality conditions and variability within the WRIA are not well understood. The goal of this suite of actions is to gain a better understanding of baseline water quality conditions in the WRIA. Water quality data collection should occur and be coordinated with stream flow monitoring in the WRIA in order to better evaluate natural variables that affect water quality. In order to be considered for corrective action, data must be collected according to state and/or federally approved protocols.

With respect to coliform, levels in surface water bodies were identified as a concern within the WRIA for a variety of reasons, including:

- Health concerns may exist;
- The cause of fecal coliform exceedances may be incorrectly attributed to septic systems that are actually caused by elk and other wildlife;
- Elevated fecal coliform readings in rivers due to wildlife may not be cause for mitigative measures; and,
- Human waste at RV camp sites or by other recreational users is currently being illegally dumped in a manner that may be causing negative water quality impacts because of a lack of availability of appropriate disposal facilities.

4.3.3 Education for Outreach for Water Quality (QLE)

Most water quality problems in WRIA 20 caused by humans may be mitigated and possibly eliminated by voluntary actions. An approach that is based on informed voluntary actions is usually less expensive and results in more effective actions. In order to realize this, appropriate public outreach and education are needed in order to raise the awareness of the public on these issues. Much public outreach is currently happening in support of other programs. Coordinating with these existing programs will provide mutual efficiencies for the objectives of the existing programs as well as improving awareness to motivate voluntary actions to improve existing water quality conditions in the watershed.

A water quality display/billboard/booth could be prepared for use in community events such as county fairs. An educational package with handouts/flyers targeted to different age groups could be prepared for use in public schools. Additional support could be provided to on-going programs to control and eradicate knotweed to also include water quality components.

A list of water quality experts willing to provide support to such programs should be prepared (*e.g.*, resource managers, scientists and others working for different agencies and stakeholders). These experts may be able to provide previously prepared materials, new materials, constructive input to the formatting of materials and/or contribute time to make presentations or lead field trips.

Outreach and education plans directed to landowners about the variety of causes of water quality problems, can be conducted to mitigate immediate impacts. Negative water quality impacts may be a result of land use practices (*e.g.*, disruption of the riparian zone), maintenance of septic systems and waste disposal practices. Various existing entities are best suited for particular components of this outreach, such as:

- Clallam County Streamkeepers, and any analogous organizations in Jefferson County, related to the health of the stream;
- Clallam and Jefferson County Conservation Districts, related to agricultural practices;
- Washington Department of Natural Resources and the Washington Department of Ecology, and Clallam Conservation District related to forest practices on private land.
- County health departments, related to septic system maintenance, water quality impacts and public health, and non-point pollution;
- Washington Department of Ecology, related to waste disposal; and,
- Others such as the Pacific Coast Salmon Coalition, Northwest Indian Fisheries Commission, Department of Health Shellfish Protection Program, U.S. Environmental Protection Agency, Olympic Coast National Marine Sanctuary.

4.4 Fish Habitat Actions

The WRIA 20 Planning Unit decided to address the optional watershed planning component of Fish Habitat. Per RCW 90.82.100, if a watershed planning unit decides to include a fish habitat component to their watershed plan, the plan should be developed to protect or enhance fish habitat within the WRIA. The plan's recommendations should be integrated with fish habitat protection and enhancement strategies developed through other processes or programs.

4.4.1 Large Woody Debris and Riparian Zone Restoration (HBR-1 thru HBR-3)

Large woody debris in stream channels provides aquatic habitat by creating channel diversity such as ponds and refugia, by restoring sinuosity to channels, and by maintaining longitudinal channel grade control. Turbulence from LWD separates gravels and fine sediment. The gravel is retained in the stream channel and provides spawning habitat, while fine sediment is washed downstream. The LWD in streams is maintained by continual recruitment from the riparian zone under natural conditions. Stable channel forested islands are maintained in active channel meander zones by being protected at their head ends by buried log jams that form the substrate for continued growth of large conifers. One example is along the Hoh River valley (less than ½ mile south of the Minnie Peterson Park off of the Hoh Rainforest Road), which is dominated by spruce.

Large woody debris was removed from several streams in the 1950's by the predecessor of the WDFW based on the understanding that these actions resulted in improved aquatic habitat. Forest management and land clearing activities in some areas harvested trees from riparian zones which removed natural recruitment material to sustain in-channel LWD. In some cases, these factors, individually and in combination, have altered the dynamics of the stream channel.

Reports on the conditions of stream channel bottoms in some streams have documented a change in substrates from those dominated by gravel to those dominated by fine sediment. This Plan recommends that candidate stream reaches in WRIA 20 be identified for the reintroduction of LWD, and supports efforts to obtain funding to complete these projects.

In order for the projects to be self-maintaining, regeneration of wooded riparian zones, installation of buried stabilizing log-jam substrate, and protection of and tree planting in channel migration zones are recommended. Actions HBR-1 through HBR-3 are closely related to HBO-1 through HBO-3 (CAOs,) and QTS-4 (specific LWD restoration projects). They may include the acquisition of

conservation easements and replanting, or promoting voluntary tree planting of riparian zones. The US Department of Agriculture Conservation Reserve Enhancement Program (CREP), administered by local conservation districts, provides financial incentives to agricultural landowners for restoration of riparian buffers and compensation for taking land out of agricultural production. Other similar programs are also available. Conservation districts often facilitate the implementation of such programs across much of Washington State, and may be logical candidates for implementing these recommendations in WRIA 20.

Restoration of riparian zones should rely on the clear and well-documented benefits of establishing biologically diverse plant communities. Natural mixtures of Sitka spruce and red alder are ubiquitous in natural riparian ecosystems throughout WRIA 20, and should be adopted as a model for long-term riparian restoration management.

Numerous interactions between red alder and Sitka spruce lead to much higher rates of terrestrial macroinvertebrate prey abundance, soil and stream nitrogen cycling, abundance and diversity of understory vegetation, and the abundance of nesting songbirds. While red alder offers important nutritional benefits to fish habitat, there are greater opportunities with a mix of Sitka spruce and red alder for a more even flow of LWD recruitment as red alder provides a short-term supply to streams while late-successional spruce will eventually provide the structural wood habitat once they are recruited into the channel. Protection from spruce weevil damage is a critical component of any strategy to grow Sitka spruce in WRIA 20, and an abundant canopy of red alder has been shown to provide an effective deterrent to the infestation of this damaging agent.

There is a productivity advantage to growing alder and spruce together as an even-aged mixture. Because they naturally coexist by partitioning light and soil resources, significantly higher rates of biomass productivity can be achieved on a shorter time-scale to achieve desired future conditions of structural complexity and large-diameter conifers for LWD. Stream shade provision and the ability to capture the site from encroachment by some undesirable species (*e.g.*, Himalayan blackberry, salmonberry) can be met reasonably well using these mixtures.

The riparian forest described in this component of the Plan is not a self-contained ecosystem, but one that is highly interactive with aquatic ecosystem processes. Managing for the functional biodiversity of the riparian ecosystem, not simply for structural complexity or species richness, is the key driver for aquatic-terrestrial productivity.

Affordable, intermediate fixes may be used by land owners for immediate infrastructure and property protection, consistent with existing law. This Plan recommends that the execution of any in-channel grade control project, including LWD and bank stabilization projects, be implemented in an order of scale, starting with large stream scale projects, and then completing smaller reach scale projects. Projects that do not consider, at a minimum, reach scale dynamics and effects are not endorsed by the Planning Unit. A review of the effectiveness of any specific proposed in-channel work should include an assessment of the effectiveness of similar work conducted in similar conditions elsewhere.

Achieving historic functions would provide relative stability to fish floodplain habitat. A synthesis of the dynamics of LWD in floodplains and approaches to restoring their natural function was developed by Planning Unit members Jim Jorgenson (then with Hoh Indian Tribe) and John Richmond (Hoh River Valley resident). A response to this paper was submitted to the Planning Unit by Dr. Olson. These papers are contained in Appendix C.

4.4.2 Salmon Habitat Restoration (HBR-4 and HBR-5 Actions)

The diminished returns of salmonid stocks in WRIA 20 can be attributed in part to habitat-related human activities. The numbers of bull trout and Lake Ozette sockeye are reduced to the point of listing under ESA. In some drainages, certain salmonid species have been extirpated, such as in the Lake Ozette drainage basin. For all stocks, habitat restoration will assist in increasing their numbers and improve reintroduction odds for presently extirpated species.

The objectives of the HBR-4 and HBR-5 recommendations are to reintroduce extirpated salmonid species (*e.g.*, chum and Chinook to the Lake Ozette drainage), improve depressed stocks (*e.g.*, Bull Trout and Lake Ozette Sockeye salmon), and protect currently diminished stocks. This will involve fish habitat restoration projects tailored to reach conditions in the respective tributaries, conducting assessments to determine the fish species present in various systems, and consideration of hatchery supplementation. The goal is to support stable wild stocks for current and extirpated species in the WRIA reaches.

4.4.3 Critical Areas Ordinances (HBO Actions)

Washington State's Growth Management Act (GMA, 36.70A RCW) requires that all entities planning under GMA must designate and protect the functions and values of critical areas. Critical areas are defined by RCW 36.70A.030(5) as:

- Wetlands;
- Critical aquifer recharge areas;
- Frequently flooded areas;
- Geologically hazardous areas; and,
- Fish and wildlife conservation areas.

Channel Migration Zones are not specifically listed in the RCW, but may be included as fish and wildlife conservation areas or frequently flooded areas. Clallam County has three plans completed under GMA that apply to WRIA 20, all recorded under Title 31 of the Clallam County Code (CCC):

- Clallam County Comprehensive Plan,
- The West Regional Comprehensive Plan with planning that applies specifically to the west end of the County; and,
- The City of Forks Urban Growth Area Comprehensive Plan.

Clallam County critical areas regulations are an overlay zoning district recorded in Section 27.12 of the CCC. Section 31.06.140 CCC, within the western regional comprehensive plan, provides clarification to CAO regulations: transfer of development rights from critical areas to non-critical portions of properties is allowable and encouraged.

The Board of County Commissioners (BoCC) for Jefferson County adopted Ordinance #03-0317-08 on March 17, 2008, thereby enacting the Unified Development Code (UDC) amendment Title 18.22 Jefferson County Code for Critical Areas. This ordinance rescinds Title 18.15, formerly titled Environmentally Sensitive Areas. Channel migration zones are addressed as geologically hazardous areas. Applicants for development permits or approvals may elect to develop site-specific critical area

stewardship plans (CASPs) as an alternative to prescriptive requirements for fish and wildlife conservation areas and wetlands.

Prescriptive buffer criteria provided for streams by Jefferson County (UDC 3.6.4) and Clallam County (CCC 27.12.325) CAOs are shown below. For wetland buffers in Jefferson County, reference JCC 18.22, Tables 18.22.330 (1), (2), and (3). The tables can be found on the JCC website at http://www.co.jefferson.wa.us. Click on "Jefferson County Code" under "Quick Links." Wetland buffers for Clallam County are shown in Table 4.6.

In both counties, wetlands maps have been produced but are for informational purposes only. Application of wetland buffers requires field wetland delineation.

Table 4-4 WRIA 20 Critical Areas Stream Buffers

Designation	Clallam County		Jefferson County Prescriptive Streamside Buffers*****
	Buffer Width for Major New Development and Land Divisions*	Buffer Width for Minor New Development**	
Type "S" – Shoreline Streams	150 feet	Equivalent to the setback set by the Shoreline Master Program***	150 feet
Type "F" – Fish Bearing Streams	150 feet	65 feet	150 feet
Type "Np" – Non-Fish Bearing Streams	100 feet	60 feet	75 feet
Type "Ns" – Non-Fish Bearing Seasonal Streams greater than or equal to 20% grade	50 feet	50 feet****	75 feet
Type "Ns" – Non-Fish Bearing Seasonal Streams less than 20% grade	50 feet	50 feet****	50 feet

Notes:

* Buffers shall be measured from OHWM as specified above, and shall also extend to the outer edge of any associated, frequently flooded area.

** Buffers shall be measured from the required measurement from the OHWM as specified above.

*** Except for the Dungeness River which shall be a minimum of seventy-five (75) feet.

**** Buffers may be reduced down to a minimum twenty-five (25) feet through the buffer averaging process set forth under CCC 27.12.730.

***** As an alternative to prescriptive buffers, the Jefferson County Code allows for the development of Critical Area Stewardship Plans (CASPs). See JCC 18.22 for more information.

Table 4-5 WRIA 20 Critical Areas Wetland Buffers

Wetland Type	Clallam County	
	Major New Development	Minor New Development
Class I	200 feet	100 feet
Class II	150 feet	75 feet
Class III	75 feet	50 feet
Class IV	50 feet	25 feet

The WRIA 20 Planning Unit has expressed concern that critical area protections are not being effectively implemented in the WRIA (HBO-1 through HBO-3). Clallam County employs only one compliance officer to address critical areas code violations, and a complaint must be filed to initiate an investigation of possible violations. A public education campaign could increase responsible stewardship by landowners.

Trees that are illegally harvested from within critical areas are often more valuable to sell than the fine for removing them from the buffer areas. The current structure provides an incentive for non-compliance. Penalties and/or mitigation requirements shall be made more stringent to realize effective compliance with local and state land-use codes and permit conditions that impact the fish, fish habitat and fish habitat-forming functions. This shall require, at minimum, fines that equal the value of the harvested timber and cost of enforcement, and/or replacement of the full level of resource function and protection that was lost at the nearest practical location but within the affected fish population range where the resource damage occurred.

4.4.4 Invasive Weeds (HBI Actions)

Invasive weed eradication programs currently exist in WRIA 20 through the Clallam and Jefferson County Noxious Weed Control Boards, Tribes, the NPS-North Coast-Cascades Network Exotic Plant Management Team, and the USFS. The WRIA 20 Planning Unit has focused on knotweed eradication because of the plant's stronghold in the WRIA, and its tendency to negatively affect water quality and fish habitat. Originally introduced as garden ornamentals, knotweed species are a threat to riparian zones and areas adjacent to them in WRIA 20. The plant will grow in most habitats, but the most common route of spread is along stream corridors.

The structure of the knotweed plants is similar to bamboo and when broken off, each node on the stem can produce a mature plant. In their native habitat, the plants reproduce through the production of seeds and underground rhizomes. However, until very recently, sexual reproduction has not been seen on the Peninsula and is still quite rare. These invasive plants eventually out-compete native riparian species and create monocultures that obstruct access to riparian areas for wildlife and recreationalists. Further, knotweed is less effective than native plants in producing shade and securing stream beds from erosion. Knotweed can compete with many native tree species, including streamside trees and other vegetation (*e.g.* Sitka spruce, Hemlock, Douglas fir, alder, cottonwood and numerous species of brush). This alteration of riparian species composition has been linked to the reduction of anadromous fish habitat, as it will ultimately result in the eventual loss of LWD recruitment as streamside trees are out-competed. The combination of the plant's prolific ability to reproduce and the lack of natural enemies results in a threat encompassing large areas of the watershed. Knotweed can immediately impact stream function by reducing nitrogen contributions from riparian species. This in turn directly limits bacteria production, and thus the macroinvertebrate population. Macroinvertebrates (mainly insect larvae) which inhabit the hyporheic (subsurface) zone of streams, are important prey for juvenile salmonids.

Knotweed education programs have been initiated in WRIA 20 through the Clallam and Jefferson County Noxious Weed Control Boards and the Olympic Knotweed Working Group. This Plan encourages and supports the efforts of these groups.

4.4.5 Land Conversion from Forests (HBC Actions)

The 735,000 acres of WRIA 20 are dominated by forests. Much of the quality of the water and fishery resource in WRIA 20 can be attributed to this fact. Due to the large ownership of forest lands by the DNR, the USFS, and private forest ownership, the Planning Unit expects that significant forest

cover will continue. However, both small and large private forest landowners have external pressures that could result in the conversion of forest lands, particularly near established transportation corridors, recreational areas, and potential "view" lots. Maintaining forested land cover will retain an industry that is regulated with due regard to water quality and fish habitat and is consistent with the objectives of watershed planning in WRIA 20.

Land use conversions from timber to other uses such as residential are often appealing to the timber landowner for financial reasons, but may be detrimental to protection of water resources. According to DNR, parcels in the range of 40-80 acres and smaller near other developed (converted) parcels typically see the greatest financial pressure for land use conversions. Significant conversion of the WRIA's forests to other uses has been recognized by the WRIA 20 Planning Unit as a threat to watershed planning and management objectives. The Plan recognizes the importance of maintaining forested landscapes, and recognizes the property rights of private and/or individual land owners to develop their land. Therefore, the Planning Unit recommends exploring potential incentives to forest landowners to retain ownership and/or forestry land uses.

4.4.6 Sediment Control Actions (HBS Actions)

As was discussed in Section 2.5.3 of this document, the WRIA 20 Planning Unit acknowledges implementation of the Forest Practices Act and Rules in the watershed as a means of improving water quality and fish habitat, and has agreed that any actions recommended in this Plan that relate to non-federal forest lands are intended only to further facilitate the goals and legal framework of the Forest Practices Act and Rules. The recommended action items relating to sediment control are intended to provide constructive support to on-going efforts. In addition, the plan recommends numerous efforts related to sediment that are complimentary or unrelated to the Forest Practice Act but are not currently being implemented in the WRIA, such as sediment related education and outreach, regional water quality data management, additional monitoring by various entities (e.g., Streamkeepers, Tribes, CMER, other entities), and organization of a database of quantitative information related to the success or potential failure of sediment related rehabilitation efforts in the WRIA) (see sections 3.3 and 3.4.6).

4.5 Special Projects (SP Actions)

Special projects are those that the WRIA 20 Planning Unit considers as important to the responsible management of water resources and wishes to specifically support.

4.5.1 Habitat Projects (SP-1)

The Lake Ozette Sockeye Limiting Factors Analyses (http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm; Crewson et al. 2002 Dlugokenski et al. 1981) and other habitat analyses (WCC 2000; USFWS, 2004; and others) identified a range of projects to improve the fish habitat conditions in WRIA 20.

4.5.1.1. The WRIA 20 Planning Unit is strongly supportive of the recovery of Lake Ozette sockeye stocks and funding for the recovery effort is paramount.

4.5.1.2. Where assessments have been completed in WRIA 20, the Planning Unit supports those efforts necessary to obtain funding for these projects.

4.5.2 Lake Ozette Salmonids (SP-2)

Throughout history, the 77mi^2 watershed of Lake Ozette has been home to many species of salmonids. The chum (*Oncorhynchus keta*) and chinook (*Oncorhynchus tshawytscha*) salmon which have had recorded populations well into the thousands during the late 40's and early 50's have been reduced to populations well below 100 return spawners (WDF 1955; Dlugokenski et al. 1981; http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm). Spawning surveys between 1977-2004 failed to identify any chinook spawners in the watershed (http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm), leading to their status being termed critical or near extinction (WDF et al. 1994; Nehlsen et al. 1991; McHenry et al. 1996).

The Ozette community would like to see extirpated stocks recovered.

The Lake Ozette sockeye salmon (*Oncorhynchus nerka*) has also seen a decline in abundance, ranging from a harvest catch of more than 17,500 fish in 1949 (Washington Department of Fisheries [WDF] 1955) to a low of 0 in 1974 and 1975 (Jacobs et al. 1996). Some would argue that the failure of harvest management, land uses, and invasives had a cumulative effect leading to the extirpation of this species. This resulted in a listing of the Lake Ozette sockeye salmon as a Threatened Evolutionary Significant Unit (ESU) in 1999 under the Endangered Species Act (ESA) (64 FR 14528, March 25, 1999). The mean estimated run size from 1996 through 2003 for the Lake Ozette sockeye is estimated to be near a population of 3,600 returning adults (Haggerty 2004A, 2005A, 2005B, 2005C, 2005D). A Limiting Factors Analysis (LFA) has been developed to identify current and cumulative factors affecting Lake Ozette sockeye survival and productivity (http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/Lake-Ozette-Plan.cfm). The LFA is being used by the National Marine Fisheries Service (NMFS) to develop a Recovery Plan that will provide a path towards recovery, and with the goal of delisting of the Lake Ozette sockeye ESU.

The WRIA 20 Planning Unit realizes the historical and cultural importance of this sockeye population and is in full support of furthering research until the population has met at a minimum the requirements for the National Fisheries Marine Services's viable population criteria (McElhany et al. 2000). Furthermore, it advocates for the active support of all WRIA 20 stakeholders in the implementation of strategies and actions identified in the LFA and Recovery Plan, support which will ensure the success of returning the sockeye to a sustainable population.

4.5.3 Septage Transfer Station (SP-3)

The nearest septage transfer station to WRIA 20 is located near Port Angeles. Because of this distance, people requiring these services are sometimes motivated to illegally dump their septage along roadways or byways, including both private and public lands. This illegal dumping of septage is a threat to water quality with respect to fecal coliform and other water quality parameters. Alternative and more convenient means of septage disposal will mitigate this threat to the water quality. The City of Forks offers a desirable and effective alternative with the proposed construction of a septage transfer station. This Plan strongly supports the City of Forks in this effort (SP-3).

4.5.4 Campground Septage Facilities (SP-4)

This Plan also strongly encourages the construction of septage transfer stations at both public (*e.g.*, parks managed by both state and federal agencies) and private campgrounds, where such services will be used (SP-4).

4.5.5 Climate Change and Low Flows (SP-5)

Over the past forty years the 7-day minimum flow of the Hoh River has decreased, on average, at a rate of about 5 cfs per year (Golder, 2005b). In three years (1987, 2002 and 2005), flows have been sufficiently low and of such duration that the upstream passage of returning adult Chinook at River Mile 3.0 (G&L Shake Road crossing) of salmon returning for spawning has been impaired.

Salmonids typically have a return cycle of several years. In a quadrennial cycle (such as is typical for Chinook; returning after four years), if one year's run is compromised by conditions such as low flows, diminished returns will be observed four years later as an "echo." Although the predominance of one year's run may adhere to a four-year cycle, some of that run will return in three or five years, and restore the one year's run that was compromised. This maintains the resilience of the complete run to episodic deleterious events.

However, if conditions such as low flows are repeated too frequently, the entire run may be at risk. The frequency of such low flows is anticipated to increase under predicted climate change conditions, and may present a significant challenge to the continuing viability of salmonid runs. In the event of frequent recurrence of low flows, natural salmonid runs may not be self-sustaining. Fall Chinook are the species currently most affected by low flows. For this reason, and in the face of predicted significant changes in the flow regime of the Hoh River, appropriate responses should be formulated.

Options considered for maintaining the viability of salmon runs are hatchery reintroduction of same or genetically similar salmonids, streamflow augmentation, channel habitat improvements, and other, options still to be identified. This watershed plan recommends that options for maintaining salmonid runs in the face of extended or recurring low flow periods be evaluated for all watersheds (SP-5).

4.6 Management Actions

A successor (*e.g.*, Implementation Body, or IB) to the WRIA 20 watershed planning unit should be formed to carry on the shared vision of the watershed plan and to provide a forum for on-going discussion. The creation of the successor group should be formed by consensus of the WRIA 20 Initiating Governments. If consensus can not be reached, the formation of the success group can proceed only when five of the six original Initiating Governments consent. Regardless of the manner in which it is created, each of the original initiating governments will be provided a voting position in the successor group.

The successor group must make a concerted effort to have broad stakeholder representation including but not limited to the original Initiating Governments, state and federal agencies (*ex officio*), agricultural, forestry, and land owner, environmental, and recreational interests.

The role of the successor group would be advisory only. The charter for this successor group would explicitly state that it would have no ability to implement any recommendation, program, existing law or ordinance. Implementation of plan recommendations is the responsibility of the individual governments and jurisdictions that have jurisdictional authority in the WRIA 20.

This successor group could provide a service to the watershed by serving as a forum for discussion between an array of governments, special interests, citizens and others. The primary initial purpose of any successor group would be to assess and prioritize the Planning Unit recommendations and to develop a list of potential strategies that could be used by the appropriate entities/ governments/ jurisdictions to pursue those recommendations. The successor group could track progress toward implementation of the watershed plan, assist in supporting grant proposals that support implementation recommendations, and amend/update the WRIA 20 watershed plan when requested by the original initiating governments.

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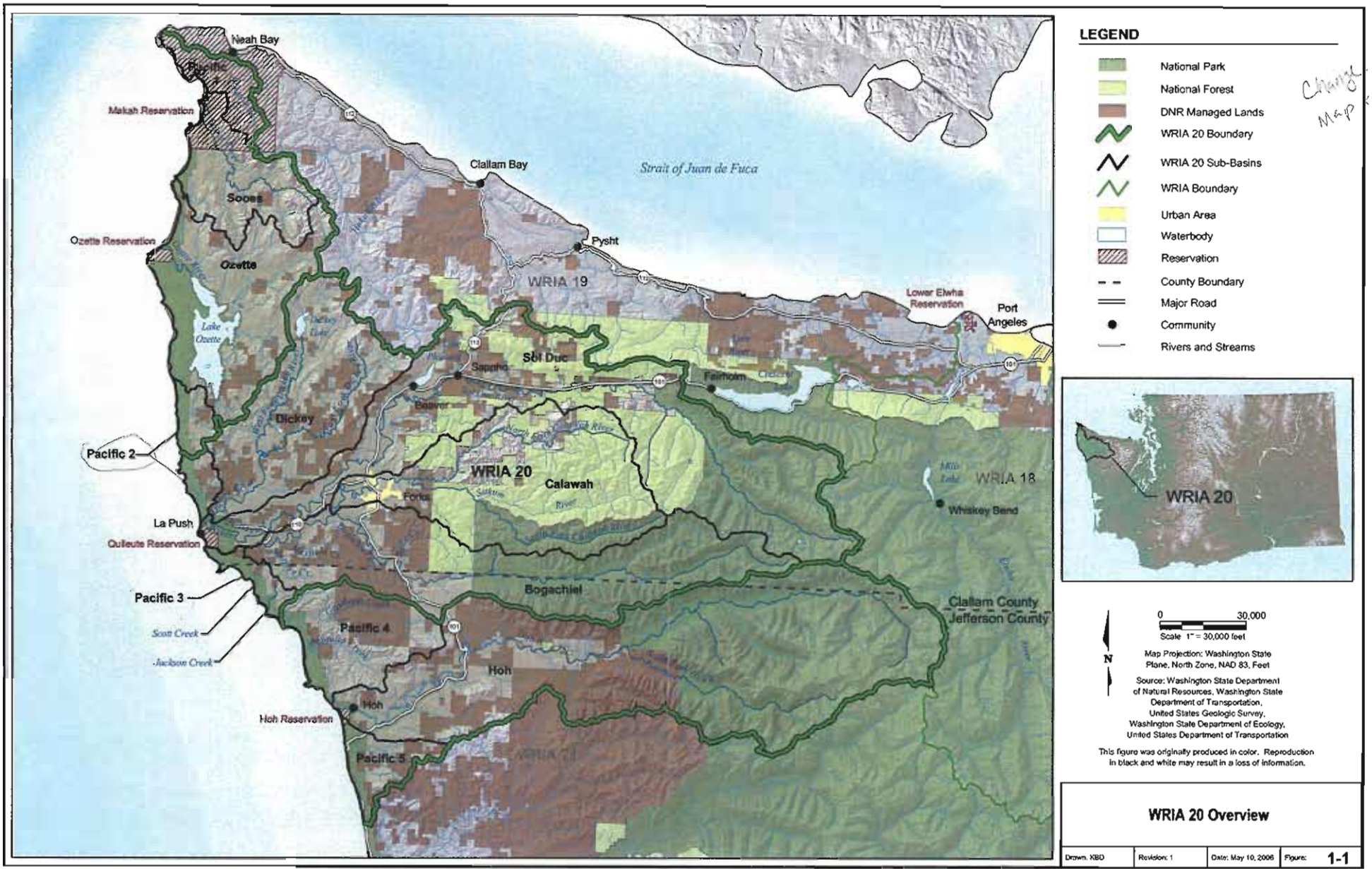
FIGURES



Change Map to

WRIA 20 Overview

Drawn: KBD	Revision: 1	Date: May 10, 2006	Figure: 1-1

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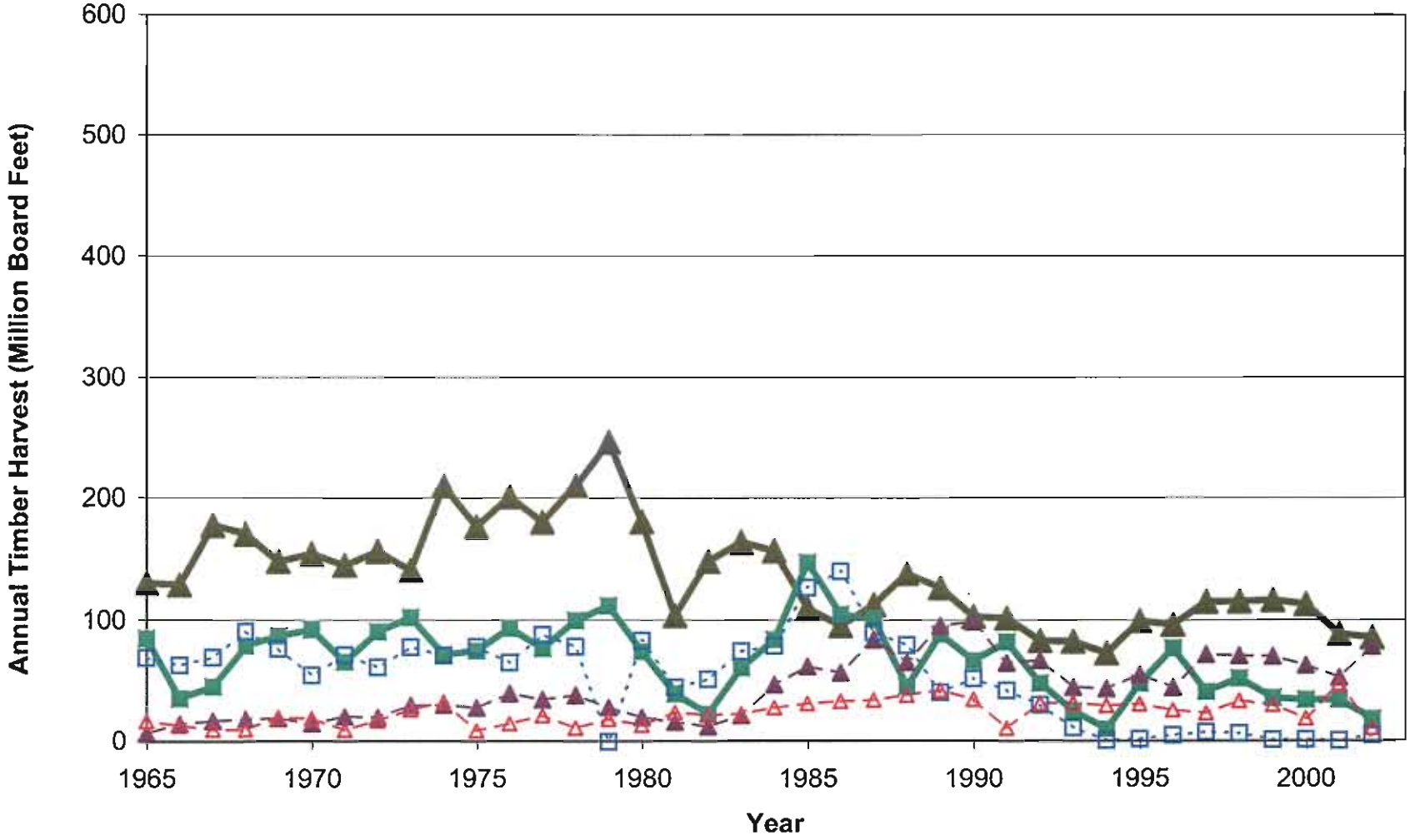

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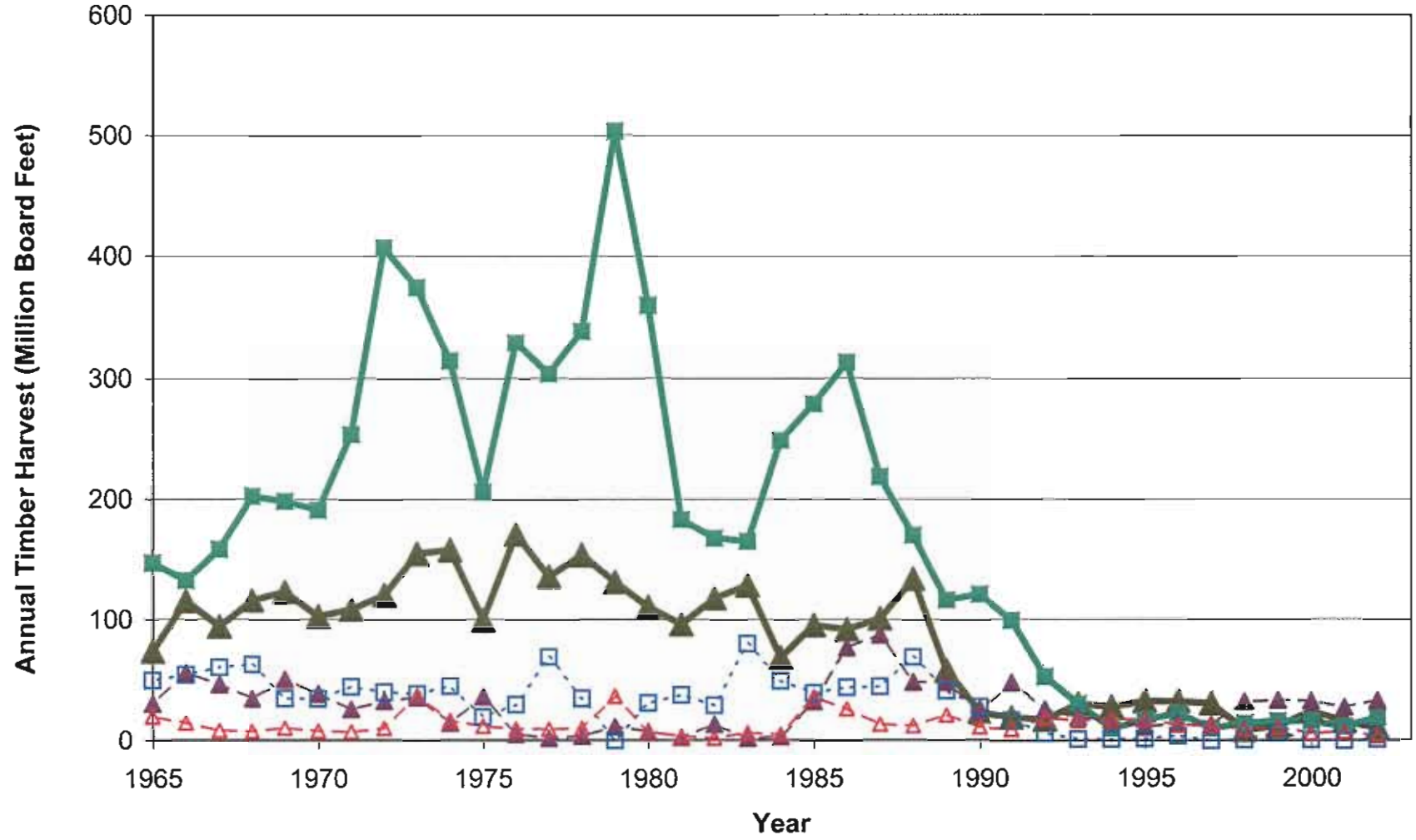
WRIA 20/Phase III Watershed Plan

Forest Industry
State
Private Large
National Forest
Private Small

Timber Harvest Summary for Clallam County

JOB NUMBER:	043-1130-200.405	DATE:	May-06
DRAWN BY:	DGC	FIGURE NO.:	1-2

File Name: Figures 1-2 and 1-3.xls



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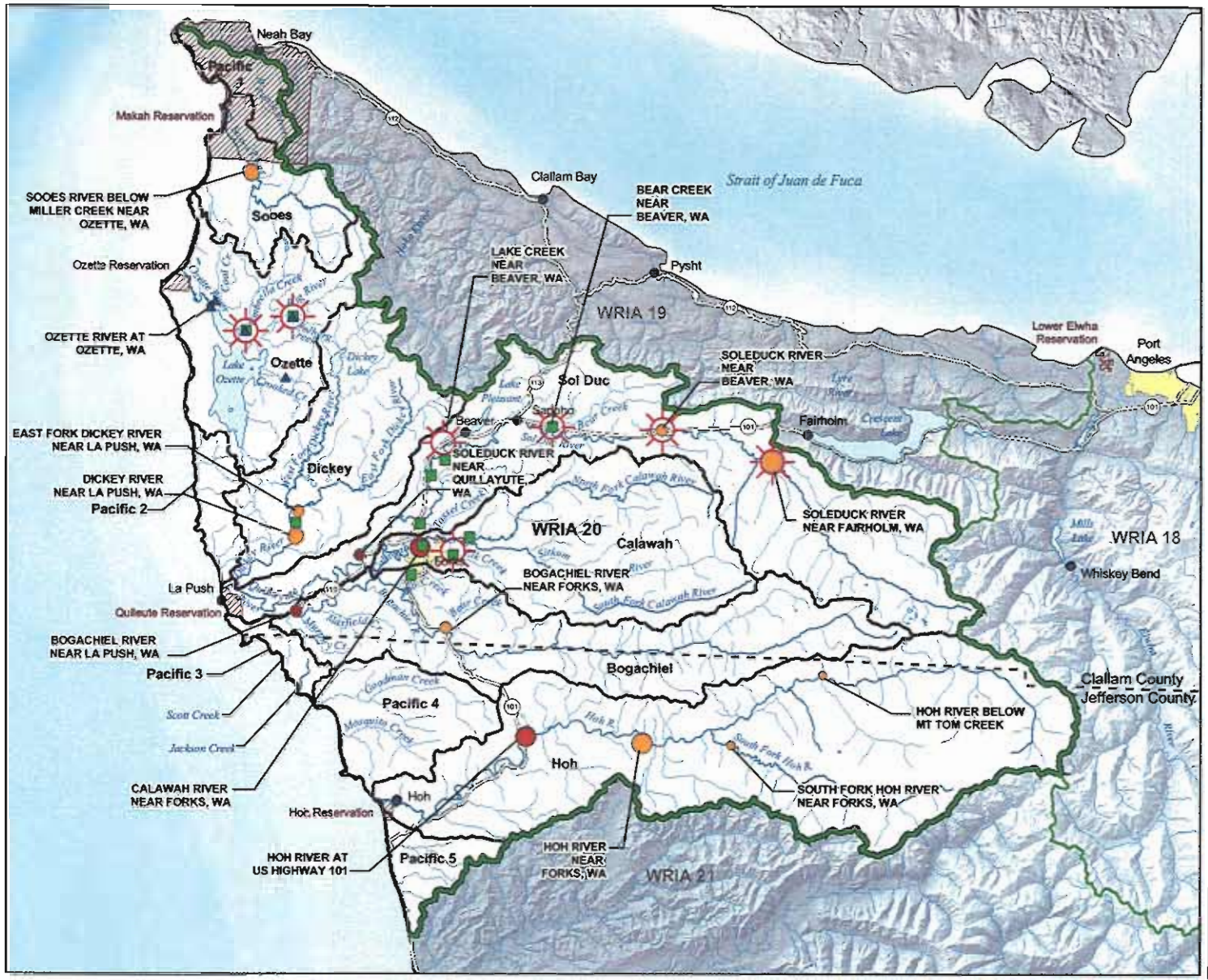
WRIA 20/Phase III Watershed Plan

Timber Harvest Summary for Jefferson County

JOB NUMBER:	043-1130-200.405	DATE:	May-06
DRAWN BY:	DGC	FIGURE NO.:	**1-3**

File Name: Figures 1-2 and 1-3 Rev 5.xls



LEGEND (also see figure 4-1)

- Top Priority Recommended Stream Gaging Sites
  (Second priority recommended sites are not shown)

USGS Gages

- Inactive
- Active (Stage and flow)
- Active (Stage only; Sol Duc gage is operated by Ecology)

Period of Record

- 1 - 5 Years
- 5 - 10 Years
- 10 - 20 Years
- 20 - 50 Years

Other Gages

- Makah Indian Tribe Gages
- Toe-Width Sites

- Community
- WRIA 20 Boundary
- WRIA 20 Sub-Basins
- WRIA Boundary
- Urban Area
- Waterbody
- Reservation
- County Boundary
- Major Road
- Rivers and Streams

0 30,000
Scale 1" = 30,000 feet

N

Map Projection: Washington State Plane, North Zone, NAD 83, Feet
Source: Washington State Department of Natural Resources, Washington State Department of Transportation, United States Geologic Survey, United States Department of Transportation, Washington State, Department of Ecology, Washington State Department of Fish and Wildlife, Makah Indian Tribe

This figure was originally produced in color. Reproduction in black and white may result in a loss of information.

Historical, Existing and Recommended Streamflow Measurement Sites

Drawn: KBD	Revision: 5	Date: Nov. 14, 2005	Figure: 3-1

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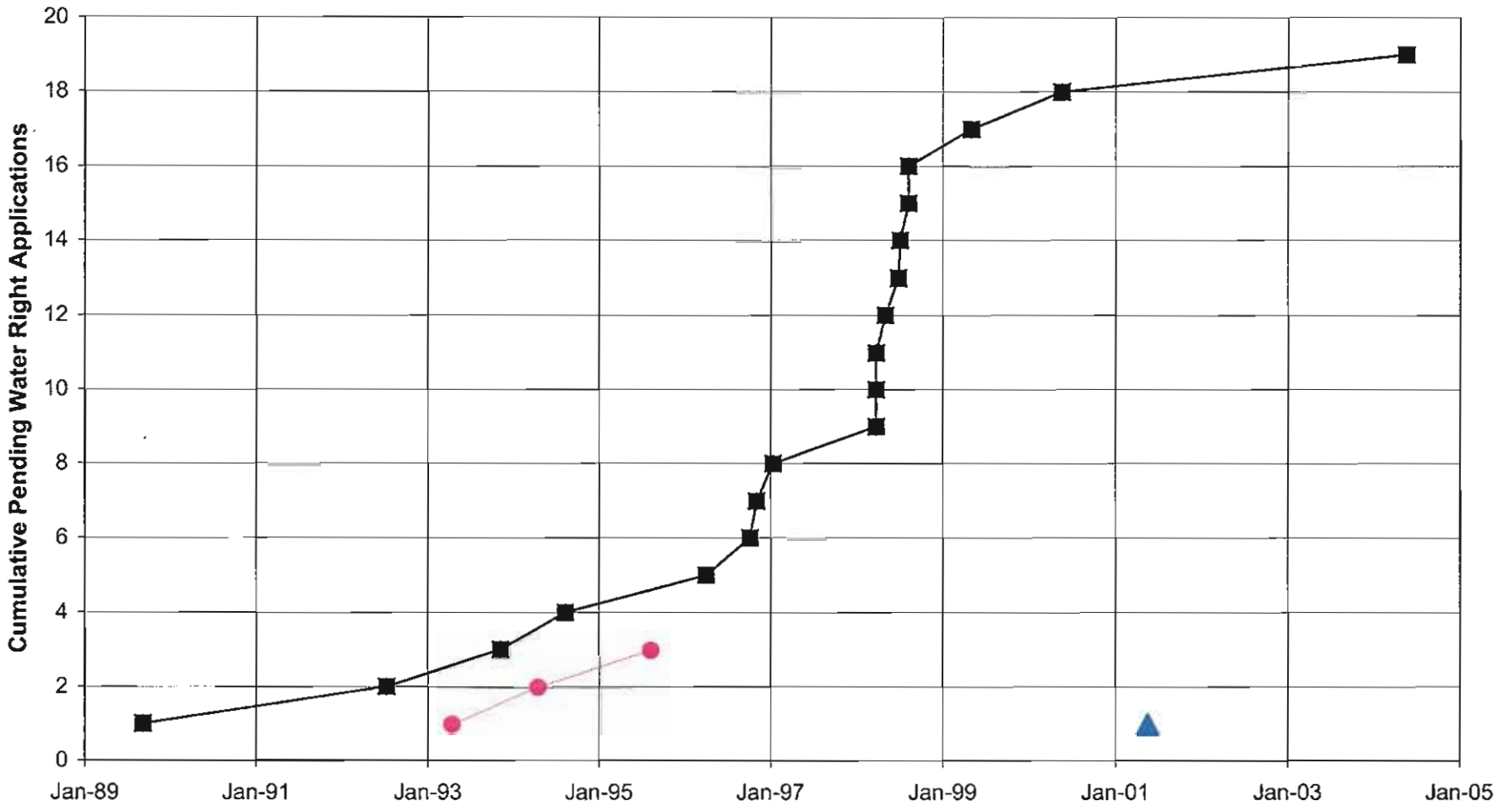

Data as of 5/1/2006; Current Water Right & Water Right Change Applications Pending with Ecology , Water Rights Tracking System

FIGURE 3-2:
Aging Water Right Applications in WRIA 20

WRIA 20 Watershed Planning
043-1130-200.405

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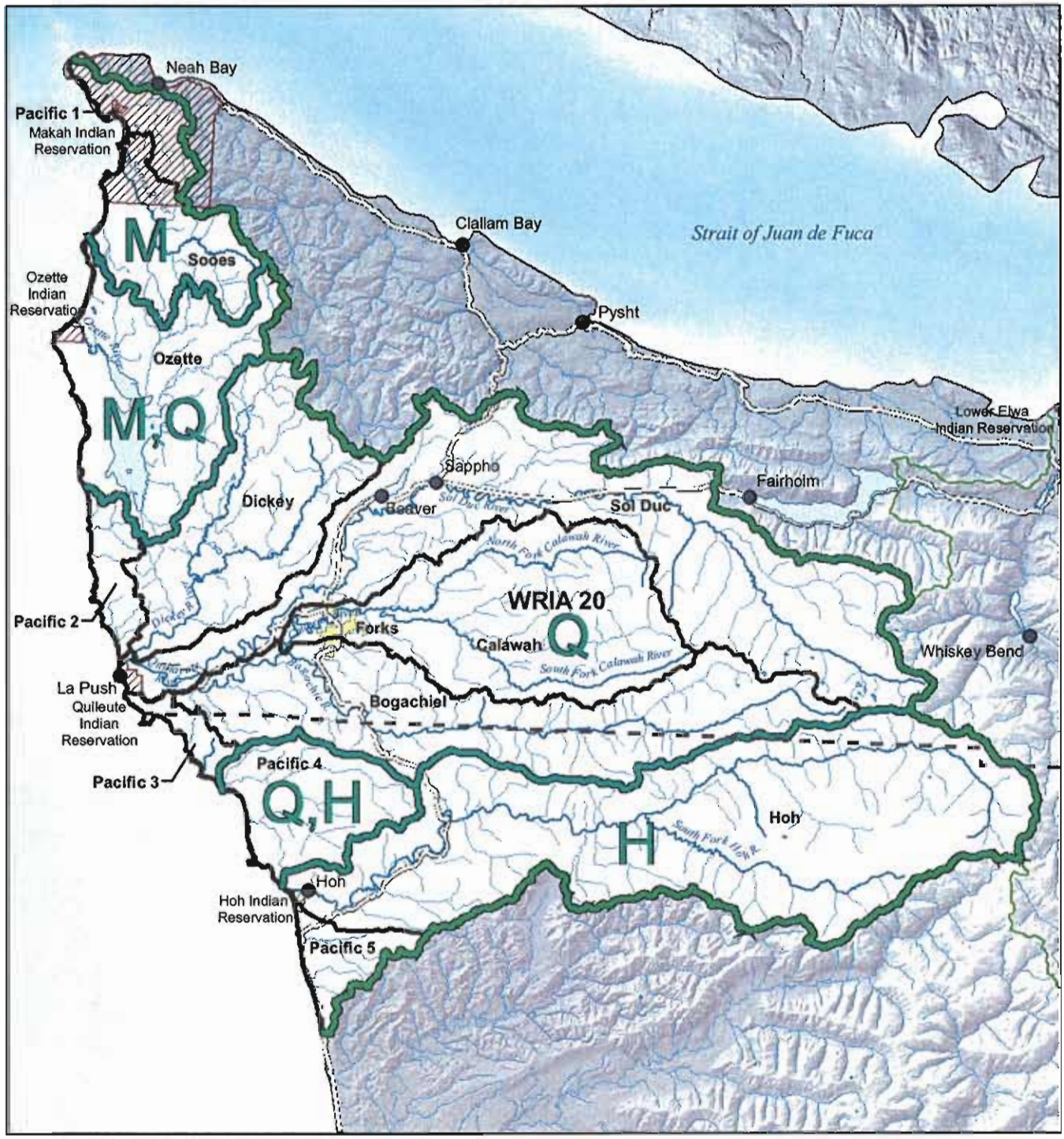
Fig 3-2_Pending Water Right Applications in WRIA 20; Chart2



LEGEND

- Community
- Tribal Consultation Areas
- WRIA 20 Sub-Basins
- WRIA Boundary
- Urban Area
- Waterbody
- Reservation
- County Boundary
- Major Road
- Rivers and Streams

Tribes to be consulted with on water resource management:

- M Makah Indian Tribe
- Q Quileute Indian Tribe
- H Hoh Indian Tribe

0 40,000 Feet

Scale in Feet

Map Projection:
Washington State Plane,
North Zone, NAD 83, Feet

N

Source: Washington State Department of Natural Resources, Washington State Department of Transportation, United States Geologic Survey, United States Department of Transportation, Washington State, Department of Ecology, Washington State Department of Fish and Wildlife, Makah Indian Tribe

DRAFT

This figure was originally produced in color. Reproduction in black and white may result in a loss of information.

FIGURE **3-3**

TRIBAL CONSULTATION AREAS

DRAWN: BC REVISION: 1 DATE: OCT 6TH, 2005

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LEGEND

- Community
- WRIA 20 Water Management Area
- WRIA 20 Sub-Basins
- WRIA Boundary
- Urban Area
- Waterbody
- Reservation
- County Boundary
- Major Road
- Rivers and Streams

0 40,000 Feet

Scale in Feet

DRAFT

Map Projection:
Washington State Plane,
North Zone, NAD 83, Feet

N

Source: Washington State Department of Natural Resources, Washington State Department of Transportation, United States Geologic Survey, United States Department of Transportation, Washington State, Department of Ecology, Washington State Department of Fish and Wildlife, Makah Indian Tribe

This figure was originally produced in color. Reproduction in black and white may result in a loss of information.

Note: Transfer of water to outside of WRIA 20 or between Water Management Areas is prohibited

FIGURE **3-4**

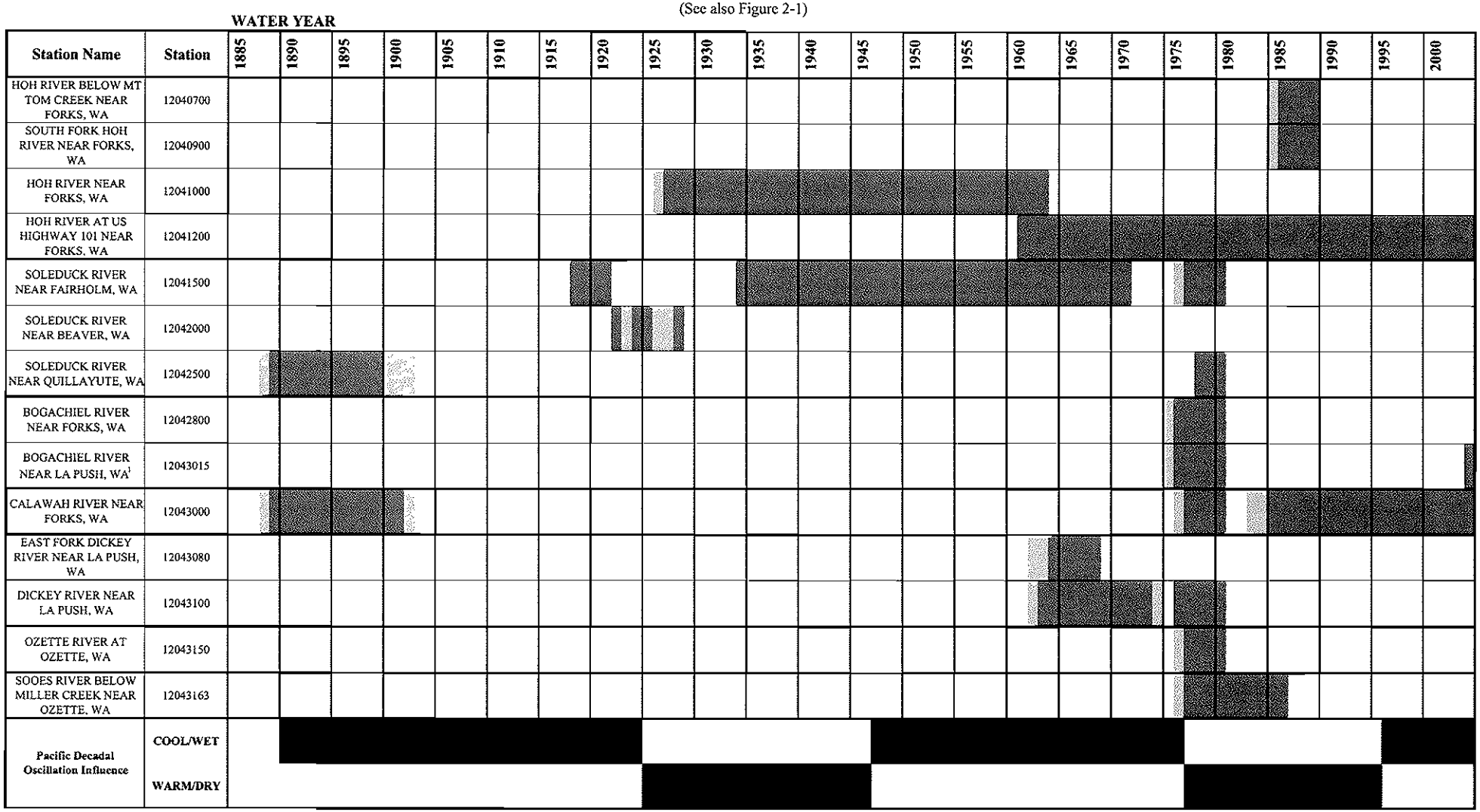
WRIA 20 WATER MANAGEMENT AREAS

DRAWN: BC REVISION: 1 DATE: OCT 6TH, 2005

Figure 4-1

Period of Records for USGS Gaging Stations in WRIA 20

(See also Figure 2-1)



Notes:

1) NWS Flood Stage Station

Indicates Partial Water Year

Indicates Whole Water Year

APPENDIX A

ISSUES IDENTIFIED FOR POSSIBLE FUTURE CONSIDERATION

The following actions were identified during the development of the Plan but were deferred for further consideration in future stages of watershed management.

Code	Action Item	Point of Deferral
NM-1	The Planning Unit recognizes that there are limited data associated with 'Nearshore and Marine' water-related issues, and that it cannot sufficiently define problems within the construct of the 2514 Planning process at this time.	Ranking during November 04 Workshop
Proj-1	There is a need to identify/define desired future conditions in WRIA 20 that are attainable and determine the extent that existing regulations and programs will contribute to those desired future conditions in the watershed.	Ranking during November 04 Workshop
QLD-2	Coordinate water quality and streamflow data collection.	Revision of Draft 1
QTI-2	Recommendation of streams with sufficient toe width data	Revision of Draft 1
QTR-3	Scoping meeting for water right applications.	Revision of Draft 1
QTR-6	Notice to tribes on water right scoping meetings.	Revision of Draft 1
LMO-5	Implement steep slopes CAOs.	Revision of Draft 3
LMS-4	Recommend timely consultation for plans among affected parties.	Revision of Draft 3
LMS-5	Encourage USFS and DNR to fund and implement RMAPs.	Revision of Draft 1
LMS-7	Ban removal of gravel from Riparian Management Zones (RMZs).	Revision of Draft 3
WQ-1	Additional baseline stream temperature (and other parameter) monitoring and coordination between monitoring entities is needed.	Framework Document
WQ-3	Timing of road restoration and maintenance activities does not always take weather into account.	Ranking during November 04 Workshop
WQ-5	Increased sedimentation can threaten drinking water because increased sediment inputs increase temperature which in turn allows for increased bacteria in surface water.	Framework Document
WQ-6	Satellite facility for household hazardous waste (PU to develop further if interested).	Ranking during November 04 Workshop
WR-1	Less than half the total water allocated in WRIA 20 is estimated to be used for domestic, municipal and irrigation purposes. It is not known whether the rest of the allocated water is being put to use, and if so, for what purpose(s). Does the PU want to investigate water claims, certificates, and permits and whether	Ranking during November 04 Workshop

	they are being put to use?	
WR-2	The purpose of use associated with allocated water in the watershed appears inconsistent with the current land and water use. This is especially the case for water rights with an associated purpose of use of "irrigation and stock."	Ranking during November 04 Workshop
WR-4	The federal land managers in WRIA 20, the National Park Service and US Forest Service, have an undefined water right. Investigate water use and allocation by the USFS and ONP.	Ranking during November 04 Workshop
WSU-1	Public water supplies are not always used by new development when they're available.	Ranking during November 04 Workshop
WSU-2	Illegal surface water diversions and illegal use of exempt wells have been known to occur. Although these illegal uses are not a large problem now, they may become a larger problem in the future. Lack of staffing for enforcement and education.	Ranking during November 04 Workshop
WSU-3	Industrial and agricultural water uses have not been fully quantified.	Ranking during November 04 Workshop
WSU-4	Inter-basin water transfers between individual subbasins within WRIA 20 should be addressed and accounted for.	Framework Document
WSU-5	If WRIA 20 water is sold in the future, the PU or other local body is needed to retain control to ensure that the WRIA is compensated and that adequate water remains for local in stream and out of stream needs.	Framework Document
WSU-6	Investigate potential for small scale hydropower. (Planning Unit to develop if interested).	Ranking during November 04 Workshop
WSU-7	There is a need to identify where there is available groundwater, and how much is available and whether there is potential for aquifer storage and recovery of groundwater.	Framework Document

APPENDIX B

FUNDING SOURCES

Phase IV of the watershed planning process is implementation. If the Plan is adopted and the Planning Unit successfully forms an implementation body or entity, finding funding sources to help pay for the actions described in this plan will be necessary. Potential funding sources include federal, state, and private programs. Because these programs are subject to differing yearly budgets and/or demand, these resources will need to be researched at the time when the funding is required. Funding resources have been compiled by a variety of organizations and entities. Three sources with which funding may be found are listed below. The text that accompanies the web addresses were copied from the listed web pages.

1. The Seattle Public Library has a grant database called FC Search (foundation center), available by appointment.

2. The National Association of Counties and the National Fish and Wildlife Foundation, in cooperation with the Community-Based Restoration Program within NOAA Fisheries, are pleased to announce a new program targeting marine habitat restoration in coastal counties. The *Coastal Counties Restoration Initiative* provides financial assistance on a competitive basis to innovative, high quality county-led or supported initiatives that foster community-based wetland, riparian, and coastal habitat restoration projects through project planning and hands-on conservation. These projects will improve habitat for NOAA trust resources, including marine, estuarine, and anadromous fish habitat. Grants will be awarded through a competitive process to eligible grant recipients. Grants that are community-based in nature and willing to work in partnership with NOAA will be given special consideration, as NOAA's Community-based Restoration Program is providing major financial support for this partnership. Grants will range from $25,000-$100,000, based upon need. http://www.nfwf.org/programs/ccri.cfm (Accessed 6/06).

3. Founded in 1992, the Environmental Finance Center Network (EFCN) is a university-based organization dedicated to creating innovative solutions to manage the cost of environmental protection. The Network works with the public and private sector, addressing "how to pay" issues and promoting a sustainable environment. The EFCN is supported in large part by EPA's Environmental Finance Program in the Office of the Comptroller, Office of the Chief Financial Officer. The Directory of Watershed Resources is a searchable database of resources available to assist with a variety of environmental projects. The database includes information on federal, state, private, and other funding sources and assistance. Users can search for programs through a targeted search, keyword search or through an index of federal, state and private sources. The Directory currently includes funding information for the following states: Alaska, Connecticut, Idaho, Maine, Massachusetts, New Hampshire, Oregon, Rhode Island, Vermont and Washington. http://efc.boisestate.edu/searchmenu.asp (Accessed 6/06).

Because the pool of funding sources changes constantly, the expenditure of further effort to identify potential funding sources is deferred until Phase IV when planning actions will be prioritized for implementation.

APPENDIX C

COMMENTS AND PERPECTIVES SUBMITTED DURING PLAN PREPARATION

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Restoration and Mitigation Projects for Channel Meander Zones--Achieving Historic Functions that Would Provide Relative Stability to Fish Floodplain Habitat and Floodplain Areas Consistent with Early Homestead Uses:

by Jim Jorgenson, formerly with the Hoh Indian Tribe, and John Richmond, Hoh River Valley resident.

Studies by Abbe and others have established that Olympic Coastal Rivers such as the Queets and Hoh Rivers have floodplains with fairly dynamic characteristics punctuated by relatively stable zones where the geological hard points and the geomorphological characteristics of some log jams exert a stabilizing influence. Abbe has reported what he characterized as stable channel islands within the Queets basin. Dating of some jams indicate LWD pieces aged as far back as 1500 years old, Abbe, personal communication.

"Old-growth forested islands that persist in the river valley for centuries despite the river migrating across the valley floor numerous time are founded on relic log jams", as Abbe states. (Abbe, 1996). According to Abbe similar buried jams would need to be established to accomplish the goal restoration for stable floodplain areas. Furthermore, restoration of the riparian function to provide a source of large trees to recruit to such jams would need to be re-established on top of these jams and perhaps in the most stable areas above such jams where similar protection is achieved. Studies suggest that bank cutting rates are little affected by riparian cover, but that surface erosion and the formation of increased numbers of channels can occur where general tree cover and vegetation are mostly removed.

1): We propose the support of projects which fully utilize all available site specific channel characterization information, the science available in geomorphic studies such as those conducted by Montgomery and Abbe, and utilize the expertise of available engineers with extensive hydro-geomorphic experience and background.

2): It is understood that such efforts must be directed to the long-term, immediate fixes are unlikely. The scale of remedies available to smaller governmental and private individuals and direct impacts to fish dictate a strategic approach which seeks to establish relic jams outside the current active channel, in adjacent accessible dry channels or relic swales in anticipation of eventual encroachment of the active channel migration. Establishment of the jam and active channel encroachment, within the time period of channel meander will allow formation of a deep LWD framed pool of the edge while allowing for tree growth elsewhere.

3): The establishment of riparian tree growth on each jam and at strategic locations above each jam is necessary to maintain the jams both structurally and for LWD recruitment to other downstream jams.

4): The establishment of a Live Tree Bank Project to find and purchase the eventual use rights to Large Live and Accessible Trees (for LWD projects), such as on WDNR Lands that lie near road right of ways outside of habitat and slope hazard areas would be a critical component that should be supported through WRIA 20 and the SRFB processes. Perhaps initial purchases with yearly retainer fees could be justified to the State Trusts or other private landowners based upon an economic analysis done within the project scope.

The above projects represent an approach to encourage bank protection and groundwater storage capabilities by restoring bottom land area that could eventually restore strategic river bottom areas to agricultural use similar to that lost because of ever-widening open river beds.

The Project should also provide sufficient additional trees to be placed to protect agricultural land as needed. Flood water will still overflow portions of areas protected and bring suspended material and fine debris. Sediments will deposit in and under small trees.

Memo

To: Bob Duffy, Ecology Watershed Lead, WRIA 19 & 20

From: Patricia L. Olson, LHG, PhD, Hydrogeologist, SEA

Date: September 1, 2005

Re: Some thoughts and comments on Mr. Richmond's comments to WRIA 20 planning unit

My responses are in regard to John C. Richmond's memo dated August 9 2005 and submitted to the WRIA20 Planning Unit members. I have reviewed this document at your request. My comments relate to Mr. Richmond's observations regarding Hoh River physical river processes and proposed restoration actions.

I certainly appreciate the Hoh watershed citizens' desires to do the right thing. A river is an important educator and living on a river provides many insights into the river. I wouldn't give much credence to a geomorphologist, hydrologist, hydraulic engineer or similarly educated person's explanation of how a specific river system works if they never have spent time at and on that river. That being said, without a comprehensive understanding of fluvial geomorphologic processes, living on a river doesn't necessarily equate to supportable answers to why a river responds in certain ways and what to do (or not) about the responses.

The US Bureau of Reclamation (USBOR) conducted a channel migration and sediment transport analysis on the Hoh River from River Mile 17 (Oxbow Canyon) to 40 (Mount Tom Creek). Herrera Environmental Consulting and Perkins Geosciences did a similar study from River Mile 0 to 17. Most of my comments are based on the USBOR study and my own professional observations and research in the Middle Hoh area. However, these also apply to the river downstream of river mile 17 to the tidally influenced area. The assessment team included geomorphologists, geologists, and hydraulic engineers.

Both channel geomorphology studies evaluated the historic channel migration zone (HCMZ) over a timeframe between 84 to 111 years before 2002 using aerial photographs, GLO cadastral surveys and USGS maps from 1920's. The historic channel migration zone includes the active channels and adjacent floodplain. Field surveys were conducted on all reaches. Potential future risk of lateral migration and bank erosion was estimated and areas were identified. The maximum lateral extent of future expansion of the HCMZ over the next few centuries (low certainty on prediction) was delineated and referred to as the future CMZ.

Summary of findings

1. The expansion of the Hoh River HCMZ is a natural process given its historic and current physical setting. However, there has been greater erosion in the Middle Hoh than in the Park.
2. Between 1939 and 2002, 47 acres of HCMZ erosion occurred in the Park and 276 acres occurred in the Middle Hoh. Of the total area eroded, 278 acres (86%) occurred in alluvial material meaning that most erosion occurred within the active channel and floodplain rather than eroding the Quaternary terraces or other features that are not part of the modern day

active channel and associated floodplain. However, it is the 14% of total area eroded outside the active channel that people will typically notice and perceive as the dominant erosion process along the river.

3. Change in flood size and frequency, channel form, vegetation and woody debris, and human disturbance were reasons given for greater erosion rates in the Middle Hoh.

4. Stream gage data were compared and floods were analyzed. The stream discharge data indicated that flood magnitudes (normalized by drainage area) in the Middle Hoh may be 2 to 3 times that of floods in the Park. The frequency of floods greater than the 2-year flood has increased since 1927, with the largest increases occurring after 1971. Between 1927 and 1971, the 2-year flood was exceeded between 18-50 percent of the evaluated years. Since 1971 the 2-year flood was exceeded more than 70% of the years evaluated. While increased flood frequency and magnitude can increase channel migration rates and channel widening, they are not the only factor.

5. Channel form plays an important role. The Hoh River has different channel patterns depending on channel gradient and roughness. Most large rivers naturally have varied channel patterns. In the Park the channel is wandering with a mixture a meandering and multiple channel patterns, steeper slopes, more woody debris and higher channel roughness. Whereas the Middle Hoh is more a sinuous, meandered pattern with less wood, channel roughness and flatter slope. The physical channel conditions in the Middle Hoh are more conducive to erosion along meander bends. Most erosion in the Park occurs within the active channel boundaries with frequent flow splits caused by LWD and gravel bars. Thus the HCMZ in the Park, channel deposits are continually being reworked while the Middle Hoh is more likely to have lateral expansion in the HCMZ.

6. Meander bend migration rates are more rapid where there is no large vegetation (> 21 inch dbh) to provide resistance to the flow force against the banks. In the Middle Hoh, there has been removal of riparian vegetation and many terraces have been logged. Analysis of historical erosion rates indicate that logged terrace surfaces erode at a faster rate than areas with old growth vegetation. All measured lateral expansion of the HCMZ in the Middle Hoh occurred where these areas had been logged prior to the river meander bend erosion.

7. A comparative analysis between meandered reaches in the Park and those in the Middle Hoh, indicate on average, half of the terrace bank erosion in the Middle Hoh reaches cannot be explained entirely by changes in discharge, channel planform or longitudinal slope. The study suggested that this was further indication that logging of terraces played an important role in lateral migration and expansion of the HCMZ.

8. While there has been an increase in coarse and fine sediment supply to the Middle Hoh from roads and landslides associated with past forest practices and other land use activities on terrace banks, the sediment transport capacity is generally in balance with the upstream sediment supply. The river planform has not changed over the 84-111 year evaluation period. The USBOR used stream power analyses (balance of water discharge or velocity to channel gradient) to evaluate the relationship between sediment supply and transport capacity. Their conclusion was that the increase in coarse sediment loads is likely small relative to the total sediment transport capacity. The analysis also indicated that transport capacity in the Park is equivalent to the Middle Hoh.

9. Active channel widths were also measured from 1939 to 2002. Widening of the active channel can be an indicator of change in channel stability. Channels often widen in response to increased sediment supply. This assessment supported the stream power analyses in that there were no significant long-term trends in active channel widths between reaches or within a single reach. There is year to year variability which is caused by variability in the

precipitation regime and short-term response to external conditions such as landslides. It is the year to year variability that is most likely perceived as a change in river stability rather than seen as part of a natural cycle over the long-term. Climate change may affect this natural cycle but trends are not evident yet or the research has not been done to determine these more recent events in relation to the past. So how the Hoh River will respond to climate change is mostly speculation at this point.

10. Fine sediment delivery does not lead to aggradation in the main channels since it is mostly suspended. However, in side channels and other slow water features, the fine sediment is depositing and may affect aquatic habitat.
11. Logging on terraces in the Middle Hoh has reduced recruitment of adequately sized LWD. Most of the larger wood that could withstand the wood transport capacity of the Middle Hoh floats in from the Park. A reduction in LWD that won't be transported during bankfull and larger floods means a decrease in channel roughness and in-channel sediment storage and a subsequent increase in sediment erosion and sediment transport capacity.

The USBOR study doesn't discuss the role of large deep-seated mass wasting in Middle Hoh channel stability. My observation suggests that these features also contribute to the meander bend erosion. The deep-seated mass wasting is associated with the glacial deposits and their groundwater patterns. Logging upslope of the mass wasting areas can increase groundwater recharge and alter groundwater patterns. Increased groundwater recharge after removal of forests can lead to further destabilization of these areas. Canyon Springs is one such area where the road and bank failure are continuous and caused by mass wasting.

So what does this mean in terms of Mr. Richmond's observations?

Increased aggradation, increased width to depth ratios, more braiding:

- The sediment transport dynamics (erosion and aggradation) apparently are still in dynamic equilibrium (the natural condition, meaning that dynamic adjustments to sediment regime occur due to inter-year and seasonal meteorological fluctuations and sediment delivery) until proven otherwise by rigorous sediment budget and transport assessment.
- *Mr. Richmond stated that cross-sections have changed and "appear" to have raised and flattened.* Cross-section variation is an expected result in a mobile bed river like the Hoh and doesn't offer proof that the sediment regime is out of balance with transport capacity. Appear is a key word here because it is most likely a perception based on short-term variation rather than long-term trends as discussed in item 9. The same can be said about increased channel widths. Movement of bedload is to be expected since the sediment supply does not exceed the transport capacity which is a normal occurrence for mobile bed rivers. Also refer to following discussion on comparing the Hoh River to the Sandy River. Another thing about, sinuous, mobile bed rivers is that they move and migrate across their floodplains. That is their nature. So Mr. Richmond's descriptions about the river are what would occur whether we are here or not.
- *Increased sediment budget ratio to benefit of naturally sustained LWD supply and negative erosion impact of trees on banks*—As discussed in item 11, appropriately sized LWD is mostly gone due to logging on terraces so it is not naturally sustainable anymore. This decreased supply does affect the ability of the river to store increased sediment and leads to an increase in sediment transport capacity. In some situations LWD will divert flow against a bank but it isn't a long term impact in the Middle Hoh because the existing LWD is transported out during floods. Typically logjams don't adversely affect channel stability. More channel splits can occur around the log jams but this doesn't mean there is a decrease in

stability. This is a common occurrence in the Park where there is still abundant, appropriately sized LWD. However, the erosion is limited to the active channel and doesn't cause "problems". Refer to Abbe and Montgomery (1996) for discussion on LWD jams and channel hydraulics in the Queets River.

- *Loss of thousands of acres of bottom lands, wetlands and potential groundwater storage areas.* See item 2, where only 276 acres were identified as eroded in the Middle Hoh since 1939. If Mr. Richmond has better quantitative information than that then he should supply it so that appropriate decisions can be made.

Mr. Richmond makes some good suggestions concerning restoration and land management but based on my 15 years applied experience in river restoration design, implementation, and monitoring and others experience (*e.g.*, Kondolf 1995, Kondolf *et al* 1996, Abbe *et al* 2003), not all the suggestions and observations are well grounded.

In-channel gravel mining:

- Since the river sediment supply and sediment transport capacity is in dynamic equilibrium, gravel mining in the active channel is a band-aid, limited approach that will not provide any long-term solutions. Moreover, gravel mining in the active channel is usually only permitted where it can be definitively shown to reduce flood hazard to inhabited structures, won't cause up or downstream impacts, and there are no other alternatives. I don't know of any scientifically credible habitat studies in PNW that support in-channel gravel mining as aquatic habitat improvement. Dave Norman (1998), WDNR, wrote an article on reclaiming no longer used floodplain gravel pits for habitat. However, his intent was not to encourage new in-channel mining as evidenced by another article (Norman *et al* 1998) which describes the environmental impacts from in-channel and floodplain mining. Kondolf *et al* (2002) provides a through discussion of research on the effects of sand and gravel mining on river systems. Mr. Richmond's statements that studies show some conclusion is made than those references or unpublished data need to be added for review and scrutiny.
- Mr. Richmond uses the example of scalping gravel bars for road construction near Spruce Creek and in the Morgan's Crossing reach as an example of creating a stable channel condition. The channel migration map developed by the USBOR shows the channel near Spruce Creek and Morgan's Crossing has moved substantially within its migration zone. In fact, these two areas have some of the widest HCMZs in the Middle Hoh. So I'm not convinced about Mr. Richmond's statement that channel remained stable after gravel mining. I suspect that it was a short-term observation rather than integrated into long-term channel migration in these areas. If it remained stable during that short-term period, it probably had nothing to do with gravel mining. I have the USBOR maps that show the extent of movement at these locations in my office for your review.

Use of riprap for bank protection and habitat:

- While riprap is the most frequently used bank stabilization method in the U.S., it is not a permanent solution in the Hoh as evidenced by the past Highway 101 erosion problems and other erosion along the north Hoh River Road (*e.g.* upstream of Lewis Ranch, MP 5 to 6, and MP 9.7). Mr. Richmond is correct in saying that riprap isn't usually a fish passage barrier; however, his assumption that it provides high quality flow refuge for fish is not supportable. While riprap can offer some limited and low quality habitat, riprap only affects the boundary conditions near the bank and does not offer sufficient cover or create diverse habitat structure so has limited applicability to providing adequate habitat (*e.g.* Fischenich 2003). Riprap is generally placed where the highest velocities and sheer stresses are found. Fish are not attracted to those hydraulic conditions during high water and will move away from these

areas. Hydraulic conditions at the toe of the riprap during floods are not much more attractive. In addition, riprap provides very limited interstitial space for fish to use during high flow.

- Side channels and large structure within the channel (*e.g.*, LWD, large boulders) which foster formation of pools and cover provide higher quality and larger areas of habitat for high flow refuge. Riprap in combination with LWD and revegetation does provide better habitat than riprap alone. However, riprap is not recommended in the channel migration zone and would likely not receive a HPA permit unless there is no other solution. Even then it will require mitigation. Refer to the WDFW *Integrated Streambank Protection Guidelines* for more discussion on bank protection strategies that also offer habitat benefits. A discussion on riprap, potential reasons for use, impacts and other interesting items is located at the following address on pp 6-67 (Chapter 6) http://wdfw.wa.gov/hab/ahg/ispgdoc.htm (Accessed 6/06).
- Placing LWD structures along *existing* riprap will provide greater protection to banks while creating aquatic habitat. This type of bank protection would likely be more amenable to WDFW and infrastructure will still be protected by the existing riprap should the LWD jam(s) fail.

Sandy River example of channel response to channelizing is not appropriate because:

- The Sandy River has a very different climate and flow, sediment and wood regime than the Hoh so there is no equal comparison. The Hoh River carries a tremendous volume of water because the high Olympics receive more rain and snow than any other place in the conterminous states. This means that the Hoh has more transport capacity (discharge is a component of capacity) than similarly sized rivers in areas of lower precipitation, such as the Sandy River (Figure 1a, b). The Sandy River headwaters are located on the southwest slope of Mt. Hood. The reach Mr. Richard is describing is near Rhododendron and ZigZag downstream of a dam and diversion structure, another big difference between flow and sediment regimes. The geology and geologic history is also very different. How the Sandy River responds to channelization is not how the Hoh River will respond to channelization.
- Channelization in the Hoh would most likely result in incision and increased transport capacity and further loss of LWD, spawning gravel, and side channels (*i.e.*, habitat). The entire effect of channelizing is not discussed. So questions are, for example: How did it affect upstream sediment transport dynamics? Did it cause incision? Did it undermine upstream banks? What about downstream? Did the channelized reach become a transport reach so excess sediment was transported to the downstream, aggraded and caused problems there? If no change happened what were the upstream or downstream controls? Major changes in channel processes, such as channelization, gravel mining, diking, revetments, riprap etc require not only an assessment of the reach in question but also the potential effects on the upstream and downstream reaches. The risks imposed by these actions need to be assessed and the effects of land use on rates of landslides or channel migration must also be taken into account.

As is, his considerable length of time on the Hoh is predated by many land use activities that may have caused changes. It is those causes that need to be fixed within the watershed, not by engineering and gravel mining in the river. In the Hoh, there is an opportunity to address long-term watershed restoration rather than band-aid approaches because there is fewer listed species for the most part and as far as I know, no inhabited structures above the Hoh Tribes living area are in imminent danger of falling into the river.

Thank you for the opportunity to review and comment on Mr. Richmond's letter. If you have any questions please feel free to contact me at 360-407-7540 or pols461@ecy.wa.gov.

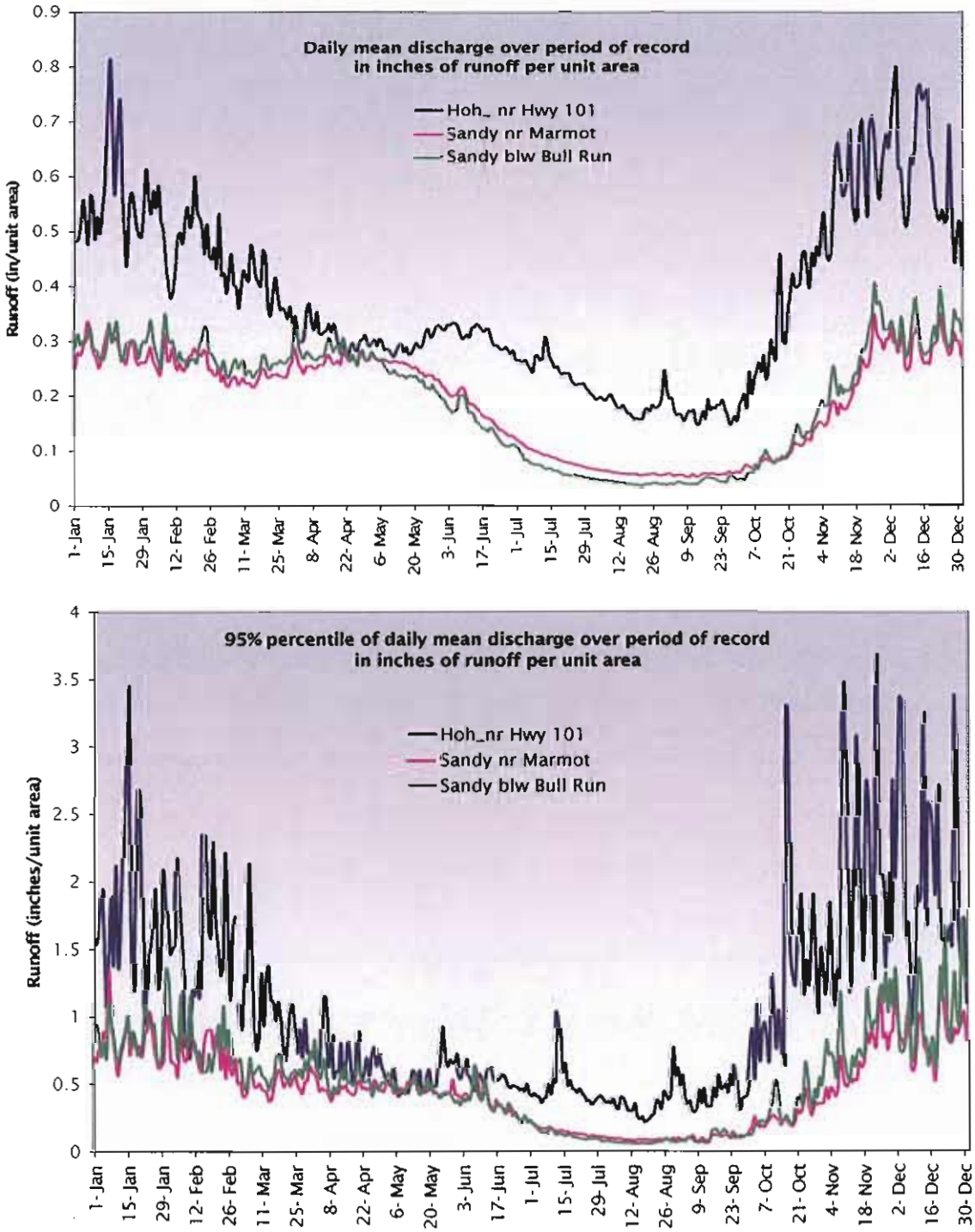

Figure 1: Hydrographs of a) mean daily and b) 95% percentile of the mean daily discharge, normalized as runoff in inches per unit area for comparison, illustrate the difference in discharge between the Hoh and Sandy River. Runoff to the Hoh is much greater and more variable with greater transport capacity throughout the year. This example illustrates short-comings of using very different river systems as examples of what can be done on the Hoh. Such comparisons can lead to the "bad and ugly" not "good" solutions.

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(EDIT 1)
August 9, 2005
Revised:
May 22, 2006

To: WRIA 20 Planning Unit Members

From: John C. Richmond
Phone: 360-374-2414 E-mail: watermaps@hotmail.com

Subject: Summary of my comments regarding ongoing Hoh River Basin Evaluation as part of Water Resources Inventory Area 20, sponsored by the Washington State Department of Ecology, and in comments received from interaction with the Department.

This memo is my opinion, based on personal experience, as it pertains to the Hoh River basin. It is offered as a win-win consideration.

BACKGROUND: From life-long familiarity with and periodic residence on farms adjacent to the river, I have been afforded a unique opportunity to observe and contemplate the effects of the various stages of seasonal flow and experience by implementing the use of LWD to reduce erosion. Combined with professional registration as Civil Engineer, Water Right Examiner and Land Surveyor in Oregon, Washington and California, as well as experience in design of several roadside protection structures along rivers exceeding flow of 35,000 cfs and many miles of timber access roads and stream crossings, all of which considered wildlife habitat, fish passage, safety, practicality and economics, I feel that I can offer constructive comments, hereon.

SPECIFIC CONSIDERATIONS:

Existing channel problems with the Hoh River;

- Continuously aggrading and elevating of the riverbed from an increase in alluvial deposits;
- Continuing increase in wider, shallower flow, separating into more braided channels, premature dewatering of spawning redds;
- Lost bottom-land, unvegetated gravel bars not maintaining ground water storage capabilities above stream surface elevation;
- Excessively increasing the sediment budget ratio to detriment of supplying sufficient amount of naturally sustained LWD;
- Immediate erosion of stream bank shoreward from undermined large-limbed old-growth trees falling from undercut banks; Downed trees with large roots or large impaled limbs do not release quickly, forcing current to move shoreward, furthering erosion of the stream bank.
- Logjams unpredictably or adversely affecting channel stability;
- Inability to manage cross-section of exposed gravel bars;
- Contention that rip-rap or erosion-resistant structures impede fish passage.

- Construction, in 2003, of several "engineered log jams", three of which floated away in the October event, reposing downstream on high open bars, so as to prevent normal channel widening necessary for energy dissipation. The unintended consequences are yet to be realized.

- The 2004 jam construction with steel piling remains to experience a large flood event, with most of the flow remaining in a constructed bypass channel.

Channel Conditions;

From continuous supply and deposit of transported bedload, the average riverbed elevation cross-section has raised and flattened, with much-increased width and height of exposed gravel bars and more braiding of channels. Movement of bedload material is continuous and can be heard, when swift flow moves boulders. Tremors can be felt, while standing on a gravel bar near the edge of a rising stream.

The sources of the material responsible for increasing the elevation of the riverbed come from landslides, originating along the upper river valleys, where steep natural slopes are undercut and fail by even minor channel changes, as well as from increased flow due to a higher melting rate of glaciers providing and transporting the material.

The result of an elevated riverbed cross-section is that it allows infiltration of surface water into coarse gravels, reducing flow volume at the surface.

Logging of excessively steep State land resulted in frequent and sustained sliding, creating debris torrents in obstructed creeks, contributing wood and massive quantities of silt and gravel to the valley streams.

Logjams change location, during periods of higher or swifter flow than when they accumulated, later becoming situated where flowing channels can be partially or extensively blocked and create an increase in water velocity which widens the bank erosion or deepens the channel. Single stumps or projecting logs can also influence channel creation.

The effect of large old-growth falling into the river by undercutting of the bank, and held fast by remaining roots and limbs embedded in the stream bottom causes side-washing and bank erosion around the rootwad by higher velocity flow for several hours, often days, until the freed roots and limbs releases the tree. Only then can current move it to a deeper channel.

The result is a combination of high increase of suspended and deposited sediments, as well as erosion which creates a higher, steeper bank. When the water surface drops as the flood waters recede, small tributaries are isolated, which may not down-cut to be accessible for salmonids for several years.

Along the river, a thousand or more acres of bottom lands, wetlands and potential groundwater storage areas have eroded away, have been replaced by coarse aggregate gravel bars, while some are regenerated with alders and brush, have thin gravelly soils which deplete the capability of the uplands to retain and replenish stream flow with stored groundwater.

To avoid potential destruction to the fisheries habitat, as well as to the communities and cultures, the WRIA 20 Plan identifies and addresses the need for enhancement to be conducted through intelligent intervention.

Restoration and Mitigation.

An acceptable approach is to encourage bank protection and groundwater storage capabilities by restoring bottom land area with placement of large woody debris or other material to restore the agricultural productivity of former areas lost to ever-widening open river beds. This has been successfully done on the Hoh and other rivers in western Washington.

This can be accomplished by funding importation and installation of LWD, (some from logjams) and other materials on shaped gravel shoreland adjacent to agricultural lands, especially along the Hoh. Mitigate landowners' loss of LWD in CMZ with replacement from nearest State land, an equal timber volume on comparably accessible ground. Provide sufficient additional trees to be placed to protect agricultural land as needed. Flood water will still overflow portions of areas protected and bring suspended material and fine debris. Sediments will deposit in and under small trees, tops of larger trees which are adequately tied back either to larger trees with adequate cambium protection or tied to buried concrete or wooden anchors at a safe distance, (75+ ft.) from shore. This will trap fine sediment sources and provide groundwater storage and riparian habitat.

The problem is also, that the water storage is in the riverbed gravel.

(The crow, in a fable, dropped stones into a vase to raise the water to the top to reach it for a drink. That only worked in a confined, narrow vessel)

(A home fish tank, level-full of stone and water, could not have water added to it to increase the depth, nor could stones be added to raise the water level to obtain more. The obvious solution is to remove some of the gravel to reach the water)

The resolution may lie in excavation to reach well below the streambed elevation to allow increased flow.

Gravel removal from parallel dry bars in select reaches can be engineered to benefit low flow conditions and should be encouraged. This concept is supported in numerous habitat studies.

Many places where road gravel was obtained prior to 1950, from open, non-vegetated bars along the Hoh remained stable for many years afterward. Other areas, which had Alder regeneration removed prior to excavation resulted in movement of channels for a hundred yards or more, (Spruce Creek, Morgan's Crossing, etc.) In the later 1950's and 1960's some floodplain areas well away from the riverbank were excavated substantially below the stream bed. Moving floodwater succeeded in cutting the remaining upstream barriers initially left in place, avulsing to become the present channel. Many other reaches along the river have always been severely braided with drying channels, trapping many salmonid juveniles.

The State could sell gravel permits on exposed gravel bars for the purpose to create deeper future channels at the G & L rapids, and to get braid elimination and flow channel construction accomplished very safely and economically. Some emergency work is reported to have been done in the past.

While hydrologically geologically differently, these two rivers share similar problems. The Sandy River, with many glacially fed tributaries near Zig Zag, Oregon, was restored after the 1964 and 1996 flood events by bulldozing the entire channel at a width of over 200 feet for a distance of more than a mile of its length. The feeder tributaries have experienced extensive reshaping in the proximity of threatened subdivision homes. To protect several homes along the Hoh that are currently threatened

by continuously eroding banks, tens of thousands of dollars and hundreds of hours of labor have been expended.

Use of very large, angular rip-rap for protection of roadways or steeply eroded banks, creates a refuge for fish during periods when the "flow resembles the inside of a cement mixer" moving mud, trees, LWD, gravel and rocks. It is about the only object along a shore that does remain stable. Cleaner groundwater does exfiltrate from the interstitial spaces between the rocks.

If no other significant parallel channels are present, fish tend to use slower flowing, deeper water at the toe of rip rap embankments where a variation of bottom cover and gravel gradations can be found during low flow conditions. Support for bank stabilization and fish habitat with the use of rip rap is given in many reference sources. Entry to side streams can be enhanced by excavating the entry prior to placing the stone for groins or barbs, combining with a boat launch ramp to reduce downriver flow velocities.

Food Safety;

The Homeland Security Administration is concerned about terrorists contaminating the commercial food supplies. The best defenses are widely dispersed sources of heritage seeds, and home-canned meats, vegetables and fruits. Vacuum-sealed dry commodities have a shelf life of several years. Commercially canned and powdered condiments augment a safe supply.

Small farms in the Hoh River Valley, some existing for more than 100 years, provide organically grown produce, annually approximately 75,000 pounds of beef and other livestock to hundreds of families in both commercial and private markets. Elsewhere in WRIA20 and the State, small farms make very important contributions, (65%) to agriculture, the number one industry in the State. Small farms produce food commodities and generate tax revenues for supporting county, state and national needs. These are not tax-dodging hobby farms, nor are they huge market feed lots with their attendant pollution problems.

Some farms host urban visitors, international and local youth, providing a real education about where their food actually comes from, finally learning that it is not from the can, box, freezer or bin. How large was your vegetable garden last year?

Land Management:

The best protection for the river is to encourage and assist landowner to participate in riparian restoration, without placing onerous requirements or burden as a condition of funding.

Farmers and landowners are not only of capable of repairing erosion damage, they understand the cause and effect relationship and know methods of accomplishing the task, and have the motivation. Funding for this work should be made available to provide labor, equipment, material, supplies, and LWD. Fence construction should be funded, but should not be required along streams in open range areas. Elk cause damage to fences, allowing cattle following their trail to become entangled, resulting in injuries to livestock and the elk.

This lovely valley, occupied by earnest, honest, and concerned residents has a mission also.

Our Mission is to:

Preserve the cultural community, traditional heritage, future legacy and long term productivity of the Hoh River Valley.

Maintain the balance of wildlife, agriculture, tourism, forest management, and rural self-sufficiency by continuing and furthering the individual stewardship of the families living in the Valley.

Our goals are to continue to:

raise and educate children in a safe and productive environment.

produce safe and nutritional food for hundreds of families as has been done for over one hundred years on Hoh River farms and ranches.

provide a friendly environment for land and river wildlife.

provide facilities for tourism for education and recreation of visitors and to help support the local area economy.

enable the ecologically sound and scientific harvest and reproduction of forest products.

provide a tax base to support community necessities such as roads, schools, hospitals, fire protection, and local government

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People who live on the land, care for the land.

############

Water Storage in Big River -- Achieving stable stream flows for fish and the people whom live and work in the Ozette Basin.

By Ed Bowen, Ozette Basin Resident

The WRIA 20 Water Management Plan (WMP) incorporates findings and suggestions regarding water storage in Big River, Ozette Basin. A report funded by this process, *Golder Associates, Inc. 2005b. Multi-Purpose Storage Assessment: Water Resources Inventory 20* (MPSA), provided a selection of suggested projects that attempts to address solutions to stream flow issues within this basin. The report, and thus the WMP, doesn't appear to provide guidance or capture the thoughts on four components:

1. Overcoming geological barriers to providing quality ground water to all residents of the basin.
2. Water storage potential suggested by local observation and experiences that did not receive analysis, and thus are not documented in the WMP.
3. Issues discussed during the MPSA's development but not included in the report.
4. Disconnects that cause poor conclusions.

It is important to understand these comments are not meant to draw conclusion, or even speculation, as to why or how the MPSA did not capture these particular issues. The purpose is to provide knowledge for the implementing body on issues that still exist and recommendations for further analysis.

Prior to approval by the WRIA 20 Planning Unit for contracting the MPSA, initial analysis of the geology for supporting ground water and storage projects in the immediate Lake Ozette area identified limited options available for either storage (*e.g.*, Aquifer Storage and Recovery methods) or ground water withdrawal. Therefore, the MPSA was not tasked to address this particular component; further investigation of this issue remains to be seen, or if there is even a means to pursue, with the purpose of providing a reliable potable water source for the residents in this region, in particular, and since the lake is it's own water storage system.

Provide for water storage in the upper reaches of the basin, keeping the water from just becoming runoff and thus providing for a balanced instream flow for a longer duration. The suggestion provided:

> Certain road structures in the upper basin, whether currently abandoned or not, are providing retention of water in the form of wetlands/ponds. It is understood this condition is contradictory to WDNR and WDFW policy; however, prior to removing such structure it is recommended the greater benefit be determined. Is the structure a realistic fish passage issue (for which is believed to be the State's concern) and does it provide a valuable water storage solution that maintains instream flows downstream during low precipitation periods? Voluntary implementation of this concept should be promoted in the Ozette Basin at large.

Addressing whether stream buffers are adequate to provide steam shading and temperature control, local observation by a long term resident identified that the current buffers in the Ozette Basin become victims of windfall all too quickly. It was suggested a project be conducted to harvest certain trees (such as cedar) within the buffer zone, topping the trees leaving twenty feet of trunk standing. The hopes would be to lessen the surface area for wind impact and thus not becoming windfall, promote branching-out from the remaining tree trunk which would be closer to the stream elevation

and provide a higher level of short term shading until the system could restore itself fully. Investigation and voluntary implementation of this concept should be promoted in the Ozette Basin at large.

A local long term resident has observed that the valley floor of the Big River in the past fifty years is a "whole lot wetter, one can't help feel they are walking around in a big swamp". It is recommended the floodplain connectivity be further investigated to identify the dynamics of this observed change to this particular valley, evaluate its potential affects on both the fish and the people (to include reversed impacts through any further floodplain connectivity projects identified in the MPSA) , and identify recommendations.

Potential flaws in the MPSA and thus the WMP, may exist and require further attention:

(Section and page information from the MPSA and not the WMP)

- Section 3.4.1, page 23 to 24 discusses only road abandonment as a possible action to increase floodplain connectivity. Though, the WMP attempts to identify additional thoughts, there is still much emphasis on fish passage and general habitat needs without attempting to balance those needs with human needs (which is the dual focus of watershed planning).

- In section 3.4.5, Highway Reach, there is an inadequate description of the influence of the Hoko-Ozette Road on the river and vise-versa. A discussion in a mid-project meeting about a pinch point effect of the Big River valley on the road and the river system did not receive analysis in the final report.

- In section 3.5, Data Gaps, there is no mention of Dunham Creek and why it would have an incisement problem; on page 21, the creek is described as low gradient. Why isn't this included in the data gap section? Also, on page 21, under Lake Reach, there is no mention of a ponded area, pointed out at the mid-project meeting. The analysis of this pond's affect on Dunham Creek, at minimum as a flow control/water storage, sediment filtering medium, or providing a wetland environment is not contained in the report and not presented as an example of actions that are realistic to this basin for the purpose of both fish and people.

- For the Lake Reach, the conclusions under Section 3.6.6, page 30, are inconsistent with the information found in section 3.4.6, page 27. On page 27, the report states that the reach is essentially unchanged in recent history and that it didn't have the log jams removed in the 1950s. But on page 30, there is recommendation for LWD placement. This recommendation is illogical based on the information that is provided in the report.

The goal of any WMP recommendations in addressing water storage potential should seriously factor in local observations and experiences. It is the opinion the MPSA did not take the local component into consideration; however, the WMP attempts to capture a few of the concepts. The suggestions and issues identified in this writing should be considered as placeholders in the ongoing Watershed Planning Act (ESHB 2514, codified into Ch. 90.82 RCW) process; Instream Flow Rule-making along with WRIA 20 Implementation Body efforts should utilize these placeholders and make the concerted effort to further solicit and utilize the local component during their particular phase of this process.

QUILEUTE TRIBAL COUNCIL
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TELEPHONE (360) 374-6163
FAX (360) 374-6311

March 10, 2008

Mr. Jay Manning, Director
WA Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Re: WRIA 20 position on setting instream flow (ISF) rules
and conflict with Ecology policy

Dear Mr. Manning:

On February 22, 2008, after a hiatus of several months, the WRIA 20 Planning Unit met to finalize the planning document under RCW 90.82. We believed we were close after 6+ years, and were surprised to see Ecology renew a hard-line policy on the way instream flow rules would be developed (document changes conveyed by new liaison Christine Hempleman from the ISF staff). Ecology's technical staff wants to move forward with toe-width formulas to rapidly complete state ISF rules, but the embedded data used to develop these formulas do not incorporate any rivers in the rain forest climate, as in WRIA 20, with 140+ inches of rain/year. Further, their language changes would delete WRIA recommendations to use supporting data and progress made in 2006 in talking with the Quileute government.

Since we commenced the preparation of this letter with Initiating Government review, Ecology has been reviewing its position, but since initial overtures are not finalized, and still subject to agency and IG review, we are going forward.

We had worked with WDOE's Bob Duffy (recently retired) to develop compromise language (see, e.g., section 4.2.1, attached) and the proposed changes by Ecology are disturbing, as well as conflicting with that language. Quileute had also engaged in government-to-government talks with Ecology on this very matter, June 1, 2006. We ask your help to resolve matters before the process now fails after some 6+ years of time and effort.

Quileute is initiating this letter, although you need to know that the Initiating Governments and public in attendance support use of data in calculating instream flows, not just using formulas. Quileute's U&A comprises a major portion of WRIA 20, so we are especially concerned that ISF rules be developed sensibly. We are taking the lead in asking your assistance in that regard.

By way of background, WRIA 20 is unique in Washington in several ways. Land use is dominated by natural areas and forestry. Numerous wild salmon runs persist, although in diminished numbers. The WRIA 20 Phase II Technical Assessment asserts that "there is not a significant amount of water use in the basin, and the majority of precipitation that falls in the basin flows out of the basin as streamflow." Despite high annual rainfall and the relative health of the watershed compared to urban and suburban areas, low summer flows already limit fish passage in the Hoh and other WRIA 20 rivers.

WRIA 20 watersheds are compromised in other respects that impact stream flows, and Quileute would be happy to discuss these with you. Yet the watersheds represent perhaps the greatest hope for meaningful rehabilitation and recovery of depleted stocks as anywhere in Washington State and elsewhere in the world (Sol Duc stocks have been widely shared).

An attachment will highlight the Ecology changes brought to us only on 2/22/08, which we cannot accept. Our reasons are as follows:

The toe-width formulas were developed for rivers with entirely different climates, *and fish runs adapted to such*. This was made evident at a meeting between our fisheries biologists, Jim Pacheco of WDOE, and other state personnel.

1) Ecology wants to remove even the recommendation/suggestions by the WRIA 20 Planning Unit to use data where available. We know funds are short, but when federal, state, and tribal gage data or other data are *there*, why not integrate these, in the interest of best available science? Ecology installed a gage on the Sol Duc. This river is not known for flooding. We presumed the data were for ISF rulemaking use. That is why WRIA 20 urged Ecology to install it.
2) WRIA planning under RCW 90.82 is a grass-roots process; yet Ecology is now trying to alter the IG and Planning Unit recommendations.
3) On June 1, 2006, Quileute had a government-to-government meeting with Ecology (Dick Wallace, Tom Loringer, and Tom Laurie), expressly to assure that ISF rules out here would be developed in a methodical rather than formulaic way; however, that meeting, at which Ecology assured Quileute would be consulted before any new rules went forward, appears now to have been superseded by an administrative approach, which is unacceptable to Quileute.
4) WRIA 20 has had numerous presentations by Ecology on how ISF rules are developed. It appears that most hearings have been fleshed out with scientific data and public comment. The present approach seems to be administrative fiat rather than a full administrative process, if the agency will only use formulas and not brook any data.

5) Ecology's approach, in our opinion, places at risk an extremely valuable resource—the fishery of the Quillayute River System, one of the last in the Lower 48 to be free of listed fish under ESA. Eggs from the Sol Duc are used all over the world and have restored many US rivers to salmon as well (recently, the Umatilla). All the Dickey and Calawah runs are wild. Let us not place in jeopardy for administrative convenience such a valuable state resource.

Please give us a timely response to this matter. You may contact either Mel Moon, QNR director, at (360) 374-3133, or Katie Krueger, QNR Environmental Attorney and IG representative, at (360) 374-2265. We know how busy you are and trust that you will be able to assign an Ecology staff person of appropriate experience with both policy and science to bring this to a positive conclusion.

Sincerely,

Tony Foster vice chair
For Caro Hatch, Chair,
Quileute Tribal Council

cc: WRIA 20 IG representatives:
John Miller, Clallam County
Tami Pokorny, Jefferson County
Rod Fleck, City of Forks
Steve Allison, Hoh Tribe
Jim Woods, Makah Tribe IG

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

March 28, 2008

The Honorable Carol Hatch
Quileute Tribal Council
P O. Box 279
La Push, WA 98350-0279

RE: WRIA 20 WATERSHED PLANNING PROCESS

Dear Chairperson Hatch:

Thank you for your letter of March 10, 2008, regarding your concerns about the WRIA 20 watershed planning process. The Department of Ecology (Ecology) recognizes and agrees that the Sol Duc-Hoh watershed is an extremely valuable and unique resource. We commend your work on watershed planning, desire to develop instream flows that are adequately protective, and share your interest in a successful outcome.

Although the WRIA 20 planning unit opted not to include an instream flow component, Ecology has a statutory responsibility (RCW 90.54) to develop the instream flow rule. We have yet to schedule that rule development or the associated technical work for WRIA 20. We haven't made decisions about how that work will be conducted when we do begin. When the time comes, we are committed to consulting with the tribes and other planning unit members on all aspects of both instream flow studies and rule development.

In your letter, you expressed concern about our technical methods. The Toe-Width Method was developed by the Department of Fisheries (WDF), the Department of Game (WDG), and the U.S. Geological Service (USGS) in the 1970s for the purpose of setting instream flows across all of Washington. Hydrologists from USGS and biologists from WDF and WDG selected streams and rivers across eastern and western Washington believed to be geographically representative of those used by salmon and steelhead.

They evaluated a wide range of drainage-basin characteristics and found toe width to be the one characteristic with a consistently high correlation to salmonid habitat. In response to concerns raised by the WRIA 20 planning unit, Ecology's instream flow staff analyzed the flow patterns of the Calawah River compared with the nearby rain- dominated Humptulips and Wynoochee Rivers used in the USGS study. They found that the Calawah had a nearly identical flow pattern

Ecology continues to support using the most accurate, credible, and complete information and analyses in developing instream flows and creating instream flow rules. We are committed to using all available data, including the habitat data that we routinely collect as part of all assessment methods (including toe width), as well as flow or other data that may be collected by planning unit members, Ecology, or the Department of Fish and Wildlife, or others While we recognize that stream gages are important and provide valuable information, we don't have the resources to gage every stream in the state. In previous instream flow rules, we have in set instream flows on ungaged streams. If a stream has existing gage data, we will certainly use it when developing an instream flow rule

Current resource limitations and the uncertainty of future resources don't allow us to commit to collecting extensive site specific data. If the WRIA 20 planning unit secures funding for a more intensive instream flow study, we will most certainly help with the planning and analysis and will eagerly use the new results to develop our instream flows. If you would like an additional government-to-government meeting with our respective policy and technical staff, I would be happy to support it

WRIA 20 has many important instream resources, including a number of wild fish runs. Where many watersheds are reacting to growth, you have an unusual opportunity to plan for the management of those resources in advance of such pressures. A strong plan based on the full involvement of all affected parties in the WRIA 20 watershed planning unit, combined with future instream flow rules, will help protect and manage these resources. We look forward to working with you toward this important goal

I respectfully request that Quileute Tribal Council policy and technical staff, as members of the WRIA 20 planning unit, continue to work closely with our designated WRIA 20 Watershed Lead, Ms. Christine Hempleman. She can be reached at chem461@ecy.wa.gov /(360) 407- 0239. Ms. Hempleman coordinates her work with Brian Walsh, who supervises our instream flow rule development staff, and who can be reached at bwal461@ecy.wa.gov /(360) 407-6647

Sincerely,

Jay J. Manning,
Director

cc: Steve Alilson, Hoh Tribe
Rod Fleck, City of Forks
John Miller, Clallam County
Tami Pokorny, Jefferson County
Jim Woods, Makah Tribe
WRIA 20 Initiating Government representatives

bcc: Paula Ehlers
Chris Hempleman
Tom Laurie
Jim Pacheco
Ken Slattery
Sally Toteff
Brian Walsh
Bill Zachmann

APPENDIX D

PUBLIC COMMENTS ON THE DRAFT WATERSHED PLAN AND RESPONSES

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All comments submitted have been presented in their original and unaltered state. Responses to comments, where provided, are from Golder Associates and do not reflect the opinion of the Planning Unit.

Comments submitted by: Marilyn Lewis, Hoh Valley Resident
Submitted by: Hand (hard copy)
On: July 11, 2006 at Hoh River Meeting. Scanned to PDF File by Golder.

Marilyn Lewis
July 11, 2006

My name is Marilyn Lewis. I own and manage a ranch of pure-bred angus on the Hoh River. I have spent over 60 years watching the Hoh River and its many changing habits.

Most brought on by mankind and a new idea that fails time after time. In the early nineteen hundreds, a foot log could be found almost anywhere for one to cross the river. In 2000, it would take a Columbia River Bridge. Why? In my opinion, logging had some effect on it-on the other hand, the North Fork of the Hoh has enlarged, too. Very little logging in the park-yes, the park has been logged at one time.

But, the idea of leaving buffer strips of timber along creek beds for the wind to topple into the creeks causing massive land slides from built-up log jams on mountain sides, tells me someone had an idea, a foolish one.

I can stand in my doorway on the Hoh and see it on every creek across the river and on the mountain side. It Failed. It is a State regulation!

Along came the idea that woody debris was what fish wanted to live with when they are born in a bed of rocks! Heads Up! The only woody stuff that should be used in the river are bushy spruce with the cut end out of water so the branches may catch silt in order to build sand bars.

Dumping trees in the rivers with roots on them is just asking for bank destruction. Engineered log jams have failed and failed, not only in the Hoh but elsewhere. When turned loose, they become a tied-up nightmare for someone else downstream and do

nothing for the fish.

Rock is a natural habitat for fish. They hide among rocks and they lay their eggs among them. Fish must find rocks fish-friendly, because they live in rock and water. Their food is found among the rocks.

Why have tribes tried to condemn rocks for bank stabilization? Probably because it works. After all, didn't they use rocks to save the Lower Hoh Old Village?

Through the years, I've seen some pretty amazing projects on the Hoh-Lewis channel weir. It was dug deeper than the river bed and did just as I expected it to do-drew the river to it. I'm sure it will be gone before long, along with some more of my land in order for the river to get to it and it will.

This past year, a bunch of young Spruce trees were dumped into a fish pond on the Upper Hoh-for what use-who knows, never mind the dying needles will sour the pond. This is research? This is where "studies" take you?

I have lived nights, after nightmares on the Hoh River when the power was out-the phone was dead and the road out was unusable because of high winds and water, sitting in the dark listening to 4-foot-through trees busting up in log jams while the river roared. You have probably not.

So, while you tell us who have lived there how it is, I wonder how much you really do know. I have seen the rain.... And I believe in what I see with my own eyes should be an eye opener for all of you.

The wider a river bar becomes, the more fish are lost to high

ground when the river drops as they seek less water force out of the main channels. One can see this as fact, as the birds of prey seek the river bars during and after a flood.

I also have thought that most of the river goes under ground, as I know some of the so-called dried-up creeks do-they are dry at the river, but dive underground up stream.

What affects fish? What goes on with the weather, what goes on with netting in the ocean and across the mouths of rivers AND the saving of the biggest predator of fish in the river, Dolly Varden/Bull Trout! (Is it all in the DNA?) I counted 24 little salmon fry in one 17-inch "Dolly-Bully"!

While you are saving this fish, don't tell me what farmers are doing to the rivers, because when there were more cattle on the Hoh River valley, there were more fish and this is a proven fact!

Now, both both entities trying to rule the river are either using, or plan to use poisons to get rid of weeds. The tribe with its effort to destroy knotweed, is by poisoning the roots in the river's own pathway. I just don't suppose that river rock will grind up that root and release the poison right on into the sea.

Rumor has it -Western Rivers Conservancy plans to spray out all bad weeds, including blackberries, in the valley. They bought up most of the Hoh valley to "save the river". Just where do they think this poison is going? Down hill, to the river! And to probably poison my cow pastures, as well.

I'm tired of hearing cattle are doing damage to the river. I let the Hoh Tribe put in a 50-ft. buffer fence along the river, because of the rules and regulations, even though I own the very large sand bar. In the agreement, they were to maintain it. When I saw the

ongoing project, it was over 50
feet from the river bank. Not only did they not maintain it, they never finished it. My lesson learned.

I cannot see how the tribe can manage a river and fish, when they cannot manage good hunting practices, and I am speaking of them trespassing on private lands and hunting in the park and again privately owned lands with the meat wastage on top of this.

Rivers do not feed America This river is so regulated by state and tribal law, it may as well not have any fish in it for anyone but the sportsman and the tribe. One can only fly fish in the park, a park which is meant for everyone. I can't fish there, I'm not a fly-fisherman, so the park is another entity for themselves. They are far from reach--

What it all seems to boil down to is this-
In Africa, hippos live under water, eat under water, give birth underwater and use the underwater as a toilet, while the fish clean them and live and thrive on hippo toilet matter, which is probably very much like that of a Hoh River cow-grass and greens matter.

However, overlooked are the elk and deer, them not being so bad as those animals who eat rotten, dead animals and then use the water for a toilet, or the just plain carrion eaters, otter, muskrats, raccoons, coyotes, bear, cougar, bobcats, blue herons, seagulls, eagles, osprey, ducks, geese, to name a few, as well as beaver, all use streams as a toilet. That's OK, just don't let a cow near a stream. Get real here, People!

All that I can see here is another way to force the American farmer out of business with more rules and regulations and to lead a path to buffer strips and fences around them that would not work anyway, because the elk would tear them sown and the Washington

State Game Department will do nothing about that, as we know well.

Do we want to speak of growth management. In my mid-school years on the Hoh River, in the late 1950's, there were 26 children riding a school bus in the late 60's of between 6 and 18, most of these park students. In 2006, there is only one as I write today. What do we need growth management for? Seems we are already doing a good job.

I am tired of the people who make jobs for themselves by making up problems so that they might make a living for themselves from government grants, while they make yet another problem for someone else.

When I see such things in Planning, such as buffer strips in a land that is only directed at the private land owner and in this case, mainly farmers, I know that we are being battered with a thing called "DISCRIMINATION" that will not affect:

Olympic National Park; (I will not drink water from the Hoh because of them-Oh where does their toilet matter flow?)
Big Timber Companies;
State Division of Forestry;
Western Rivers Conservancy;
Hoh River Trust;
Jefferson County;
Indian Tribes;
State Department of Game;
State Department of Transportation, Highways Division ditch maintenance;

just to name a few.

ONLY, private land owners! So, in closing, I will remind you its not the fish in the rivers that feeds America, it is the American Farmer. Without them, this nation will starve.

All Hoh River cattle are naturally grown-no chemicals. Can you say that for the hatchery fish planted there?

/s/ Marilyn Lewis

Comments submitted by: Mike Hagen, Hoh River Trust

From: Mike Hagen [mailto:mhagen@olympus.net]
Sent: Wednesday, July 26, 2006 4:01 PM
To: WRIA20
Subject: Re: Comments for Public Draft

Hello,

Here is our response to the Draft report and public meeting.

Thanks,

Mike Hagen
Land Management Director
Hoh River Trust
5844 Upper Hoh Rd.
Forks WA

360-908-0311 (cell)
mhagen@olympus.net

360-452-9982 (PA office)
Mailing address:
P.O. Box 3068 Port Angeles, WA 98362

Memo

To: Golder Associates

From: Michael Hagen, Land Management Director, Hoh River Trust

Date: July 20, 2006

Re: HRT comments to WRIA 20 planning unit

The Hoh River Trust and I, personally, would like to congratulate the WRIA 20 Watershed Planning group on the completion of an arduous process and the release of a Draft watershed report. As a veteran of the same process in WRIA 18, I have a good idea of what the members went through to achieve this. The report and associated documents contain many good suggestions and have added to knowledge of water resources of the West End. Too much effort is wasted when reports such as this end up unused on a shelf.

As conservation oriented land trust on the Hoh River we recognize the need for watershed planning and agree with many of the goals expressed in the report. As with most Drafts some subjects are stronger than others. The HRT endorses the WRIA 20 report's recognition of the need for the establishment of fair and accurate minimum instream flows, support for good fish habitat, riparian forest restoration and the renewal of instream LWD.

The Hoh River Trust disagrees with the recommendation, found in the supporting documents, that the construction of dams and/or a fish hatchery on the Hoh River is the best response to global warming. In this day of multi million dollar dam removals and the general re-thinking of the wisdom of hatchery based fish management, the HRT believes that there must be other options. They may not be simple or even single factors. It is likely that numerous contributing factors may incrementally add up to an effective solution. An examination of the cumulative effect of short rotation forest management and our very efficiently drained woods road systems is needed. A close look at groundwater recharge, identifying gaining and losing reaches, as well as peak and summer low flows would be useful. A strategy to restock functional quantities of large instream wood and the corresponding increase in the number of deep pools may be part of the solution. We would be glad to help.

Technical quick fixes often turn out to be poor choices in the long run and costly in more than just money. The Hoh River is internationally known to be unique because of its climate, its undammed state and in being relatively free of hatchery influence. With dams and a hatchery, it's just another tamed western river, and the loss of a great ecological, historical, and community treasure.

Golder Response to Comments submitted by Mike Hagen, Hoh River Trust

From: WRIA20 [mailto:WRIA20@golder.com]
Sent: Thursday, July 27, 2006 8:25 AM
To: Mike Hagen; Duffy, Bob; Tami Pokorny
Subject: RE: Comments for Public Draft

Mike,

Thank you very much for your comments. They display an in-depth understanding of the subject and process. I will be compiling comments and circulating them to the Planning Unit for incorporation into the final plan.

To my knowledge, the trend of decreasing summer low flows on the Hoh river were first recognized in the work conducted in watershed planning, and I feel the projections of even lower flows in the future as a result of climate change are significant.

The ideas of a dam or hatchery to help maintain the Hoh salmon runs were only the first ones what were considered. They are not meant to be the end point. The implications of the projections of even lower future streamflows are huge, and the solution, if there is one, will have to be carefully thought out. The best solution may be to do nothing.

The recommendation of the plan is, which was primarily crafted by the Jefferson County Commissioners, is:

SP-5: Evaluate alternatives and provide recommendations to support the reproduction of salmonids in the Hoh River during periods of low flow.

One possible solution is a facility to facilitate fish passage, which hasn't been explicitly developed.

If it is important to you to see this plan implemented and followed up on, you should make your voice heard by the initiating: City of Forks, Jefferson and Clallam Counties, and the Hoh, Quileute and Makah Tribes.

Again, thank you for taking the time to provide your comments.

Chris V. Pitre

Comments submitted by: Lyle Almond, Makah Tribe

From: Lyle Almond [mailto:lylealmond@centurytel.net]
Sent: Friday, July 28, 2006 2:19 PM
To: WRIA20
Cc: 'Lylealmond'
Subject: Makah WRIA 20 Comments

Hello Jami and Chris,

Thank you for encouraging me to submit input to the planning language of the WRIA 20 Watershed Management Plan, Section 4.4.1: Large Woody Debris and Riparian Zone Restoration (HBR-1 through HBR3). The following can be used in part or in its entirety, as you see fit.

As caretakers of the watersheds in WRIA 20, we have inherited streamside forest practices that mimic large-scale disturbance events. Logging activities, debris torrents, agricultural pastures, and channel avulsion all constitute stand replacement events, leaving a legacy for significant opportunities in watershed restoration that focus on regenerative forest practices constituting win-win-win (triple-bottom-line) solutions – for the preservation of unique community values, for landowner participation in economic incentives, and for landscape-level ecological vitality and stability.

Planning issues regarding watershed habitat functionality to achieve desired future conditions in riparian corridors of WRIA 20 should rely on the clear and well-documented benefits of establishing biologically diverse plant communities. Natural mixtures of Sitka spruce and red alder are ubiquitous in the riparian ecosystems throughout WRIA 20, and should be adopted as a model for long-term riparian restoration management.

Numerous interactions between red alder and Sitka spruce lead to much higher rates of terrestrial macoinvertebrate prey abundance, soil and stream nitrogen cycling, abundance and diversity of understory vegetation, and the abundance of nesting songbirds. While red alder offers important nutritional benefits to fish habitat, there are greater opportunities for more even flow of LWD recruitment as red alder provides a short-term supply to streams while late-successional spruce will eventually provide the structural wood habitat once they are recruited into the channel. Protection from spruce weevil damage is a critical component of any strategy to grow Sitka spruce in WRIA 20, and an abundant canopy of red alder has been shown to provide an effective deterrent to the infestation of this damaging agent.

There is, above all, a productivity advantage to growing alder and spruce together as an even-aged mixture; because they naturally coexist by partitioning light and soil resources, significantly higher rates of biomass productivity can be achieved on a shorter time-scale to achieve desired future conditions of structural complexity and large-diameter conifers for LWD. Stream shade provision and the ability to capture the site from encroachment by some undesirable species (*e.g.*, Himalayan blackberry, salmonberry) can be met reasonably well using these mixtures.

An ideal even-aged planting mixture might require as few as 680 seedlings per acre to be successful. A 3:1 proportional mixture of 510 red alder and 170 Sitka spruce planted at 8-foot spacing will ensure rapid and vigorous early stand development. However, given a number of site factors – freshly exposed mineral soils, ample sunlight, and abundant moisture - this prescription could be reduced by half and planted at a 12-foot spacing to favor understory development. This riparian strategy will be

particularly beneficial in the event that a subsequent project eligible for public funding support (*e.g.*, reconnecting fish passage) requires a commitment to long-term restoration.

The riparian forest described in this component of the Plan is not a self-contained ecosystem, but one that is highly interactive with aquatic ecosystem processes. Managing for the functional biodiversity of the riparian ecosystem, not simply for structural complexity or species richness, is the key driver for aquatic-terrestrial productivity.

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Golder Response to Comments submitted by Lyle Almond, Makah Tribe

From: WRIA20
Sent: Wednesday, August 16, 2006 3:54 PM
To: 'Lyle Almond'; WRIA20
Cc: 'Lylealmond'
Subject: RE: Makah WRIA 20 Comments

Lyle,

Thanks for taking the time to provide review and comment on the public draft of the WRIA 20 draft watershed plan. The language that you provided for consideration of insertion in Section 4.4.1 complements the existing materials very well. I will forward to the Planning Unit the following suggested modification of your text to be considered for insertion into the plan at the end of section 4.4.1:

Restoration of riparian zones should rely on the clear and well-documented benefits of establishing biologically diverse plant communities. Natural mixtures of Sitka spruce and red alder are ubiquitous in natural riparian ecosystems throughout WRIA 20, and should be adopted as a model for long-term riparian restoration management.

Numerous interactions between red alder and Sitka spruce lead to much higher rates of terrestrial macroinvertebrate prey abundance, soil and stream nitrogen cycling, abundance and diversity of understory vegetation, and the abundance of nesting songbirds. While red alder offers important nutritional benefits to fish habitat, there are greater opportunities for more even flow of LWD recruitment as red alder provides a short-term supply to streams while late-successional spruce will eventually provide the structural wood habitat once they are recruited into the channel. Protection from spruce weevil damage is a critical component of any strategy to grow Sitka spruce in WRIA 20, and an abundant canopy of red alder has been shown to provide an effective deterrent to the infestation of this damaging agent.

There is a productivity advantage to growing alder and spruce together as an even-aged mixture; because they naturally coexist by partitioning light and soil resources, significantly higher rates of biomass productivity can be achieved on a shorter time-scale to achieve desired future conditions of structural complexity and large-diameter conifers for LWD. Stream shade provision and the ability to capture the site from encroachment by some undesirable species (*e.g.*, Himalayan blackberry, salmonberry) can be met reasonably well using these mixtures.

The riparian forest described in this component of the Plan is not a self-contained ecosystem, but one that is highly interactive with aquatic ecosystem processes. Managing for the functional biodiversity of the riparian ecosystem, not simply for structural complexity or species richness, is the key driver for aquatic-terrestrial productivity.

Chris V. Pitre

Comments submitted by: Xanthippe Augerot, The Wild Salmon Center

From: Xan Augerot [mailto:xaugerot@wildsalmoncenter.org]
Sent: Friday, July 28, 2006 4:21 PM
To: WRIA20
Cc: Paula Burgess; Guido Rahr; Greg Block
Subject: WSC comments WRIA 20 watershed plan.doc

Dear Colleagues,

Thank you for the opportunity to comment on the WRIA 20 draft documents. We at the Wild Salmon Center are glad to see this progress and support the overall plan objectives. However, we are concerned by the weak salmon ecology underpinning some of the recommendations. Please see the attached document for our specific comments and concerns, particularly about the plan proposals for the Hoh River basin.

We look forward to helping shape and implement the WRIA 20 plan as it evolves.

Best regards,

Xanthippe Augerot, Ph.D.
Vice President for Science
Co-Director, State of the Salmon Consortium
Co-Chair, IUCN Salmonid Specialist Group
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<<WSC comments WRIA 20 watershed plan.doc>>
~~~~~~

To: Golder and Assoc. (WRIA20@golder.com)

From: Paula Burgess, Director of Pacific Northwest Programs, Wild Salmon Center
Xanthippe Augerot, Vice President for Science, Wild Salmon Center

Date: July 28, 2006

Re: WRIA 20 Public Draft Management Plan

The Wild Salmon Center would like to take this opportunity to comment on the WRIA 20 Phase II Technical Assessment (P2TA), the Public Draft Management Plan (PDMP), and the Multi-Purpose Storage Assessment (MPSA). In partnership with the Western Rivers Conservancy, we have worked to purchase more than 6,000 acres of riparian and upslope habitat in the Hoh River basin with the goal of conserving the relatively healthy salmon populations and their habitat. The Hoh River Trust is now managing these important lands.

Given this large collaborative investment, we are very interested in the future ecological condition of the Hoh River basin. We would like to congratulate you on completing the P2TA and the PDMP and believe this is a critical link in the chain towards conserving the Hoh River and its salmon into the future. We realize the assessment and management plan are the result of hard work, and the associated documents provide many positive suggestions and a unique perspective on the Hoh River basin.

We focus our comments on the Fish Habitat and Fish Habitat Actions in the PDMP and the P2TA and MPSA for the Hoh River basin, since salmonids and the basin are our principal area of expertise. Technical comments on scientific statements made in the P2TA and the MPSA are found in Table 1 (p. 5), while general comments on the MPSA and PDMP are provided in the body of this memo.

In general, we endorse most of the information and suggestions in the Fish Habitat and Fish Habitat Actions sections in the WRIA 20 PDMP. Specifically, we support the goals noted in the sections dealing with the critical ordinance implementation, invasive weeds, land conversion from forest, control of sediment, and the related management and implementation strategies. These sections provide a solid starting point for the conservation and restoration of important physical processes controlling habitat formation and instream flows in many of the WRIA 20 watersheds, and in the Hoh River basin. It is notable to have the foresight to discuss the issue of shifting land use practices from forestry to development, and we strongly believe that forestry practices are much more suitable to sustaining salmon and their habitat than housing development. We also support the creation of a watershed council tasked with overseeing the conservation and restoration of the Hoh River, and other WRIA 20 watersheds.

While we are broadly supportive of the draft PDMA, two of the Plan's proposals are not supported by contemporary salmonid and watershed science. We would like to highlight these issues in hopes of working toward more holistic and ecologically sustainable solutions. The first of these proposed solutions is the suggestion of a hatchery on the Hoh River. While hatcheries are often thought of as solutions, the scientific literature indicates that hatcheries most often have an adverse affect on native salmonid populations via freshwater juvenile competition (*e.g.*, triggering density dependent mechanisms) and adult interbreeding. The effects on native fish are the same whether or not the stock used for the hatchery is from outside of the basin or from native broodstock. There is also a growing concern about hatchery competition with wild salmon in the marine environment, which can

potentially limit the survival of native salmonids during periods of low food availability. Considering the overwhelming body of evidence against the use of hatcheries as a tool for sustaining and recovering salmonids, we directly oppose the implementation of a salmon hatchery in the Hoh River basin (as proposed in action SP-5 in the PDMP and in the MPSA document).

A hatchery is of particular concern because the Hoh River has a national reputation as one of the last nearly wild rivers in the Lower 48, which supports healthy and diverse salmon runs. Anglers travel from around the United States and Canada to fish the last best rivers of the Olympic Peninsula. Furthermore, as you mention in the watershed plan and as recognized by several status reviews, the Hoh River is one of the last remaining native salmon strongholds remaining in the Pacific Northwest. In fact, the principal reason the Wild Salmon Center and the Western Rivers Conservancy chose the Hoh River basin as a focal area for salmon conservation is because it is the last large coastal river system in Washington State without a full-scale hatchery facility and a dam. Addressing the issues that have affected native salmonids in the Hoh River is a complex task, and the implementation of a full-scale hatchery is only bound to complicate the problems and potentially speed up the decline of native populations. Consequently, we believe that addressing the physical and biological constraints affecting salmon in the Hoh River is best achieved through a systematic and scientifically rigorous conservation process that treats problems rather than symptoms, and focuses on maintaining healthy native salmon runs as opposed to replacing them with heavily subsidized, less resilient hatchery populations.

In addition to the hatchery proposal, we generally do not support the information or suggestions proposed in the MPSA document. We believe global climate change is an important issue facing Hoh River salmonids. We also agree that the Hoh River channel is likely to undergo substantial changes as the glaciers recede and the amount of snow pack decreases. However, we do not support the proposed construction of dams in Owl, Maple, and Nolan Creeks as realistic or sustainable solutions to maintaining native salmonid populations.

As dams are increasingly scrutinized as major impediments in salmon recovery, we cannot find a reasonable justification that would rationalize the construction of dams as a means to conserve salmon. In fact, we have conducted six years (2000-2006) of intensive juvenile salmonid monitoring (summer and winter) in the Hoh River basin and our results indicate that Owl and Nolan Creek are critical rearing tributaries. Furthermore, despite the debris flow events of 1990, our research has demonstrated that Owl Creek supports the greatest abundance of rearing juvenile steelhead of any tributary outside of the Olympic National Park. Nolan Creek also supports an abundance of juvenile steelhead, coho, and coastal cutthroat, and is the only tributary where the presence of bull trout (ESA listed species) has been confirmed. Therefore, while dams might facilitate the upstream migration of fall Chinook, they would essentially eliminate two of the most important steelhead, coho, and coastal cutthroat rearing streams, and potentially destroy the only lower river tributary used by bull trout.

Although we agree that low flows are likely to be a problem for early entering adult salmon such as fall Chinook, the rationale provided by the authors of the MPSA is anecdotal and not truly reflective of conditions in the Hoh River. For example, one paragraph suggests that upstream migration of adult fall Chinook may be hindered by stream blockages or cascade areas, when it is known that there are no such wood blockages in the mainstem Hoh (nor any evidence to support this hypothesis). Similarly, the mainstem Hoh River is a pool-riffle and forced pool-riffle dominated channel, and there are not any cascade channel types in the mainstem Hoh River. In addition, the authors highlight the potential for redd dewatering and stranding of juvenile salmonids in off-channel habitat. There is simply not any evidence for this type of limitation in the past, present, or future. In fact, redd dewatering and stranding of juveniles in off-channel habitat is likely to be exacerbated by dams, as

has been observed with chum and Chinook salmon redds in the Skagit River system. Off-channel hydrodynamics are frequently dominated by groundwater flow, and upstream impoundments will potentially eliminate downstream springbrooks favored by many juvenile salmonids. Seasonal flow alterations by dams may also trigger spawning activity at inopportune times.

Our salmonid ecologist, John McMillan, and his colleague, James Starr, were both present during the summer of 2002 when flows in the mainstem Hoh River dropped below 300 cfs. They spent numerous hours snorkeling the areas, sometimes in the presence of Harry Penn (former Hoh Tribe Natural Resource Director), to collect water temperature data and examine the outward physical appearance of the adult fish (*e.g.*, check for fungus, mortalities). Water temperatures were measured daily between 12:00 – 4:00 pm instantaneously at the surface and the stream bottom in several locations. Despite the prolonged drought, water temperatures in the lower Hoh River never exceeded 73° F, while the lower Sol Duc, Calawah, and Bogachiel Rivers exceeded 81° F on three consecutive days. Additionally, most of the adult fish were holding in relatively deep pools that were thermally stratified. Surface water temperatures hovered around 73° F in such areas, compared to 65 – 68° F near the bottom of the pools where the adult fish were holding. So while flows might have been low and the staging period prolonged, there is no evidence that the adult fish were excessively stressed, especially since Tribal and sport fishing was ceased. In fact, our monitoring found the greatest level of juvenile abundance in the majority of the tributary survey sites during the following summer (2003), which corresponded with the large runs observed during the fall of 2002. This indicates that despite prolonged staging, the salmon had a highly successful spawning season. Consequently, we do not agree that low flows impacted adult fish and their spawning success.

We would support alternative solutions, such as increasing the frequency and abundance of large conifer dominant large wood formations in the mainstem Hoh River. In fact, this is probably the most likely solution to the situation. Increasing the availability and volume of large conifer LWD in the mainstem Hoh River would facilitate the formation of deep pools with thermal stratification where adult fish can stage without excessive thermal stress. Indeed, adult Chinook stage in many inland river basins of the Columbia River (*e.g.*, John Day, Wenaha) that do not have dams by utilizing such thermal refugia. Surface water temperatures in those rivers frequently exceed 75° F, sometimes reaching over 80° F, while the adult fish stage in 67 – 73° F water, which is warmer than the thermally stratified areas that Hoh River Chinook staged in during the 2002 summer/fall. LWD formations, as you have mentioned, would also assist in storing groundwater, which would provide recharge for off-channel and mainstem habitat during times of relative drought. Thus, we believe that a more natural solution to this issue is the restoration of large wood and mainstem river channel complexity to more approximate historic conditions.

In closing, the Hoh River remains one of the natural treasures of the western United States, a river still steeped in the traditions of Tribal and sports angling lore. While technical quick fixes such as dams and hatcheries may provide brief pulses of some species of adult fish for harvest, they are inadequate for sustaining a diverse suite of wild salmonids over long time scales. There is no doubt that global climate change is a pressing issue for salmonids, especially early entering populations such as fall Chinook. However, fish have adapted to similar changes in the past and we believe that genetically diverse, abundant native fish will have the greatest capacity to adapt to such changes in the future. It is possible that some populations will have to alter their run and spawn timing or go extinct locally. This is part of the natural process associated with the ebb and flow of changing climate conditions, and what may limit one species (fall Chinook) may inherently benefit others (steelhead and coastal cutthroat). Therefore, we completely support the conservation and restoration of the Hoh River and its salmon through a holistic and sustainable watershed-scale process that

recognizes the importance of allowing natural conditions to select the habitat and salmonids best suited to surviving future climate changes.

Table 1. The table lists the Wild Salmon Center technical comments on the WRIA 20 Phase II Technical Assessment and the WRIA 20 Multi-Purpose Storage Assessment plans by document, section, and sentence.

Document	#	Section	Sentence	WSC comment
Phase II Technical Assessment	1	7.4, 7.41, pg. 69	Owl Creek historically supported the run (spring/summer Chinook) but habitat conditions have degraded to a level where few species are using the tributary at all (Smith 2000).	This statement is not correct. While fewer adults use the stream now, especially winter steelhead and spring/summer Chinook, the stream supports a diverse and abundant juvenile population. According to our six years of annual summer and winter juvenile salmon surveys (2000-2006) the stream supports the greatest abundance of juvenile steelhead (in pool habitat) of any tributary outside of the Olympic National Park.
Multi-Purpose Storage Assessment	1	5.2, pg. 47	Predation is the biggest cause of mortality at the juvenile life stage.	This sentence is not supported by a citation. Most literature suggests the biggest cause of juvenile mortality (from fry to smolt) in coastal rainforest watersheds is associated with early fall freshets, and not predation. In addition, you state that coho abundance is limited in the summertime by pool area and the wintertime by off-channel habitat and provide citations. These statements are inconsistent with the "predation" sentence.

Document	#	Section	Sentence	WSC Comment
Multi-Purpose Storage Assessment	2	5.2, 5.24, pg. 48	Loss of off-channel habitat lowers production of salmonid species, particularly coho.	This is an important limiting factor in the Hoh River basin that gets passed over somewhat. Perhaps there is no greater limiting factor than the loss of offchannel habitat via reductions in LWD loading and changing flow regimes. Numerous studies on the Olympic Peninsula and throughout Puget Sound highlight the importance of off-channel habitat, and some studies indicate the loss of beaver ponds and off-channel habitat is the single biggest limiting factor in coho abundance. This should be a primary limiting factor, especially when considering that predation is erroneously listed as the biggest cause of mortality for juveniles.
Multi-Purpose Storage Assessment	3	5.3, 5.33, pg. 50	Figure 5-2	The regression analysis is very weak, and while the trend may hold true, the values are not strong enough nor the period of record long enough to predict future discharge patterns.
Multi-Purpose Storage Assessment	4	5.3, 5.35, pg. 52	These projected future conditions are based on simple, back of the envelope calculations, and should not be considered 100% accurate.	While we can never be 100% certain with science, future conditions need to be predicted with more rigor than simple back of the envelope calculations. This is especially so when considering the drastic measures being suggested (*e.g.*, dams and hatcheries).

Document	#	Section	Sentence	WSC Comment
Multi-Purpose Storage Assessment	5	5.4, 5.42, pg. 53	Fish encounter obstacles (tree falls, small cascades) naturally during migration and typically wait for precipitation events to overcome the obstacles. ..... precipitation may not occur with sufficient quantity or frequency to allow a fish population to migrate past obstacles without an elevated mortality.	First, there are not any cascades in the mainstem Hoh River, so that is not a possibility. The river is dominated by plane bed, forced pool-riffle, and pool-riffle channel morphologies. Flows may also impede upstream migration in these channel types. Second, there is no evidence of tree falls blocking upstream migration. In fact, our science team has snorkeled over 800 stream km of WRIA 20 rivers and never observed a fallen tree blocking upstream migration during low flows. Third, while precipitation levels were severely limited during the 2002 summer, the only mortalities associated with the prolonged staging period occurred with bull trout. Our science team snorkeled the pools on several occasions, and even the presence of fungus was rare. This is possible because surface water temperatures never exceeded 73° F and most fish relied on thermal refugia where temperatures were 5 – 8° F degrees cooler. While we recognize the importance of low flows associated with climate change, there is simply no data to suggest that water temperatures or flow levels will result in elevated mortalities of Chinook. In fact, Chinook stage in much warmer water temperatures in inland tributaries of the Columbia River (*e.g.*, Yakima, John Day, Wenaha) than the Hoh River is likely to ever experience. While prolonged periods of low flows may reduce the temporal breadth of entry timing of Chinook, this issue needs to be thought through thoroughly with data from other watersheds.

Golder Response to Comments submitted by Xanthippe Augerot, The Wild Salmon Center

From: WRIA20
Sent: Wednesday, August 16, 2006 4:17 PM
To: 'Xan Augerot'; WRIA20
Cc: Paula Burgess; Guido Rahr; Greg Block; Carter, Jami
Subject: RE: WSC comments WRIA 20 watershed plan.doc

Hello Xan,

Thank you for providing feedback on the WRIA 20 draft watershed plan. Your general support of this work is appreciated.

Your concern about a possible hatchery and/or reservoir on the Hoh River system is well founded. These alternatives were identified in the multipurpose storage assessment. However, the draft watershed plan does not necessarily endorse these actions. The specific action is (Section 3.5):

"SP-5: Evaluate alternatives and provide recommendations to support the reproduction of salmonids in the Hoh River during periods of low flow."

In the issue development section (Section 4.5.5), the background to the problem is provided, and several options that have been previously identified are mentioned, including a hatchery and a reservoir. It is recognized that other solutions must be examined.

The WRIA 20 Phase II Technical Assessment and the WRIA 20 Multi-Purpose Storage Assessment reports have been finalized. However, your comments on these documents will be included in the Appendix D of the watershed plan for the record.

Again, thank you for taking the time to provide comment.

Sincerely,

Chris V. Pitre

Comments submitted by: Marjorie K. Dickson, Hoh River Valley Resident

From: dickson@centurytel.net [mailto:dickson@centurytel.net]
Sent: Saturday, July 29, 2006 9:37 PM
To: bduf461@ecy.wa.gov
Cc: patrickrodgers@earthlink.net; Pitre, Chris
Subject: Fw: WRIA 20 public draft

As a resident of the Hoh Valley, I am a stakeholder in the WRIA 20 planning. While I agree there is a need for planning with repect to the water resource, I do have objections to the draft as written.

On page 21-Water Quality Data Collection-
Avoid alarm about natural sources of fecal coliform.
With respect to water quality,fecal coliform is fecal coliform, no matter the source.(reference WSDOH, and Water Treatment Plant Operator training). This shows that so called natural sources of fecal coliform cannot be religated to a position of less importance.
There is an automatic, pre programmed vendetta against cattle brought about by what in my opinion is selective research.University reasearch in Iowa after the e-coli deaths as a result of the Jack in the Box supplied hamburgers determined that the dangerous strain of bacteria is promoted by grainfed cattle under feedlot conditions. Hoh River cattle are grass fed and there are no feedlots here.

I object to the sledgehammer approach-making bigger fines and enforcing regulations that are already in place. (Ever heard of working with the landowners and offering encouragement instead of threats.)

Clarify the position on out of WRIA transfers.
This implies that I could not even can apricots with Hoh River Basin water and send them out of the area.

Promoting forest land in preference to anything else would be a serious threat to elk habitat. My B.S. in Animal Sciences and years of experience tells me that elk need to graze in the same manner as do cattle. An elk, as a much larger animal than a deer, needs more protein than it can aquire from browse. Therefore, to insure a viable elk population, the farms in the Hoh Valley need to remain active. I do not believe the Hoh Tribe would want the elk numbers to be as low as they were in 1892 when my great grandparents came to the Hoh Valley-no logging, but EXTREMELY LOW ELK NUMBERS.

I support the papers in Appendix C written by John Richmond and Jim Jorgensen. Observation, experience, and a practical approach definitely make the most sense. Getting bogged down in scientific analysis does nothing to take care of the immediate problems.

There is a continued failure on the part of government and the environmental community to recognize the folly of forcing local agriculture off the land, in their zeal to "save" it all. It is a serious threat to the national security of this country, a fact unrealized by the urban population. Those of us who are rural know very well that government can do nothing to help us. Keep in mind that threatened and endangered species to not feed this country-farmers do.

Marjorie K. Dickson 9772 Oil City Road
Forks, WA 98331 dickson@centurytel.net
360-374 2553

Golder Response to Comments submitted by Marjorie K. Dickson, Hoh River Valley Resident

From: Pitre, Chris
Sent: Sunday, July 30, 2006 10:42 AM
To: 'dickson@centurytel.net'; 'bduf461@ecy.wa.gov'
Cc: 'patrickrodgers@earthlink.net'; Carter, Jami
Subject: RE: WRIA 20 public draft

Dear Marjorie,

Thank you very much for providing your comments. Input such as yours can only improve the plan.

Your comments will be compiled with those of others and from the pubic meetings, and circulated to the Planning Unit. The Planning Unit will decide how to incorporate the comments into the final plan.

The final Plan will then be consideration of approval by the Planning Unit, including representatives from Jefferson County and citizens of the Hoh Valley. If approved, it will be submitted to the county commissioners of Jefferson and Clallam Counties for consideration of adoption.

I present some perspectives in response to your comments, but I qualify them as my own. The plan was written by the Planning Unit and it will be the Planning Unit that will decide changes to the draft plan and produce the final Plan.

> *On page 21-Water Quality Data Collection - Avoid alarm about natural sources of fecal coliform.*

You are absolutely correct that fecal coliform regardless of its source, whether from human or natural sources, is a health concern. Department of Health concerns itself with drinking water. The watershed plan concerns itself primary with water resources. The objective of the WRIA 20 plan with respect to fecal coliform is to minimize impacts to water resources from activities that are managed by humans. Fecal coliform is present in natural waters from many mammal and bird wildlife sources. It is beyond the scope of this plan to control where the wildlife poops, and there is little that can be done about that. The presence of wildlife fecal coliform does not mean the natural resource is being poorly managed. The statement of "avoiding undue concern" recognizes that. The plan says that if high fecal coliform is found in streams, one should not jump to the conclusion that is caused by failing septic systems.

The biggest concern that the plan addresses is illegal dumping of septage from recreational vehicles (RVs). Health concerns about wildlife fecal coliform is primarily *Giardia* and *cryptosporidium*. There are many more concerns about human-derived fecal coliform. If fecal coliform in streams is due to human managed activities, then there should be concern and something should be done. Clallam County is currently conducting studies with grants from the Washington State Department of Ecology (the same people who funded the watershed planning work) to see if fecal coliform is present in streams downstream of human sources (*e.g.*, RV, state and federal park stations).

Actions in the Plan emphasize education and voluntary participation. Outreach to the agricultural community would best be realized through the conservation districts.

> *I object to the sledgehammer approach-making bigger fines and enforcing regulations that are already in place. (Ever heard of working with the landowners and offering encouragement instead of threats.)*

The plan does not recommend changing existing regulations. It does encourage enforcing existing laws, but first encourages education and voluntary compliance.

Out of WRIA transfers

The Plan is perfectly clear as it is written now - it is a "zero tolerance" approach. Jefferson County commissioners have expressed a similar concern. I will again highlight this concern when I circulate the compiled comments to the Planning Unit. I believe the intent of the Planning Unit is to address large exporters of water, and they have not proposed any language to allow a threshold limit. This "Action item" is a recommendation to Ecology to use when they establish instream flows and will have no immediate effect. Whether it has any long-term effect depends on the instream flow rule that gets established. Establishing an instream flow rule is a highly public process that will take years to complete.

Elk:

I am not an Animal Sciences major, as you are, and respect your points. The maintenance of forested land includes logging. There is no intent in the plan to diminish the elk population. Fecal coliform from elk is considered a natural condition and the plan does not view such fecal coliform as requiring any management.

Farming:

The plan supports farming in WRIA 20.

Marjorie, again thank you very much for providing your comments. I will encourage the Planning Unit to carefully consider them. If you would like me to call you to further discuss anything, please let me know when is a good time to call you and I will.

Jami - please make sure Marjorie is on the e-mail list so that she receives a copy of the compiled comments that will be sent to the Planning Unit.

Sincerely,

Chris V. Pitre

Comments submitted by: Carol Young, Hoh River Valley Resident

From: Carol Young [mailto:motherrain@hotmail.com]
Sent: Sunday, July 30, 2006 12:13 PM
To: watermaps@hotmail.com
Cc: burklblb@dfw.wa.gov; hohtribenrd@hotmail.com; stallison2000@yahoo.com; ted023@centurytel.net; tjurasin@yahoo.com; shaffjas@dfw.wa.gov; bill.peach@rayonier.com; hohhumm@olypen.com; pacsac@olypen.com; motherrain@hotmail.com; Carter, Jami; CLear@co.clallam.wa.us; nwcarv@olypen.com; Dally Wilson, Lisa; dickson@centurytel.net; dsullivan@co.jefferson.wa.us; DCook@co.clallam.wa.us; ravens_wood@centurytel.net; dnordstrom@centurytel.net; rockypt@olypen.com; eolmedo@fs.fed.us; eric.carlsen@wadnr.gov; fgeyer@centurytel.net; nortech@olypen.com; Ian.MacIver@rayonier.com; solduc@olypen.com; pacificf@olypen.com; jshellbe@centurytel.net; jhagen@nwifc.org; hilnger@centurytel.net; JJORGENSEN@quinault.org; joe-holtrop@wa.nacdnet.org; jcalhoun@u.washington.edu; jfischbach@co.jefferson.wa.us; knqnr@centurytel.net; mike.breidenbach@rayonier.com; MDoherty@co.clallam.wa.us; mhagen@olympus.net; mhaggerty@olypen.com; prodgers@co.jefferson.wa.us; pkitchel@centurytel.net; rodf.forks@centurytel.net; tpokorny@co.jefferso
Subject: Comments on WRIA Draft

This has also been sent to Bob Duffy and Chris P.

I'd like to start with what I found to be the best in the plan and that is SP-3 to support Forks efforts to add a septage dump or improve transfer station.

While there is concern that water is being taken from this WRIA, I can't help but wonder if we aren't bring more water than we let out. A walk through Forks Outfitters has liquid in the form or bottled water, beer, wine, milk, juices, and liquid to can pineapples, tuna and the other canned products just sitting on the shelves awaiting the day when a customer will return it to the water cycle. This importing of liquids is not mentioned once in the draft. I'm sure the folks at the local store and restaurants would share how much liquids are sold and given to customers. This doesn't even cover folks who shop in PA or Aberdeen and bring in more liquid. Even the hospital has stacks of the very large jars for water coolers. All this liquid mentioned, ends up in our watershed, one way or another.

On page 36 and 37 there is a discussion about evapotraspiration of 10% in Forks. Therefore since Forks losses 10% the assumption seems to be that all areas in the WRIA20 will lose 10%. Forks is a town where people water their lawns with sprinklers. I live in the Hoh River Valley and no one waters their lawn at all. The dalia farm on down Furman Rd doesn't even water the flowers because they don't need watering for them to thrive. I water my garden with soaker hoses covered with mulch as do many others here.

Page 60 – Out-of-WRIA transfers. Commercial water bottling and piping water from one water basin to another shouldn't happen. However it is stated in such wording that Aunt Minnie couldn't sell her home canned pickles on ebay. Cows, eggs, poultry, all vegetables, fruit and flowers have water in them and if one wants to pick nits, the sale of these items could be considered removing water from the WRIA. And what about an RV that is passing through and wants/needs to fill up their water storage tanks. What about radiators on all vehicles. This is removing water also. It must be specific as to what shouldn't leave the WRIA because it now says "for any purpose."

HBC-2 Encourage zoning practices to **preserve** forest lands.

Of my few objections to this plan, this bothers me the most. Between the CAO in Jefferson County, land acquisition by the Olympic National Park, land acquisition by Western Rivers, EcoTrust, and Wild Salmon Center, it seems that WRIA 20 will be like the frosting on the cake. Soon there will be few people living here because they are either going to become regulated out and/or will be forced into becoming willing sellers. Perhaps not in my lifetime, but surely in my children's lifetime, there will be fewer people living in rural areas on the Olympic Peninsula than there are now and the handwriting is on the wall that eventually no one but the Native tribes will be here and I'm not even going to guess what their fate may be.

What I picked up reading the public draft was it is imperative to protect the fish. The fish live in water which must be protected – for the fish – and any activity that affects the water must be stopped so the fish can live.

What I didn't see was any mention of stopping hook and release which can have a mortality rate of up to 30%. Even experienced fishermen lose fish from this practice. And it makes better sense to put hatchery fish directly into the streams after they are hatched and let them fend for themselves instead of keeping them in tanks and feeding them so they are trained to come to predators instead of hiding.

I didn't notice any mention of sustainable logging that EcoTrust is doing on their land. If I am reading the draft correctly, WRIA 20 will have no logging. WRIA 20 covers an awful lot of space on the peninsula and logging is what has kept this area working. However it sounds like WIRA 20 would like to stop that. But WRIA 20 is like the Growth Management. It isn't about people living here. It's about controlling those who stay here.

Thank you for the opportunity to share my ideas about this draft.

Carol Young
1623 Oil City Rd
Forks WA 98331
360-374-6054

Golder Response to Comments submitted by Carol Young, Hoh River Valley Resident

From: WRIA20

Sent: Wednesday, August 16, 2006 5:28 PM

To: 'Carol Young'; watermaps@hotmail.com

Cc: burklblb@dfw.wa.gov; hohtribenrd@hotmail.com; stallison2000@yahoo.com; ted023@centurytel.net; tjurasin@yahoo.com; shaffjas@dfw.wa.gov; bill.peach@rayonier.com; hohhumm@olypen.com; pacsac@olypen.com; Carter, Jami; CLear@co.clallam.wa.us; nwcarv@olypen.com; Dally Wilson, Lisa; dickson@centurytel.net; dsullivan@co.jefferson.wa.us; DCook@co.clallam.wa.us; ravens_wood@centurytel.net; dnordstrom@centurytel.net; rockypt@olypen.com; eolmedo@fs.fed.us; eric.carlsen@wadnr.gov; fgeyer@centurytel.net; nortech@olypen.com; Ian.MacIver@rayonier.com; solduc@olypen.com; pacificf@olypen.com; jshellbe@centurytel.net; jhagen@nwifc.org; hilnger@centurytel.net; JJORGENSEN@quinault.org; joe-holtrop@wa.nacdnet.org; jcalhoun@u.washington.edu; jfischbach@co.jefferson.wa.us; knqnr@centurytel.net; mike.breidenbach@rayonier.com; MDoherty@co.clallam.wa.us; mhagen@olympus.net; mhaggerty@olypen.com; prodgers@co.jefferson.wa.us; pkitchel@centurytel.net; rodf.forks@centurytel.net; tpokorny@co.jefferso

Subject: RE: Comments on WRIA Draft

Dear Carol,

Thank you for taking the time to provide written comments on the draft plan. These will be forwarded to the Planning Unit for consideration.

Thank you for your support of action SP-3 (Support a septage transfer station near the City of Forks).

The concern of import/export of water to/from the WRIA is also commented upon by the commissioners of Jefferson and Clallam Counties (appendix C of the draft plan), and Marjorie K. Dickson (to be circulated August 15 to the Planning Unit for consideration and to be included in Appendix D of the Final plan). One could argue that the import of water to a watershed can alter the streamflow just as much as an export of water. The current imports are unlikely to create an undesirable impact. It has been suggested that a small amount of water be allowed to be exported from the watershed.

The estimate that 10% of water use in WRIA 20 is lost to evaporation is reasonable. It is estimated that 50% of domestic/municipal water use is lost to evaporation in Eastern Washington, and 15% in Puget Sound Lowlands. This is also commented upon by Jim Pacheco of Ecology (to be circulated August 15 to the Planning Unit for consideration and to be included in Appendix D of the Final plan).

HBC-2 encourages the maintenance of working forests. This is clarified on page 48. I will expand the wording in Table 3-1 to be: "Encourage zoning practices to preserve working forests." The intent is to slow the conversion of lands to development.

Chris V. Pitre

Comments compiled by: John Richmond, Hoh River Valley Resident
Submitted by: Email On: July 31, 2006

-----Original Message-----
From: john richmond [mailto:watermaps@hotmail.com]
Sent: Monday, July 31, 2006 9:32 AM
To: WRIA20; burklblb@dfw.wa.gov; hohtribenrd@hotmail.com; stallison2000@yahoo.com; ted023@centurytel.net; tjurasin@yahoo.com; abrastad@co.clallam.wa.us; shaffjas@dfw.wa.gov; bill.peach@rayonier.com; hohhumm@olypen.com; pacsac@olypen.com; motherrain@hotmail.com; Carter, Jami; CLear@co.clallam.wa.us; nwcarv@olypen.com; dickson@centurytel.net; drou461@ECY.WA.GOV; dsullivan@co.jefferson.wa.us; DCook@co.clallam.wa.us; ravens_wood@centurytel.net; dnordstrom@centurytel.net; rockypt@olypen.com; eolmedo@fs.fed.us; eric.carlsen@wadnr.gov; fgeyer@centurytel.net; Cen74136@centurytel.net; nortech@olypen.com; gbridge@centurytel.net; Ian.MacIver@rayonier.com; JPAC461@ECY.WA.GOV; solduc@olypen.com; pacificf@olypen.com; jshellbe@centurytel.net; jhagen@nwifc.org; hilnger@centurytel.net; bduf461@ecy.wa.gov; JJORGENSEN@quinault.org; sewellel@olypen.com; watermaps@hotmail.com
Subject: WRIA20 Post-public Outreach

Recipients:
This is a compilation of comments made regarding the Plan, subsequent to the Hoh Valley presentation. I would appreciate a copy of any responses made to Ecology or Golder.
John Richmond

JULY 29, 2006
QUESTIONS AND COMMENTS ON WRIA 20 PUBLIC DRAFT, POST-OUTREACH
By: John Richmond

The ***italicized*** questions and comments are intended for review by the Planning Unit members for response to the unit. Only those statements preceded by: **ADD:** are suggested for consideration to be included in the final draft.

Cover Map of Planning Report-**Show**: City of Forks, Communities such as shown on Figure 1-1, Overview., (Avoid the first impression, that of: No existing communities, highways, habitation, etc. It is difficult for a viewer to orient oneself on a map without those features noted).

1.) Page 25, Para. 1, 2nd sentence: ---"Draft reports submitted by the BOR have not been reviewed by the Planning Unit." ***Why have these drafts not been provided for review by the Planning Unit?***

2.) Page 37, Para 3, "Industrial and Agricultural Use:-- last sentence,
ADD: "along with agricultural production and marketing."

A viable economy for the area needs to consider the potential of cottage industries to provide preserved local foodstuffs by canning, (which uses water) to reach markets beyond the immediate area.

3.) How much fecal coliform in the water is too much for salmonids?
To what standard must the water be pure?

Will it be possible to obtain "Clean Drinking Water Standards" for any untreated surface sources by enforcing the current and proposed rules?

Appendix, Page 2, item WSU-2, ---illegal use of----exempt wells---. Has this occurred in WRIA 20 ? If so, when and how?

Golder Response to Comments compiled by John Richmond, Hoh River Valley Resident Submitted on: August 16, 2006

From: WRIA20
Sent: Wednesday, August 16, 2006 5:06 PM
To: 'john richmond'; WRIA20; burklblb@dfw.wa.gov; hohtribenrd@hotmail.com; stallison2000@yahoo.com; ted023@centurytel.net; tjurasin@yahoo.com; abrastad@co.clallam.wa.us; shaffjas@dfw.wa.gov; bill.peach@rayonier.com; hohhumm@olypen.com; pacsac@olypen.com; motherrain@hotmail.com; Carter, Jami; CLear@co.clallam.wa.us; nwcarv@olypen.com; dickson@centurytel.net; drou461@ECY.WA.GOV; dsullivan@co.jefferson.wa.us; DCook@co.clallam.wa.us; ravens_wood@centurytel.net; dnordstrom@centurytel.net; rockypt@olypen.com; eolmedo@fs.fed.us; eric.carlsen@wadnr.gov; fgeyer@centurytel.net; Cen74136@centurytel.net; nortech@olypen.com; gbridge@centurytel.net; Ian.MacIver@rayonier.com; JPAC461@ECY.WA.GOV; solduc@olypen.com; pacificf@olypen.com; jshellbe@centurytel.net; jhagen@nwifc.org; hilnger@centurytel.net; bduf461@ecy.wa.gov; JJORGENSEN@quinault.org; sewellel@olypen.com
Subject: RE: WRIA20 Post-public Outreach

Hi John,

Here's a response (in bold) to the comments you compiled, which are subject to Planning Unit approval:

Cover Map of Planning Report-Show: City of Forks, Communities such as shown on Figure 1-1, Overview., (Avoid the first impression, that of: No existing communities, highways, habitation, etc. It is difficult for a viewer to orient oneself on a map without those features noted - **will do**).

1.) Page 25, Para. 1, 2nd sentence: ---"Draft reports submitted by the BOR have not been reviewed by the Planning Unit." Why have these drafts not been provided for review by the Planning Unit? **These drafts were handed out by Clallam County (CDs and hardcopies) at a Planning Unit meeting late last year or early this year. They are also posted on the Ecology website for WRIA 20 (http://www.ecy.wa.gov/watershed/misc/20_reports.html, at the bottom of the page), to which there is also a link from the Clallam County website (http://www.clallam.net/).**

2.) Page 37, Para 3, "Industrial and Agricultural Use:-- last sentence, ADD: "along with agricultural production and marketing." **Will do.**

A viable economy for the area needs to consider the potential of cottage industries to provide preserved local foodstuffs by canning, (which uses water) to reach markets beyond the immediate area. **Acknowledged.**

3.) How much fecal coliform in the water is too much for salmonids? **I don't know.**
To what standard must the water be pure? **The strictest standard is 50 colonies/100 mL (see end of this e-mail).** Will it be possible to obtain "Clean Drinking Water Standards" for any untreated surface sources by enforcing the current and proposed rules? **No. Current rules require treatment of all surface drinking water sources.**

Appendix, Page 2, item WSU-2, ---illegal use of----exempt wells---. Has this occurred in WRIA 20 ? If so, when and how? **This language is a paraphrasing of issues identified by the Planning Unit. Some illegal use of surface water is likely occurring, but I would suggest that it is likely minimal. "Exempt wells" are exempt from requiring a water right application, and I don't see how such use would be legal. Use of more than 5,000 gallons a day from a well without a water right would be illegal, but then it wouldn't be an exempt well.**

John - Thank you for coordinating the public meeting and compiling these comments. These comments will be provided to the Planning Unit and included in Appendix D of the WRIA 20 Watershed Plan. Chris V. Pitre

Comments submitted by: Terra Hegy, Washington Department of Fish and Wildlife and Jim Pacheco, Department of Ecology
Submitted by: Email On: August 8, 2006 and August 15, 2006

From: Terra Hegy [mailto:hegytph@DFW.WA.GOV]
Sent: Tuesday, August 08, 2006 11:13 AM
To: Pitre, Chris
Subject: comments on plan

Chris, since both Bobs are out, I thought I'd cover my bases and send you a copy of my comments (not too many).

August 8, 2006

To: Bob Burkle, Planning Biologist, Region 6
From: Terra Hegy, Instream Flow Biologist

I had the following comments on the WRIA 20 watershed plan:

P. 5. Add Dave King, WDFW. Dave was involved prior to myself and Bob Burkle.

p. 34. Section 3.2.1, para. 2. Should say, "In 2004, at the request of the Planning Unit, Ecology and WDFW took a toe width. . . "

p. 36, ISF-1 etc. I find it a little confusing, and others might, that the general policies for instream flows are set out on pages 36-38, but they are elaborated on later in the document on pages 58-61 (Issue Development). At the very least, the policies should be re-iterated word for word in the latter section.

p. 60, Table 4-3. You may want to consider putting the actual toe widths in this table for anyone referencing in future. Also reference date and agencies who collected.

From: Terra Hegy [mailto:hegytph@DFW.WA.GOV]
Sent: Tuesday, August 15, 2006 4:53 PM
To: Pitre, Chris
Subject: Re: FW: comments on plan

Sure, here are the toe widths. Feel free to alter or edit as you wish.

>>> "Pitre, Chris" <CPitre@golder.com> 08/09/2006 2:38 PM >>>
Terra,

Thanks for cc'ing us. Can you provide the information you are suggesting for inclusion in Table 4-3?

Chris V. Pitre
Senior Water Resources

Toe-Width Flows for WRIA 20, Sol Duc/Hoh								
Stream Name	**Tributary to**	**Average Toe Width (in feet)**	**Toe-Width Flow for Fish Spawning and Rearing (in cfs)**					
			Chinook Spawning	*Coho Spawning*	*Chum Spawning**	*Steelhead Spawning*	*Steelhead Rearing*	*Salmon Rearing*
Mill Creek (@ Russell Rd crossing 100 yds S of Mill Creek Rd-measured downstream)	Bogachiel River	18.8	51.7	25.7	25.7	46.6	10.6	9.5
N Fork Calawah (@ North Forest Road 29 bridge crossing-upstream)	Bogachiel River	71.8	272.4	148.6	148.6	220.5	70.9	65.4
Elk Creek (@ 100 ft upstream of Calawah Way bridge crossing on private land-measured upstream)	Calawah River	27.9	84.4	43.1	43.1	73.7	18.5	16.8
Dickey Creek (@ Mina Smith Rd 1.7 miles up from Quillayute Rd-measured downstream)	Quillayute River	94.7	383.9	213.5	213.5	304.0	105.0	97.5
Calawah River (@ Hwy 101 bridge boat launch-measured upstream)	Bogachiel River	100.3	412.2	230.2	230.2	325.0	113.9	105.9
Tassel Creek (@ Public Access at the end of Whitcomb-	Sol Duc River	25.4	75.1	38.1	38.1	66.1	16.2	14.7

Dimmel Rd-measured upstream)								
Lake Creek (@ 100yds downstream from Hwy 101 bridge-measured downstream)	Sol Duc River	36.8	118.9	61.9	61.9	101.6	27.4	25.0
Umbrella Creek (@ Hoko-Ozette Rd bridge)	Ozette Lake	40.4	133.6	70.0	70.0	113.2	31.3	28.6
Big River (@ Weslers Hay Field off Hoko-Ozette Rd-measured downstream)	Ozette Lake	38.5	125.8	65.7	65.7	107.0	29.3	26.7
Bear Creek (above confluence with Sol Duc)	Sol Duc River	46.3	158.1	83.6	83.6	132.6	38.0	34.8
Sol Duc River (at Maxfield Rd. bridge)	Quillayute	145.5	653.9	374.7	374.7	500.3	193.2	180.9

Golder Response to Comments submitted by Terra Hegy, Washington Department of Fish and Wildlife

In response to the table Terra submitted, the Plan (Section 4.2.2 prior to Table 4-3) has been modified as underlined below.

> The toe-width method is developed through a database of approximately 700 cross-sections of salmonid-bearing streams for which habitat-flow relationships have been developed. This method is a condensed version of the wetted perimeter method. The "toe-width" is the width of the stream channel from the toe of one bank to the toe of the opposite bank. This method was developed as a cost-efficient alternative look-up table. The Planning Unit urges Ecology to consider that if toe width is used as the means for setting ISF rules, more sites per stream will be measured than the ones indicated in this Plan; and further, that such sites will be selected in collaboration with the applicable fisheries co-managers. The table below lists streams for which toe-width data have been collected (Figure 2-1). Toe-width data, provided by Terra Hegy at WDFW, is included with her comments in Appendix D.

P. 5. Add Dave King, WDFW. Dave was involved prior to myself and Bob Burkle.
The Plan has been modified accordingly.

p. 34. Section 3.2.1, para. 2. Should say, "In 2004, at the request of the Planning Unit, Ecology and WDFW took a toe width."
The Plan has been modified accordingly.

Comments submitted by: James Pacheco, Washington Department of Ecology
Submitted by: Email On: August 9, 2006

From: Pacheco, James M [mailto:JPAC461@ECY.WA.GOV]
Sent: Wednesday, August 09, 2006 10:51 AM
To: WRIA20; Pitre, Chris
Cc: Duffy, Bob
Subject: RE: Comments forWRIA 20 Public Draft

Chris, I know this is late. My apologies.

Section 2.2 pg 11 states, "The Planning Unit would support...after 3 (but prefer 5) years.
And section 3.2.1 pg 34 2nd paragraph states, "The Planning Unit ...recommends that Ecology collect 5 years of data prior to establishing ISF rules..."

As I mentioned in my November 2005 comments, hydrology is useful but not essential for setting ISFs. I thought I had convinced the planning unit of this. If some people insist on this type of wording, you need to preface it with the qualifier of "Several" or "Many" "members of the Planning Unit..."

Also ISF-3 p37. Does Forks have a citation for their claim of a 10% consumptive loss for both indoor and outdoor watering? Such a claim will need a source as it is very different from the default 50% we use unless specific local information is available.

I will be in Tuesday (Aug 15) if you have any questions.

Jim

James Pacheco
Instream Flow Biologist
Water Resources Program
Washington Department of Ecology
(360) 407-7458

Golder Response to Comments submitted by James Pacheco, Washington Department of Ecology Submitted by: Email On: August 9, 2006

From: Pitre, Chris
Sent: Wednesday, August 16, 2006 1:41 PM
To: 'Pacheco, James M'
Cc: Carter, Jami
Subject: RE: Comments forWRIA 20 Public Draft

Jim - FYI, I feel that 90% is defensible.

Chris V. Pitre

From: Pacheco, James M [mailto:JPAC461@ECY.WA.GOV]
Sent: Tuesday, August 15, 2006 11:23 AM
To: Pitre, Chris

Subject: RE: Comments forWRIA 20 Public Draft

Chris, Hedia developed the 50% default. She has several studies showing consumptive rates for indoor and outdoor use. The general combined rate was 50%. I do not have or have even seen the studies.

The SWRO apparently has some local (focused on their region) studies and will be using a 70% return flow rate, but again, I have not seen those studies.

The WRIA 20 90% return rate seems very high to me, but if it is defensible, there should not be a problem.

Jim

From: Pitre, Chris
Sent: Wednesday, August 09, 2006 2:44 PM
To: Pacheco, James M; WRIA20
Cc: Duffy, Bob; Carter, Jami; Terra Hegy
Subject: RE: Comments forWRIA 20 Public Draft

Hi Jim,

Thanks for the comments. I'll forward them to the PU.

The 10% consumptive use is based on withdrawal meter data hydrograph. The constant year-round use (i.e., base use) is assumed to be indoor use that is returned to the septic drain field. The 10% peak summer use is assumed to be consumptive irrigation. It is in the storage report (Figure 4-7).

What is the basis for the default 50%?

Chris V. Pitre

APPENDIX E

SEPA ANALYSIS

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APPENDIX E – SEPA COMPLIANCE

This appendix provides an explanation of programmatic SEPA compliance of the WRIA 20 Plan for presentation for adoption of the Plan by Clallam and Jefferson Counties. This appendix can also provide guidance to an Implementation Body that may form in WRIA 20, as to how such a body may comply with SEPA while pursuing the watershed planning directives.

This chapter provides the following information:

- Options for SEPA compliance;
- An explanation of SEPA as it applies to the WPA and reference to Ecology's website on programmatic SEPA compliance;
- A description of the process used to evaluate consistency of the WRIA 20 Plan with a Watershed Planning EIS;
- A summary of the assumptions and judgments recommended in determining SEPA compliance for actions discussed in this planning document;
- Discussion of compliance steps for of each action recommended in the WRIA 20 Plan with requirements for programmatic, non-project SEPA review; and,
- SEPA Checklist.

A SEPA gap analysis is a comparison of the programmatic state Watershed Planning EIS with the recommended actions in the WRIA 20 Plan to identify Plan actions that are not covered by the programmatic state Watershed Planning EIS, and is presented in this appendix.

E.1 Plan Approach for Programmatic SEPA Compliance

The WRIA 20 Planning Unit has reviewed the following four options for SEPA compliance:

- The need for adoption of a Programmatic Watershed Planning EIS and Determination of Significance (DS). This is an option if an EIS developed in accordance with this Plan adequately addresses all probable adverse impacts.
- The subsequent step, after an EIS is approved, of Adoption, DS, and Addendum. This is the same as the DS option above, with the addition of an addendum which provides local decision makers with additional local information such as land cover, environment, and specific notes on compliance with the programmatic document.
- Adoption, DS, and Supplemental EIS. If an EIS developed for this Plan addresses some but not all of the probable significant adverse environmental impacts, a supplemental EIS is necessary.
- Adoption and Determination of Non-Significance (DNS). This could be issued if it is determined that there are no probable significant adverse impacts associated with the recommended actions contained in the Plan.

The qualifications, assumptions, and consistencies analyzed to achieve programmatic SEPA compliance for the Plan are included in subsequent sections.

E.2 The State Environmental Policy Act (SEPA) and Watershed Planning

SEPA was enacted by the state legislature to ensure that state and local agencies consider likely environmental consequences of proposed actions during decision-making processes concerning such activities.

Under SEPA rules, non-project actions are defined as governmental actions involving decisions on policies, plans, and programs. Such actions can include the adoption or amendment of policies, programs, and plans, such as watershed plans under RCW 90.82. Any non-project action must be reviewed under SEPA unless specifically exempted.

Ecology published a Final Environmental Impact Statement for Watershed Planning under Chapter 90.82 RCW ("Watershed Planning EIS") in August 2003. This provides programmatic guidance for developing SEPA compliance and serves as a model for other watershed plans. This 453-page document may be viewed at http://www.ecy.wa.gov/pubs/0306013.pdf (accessed 6/06). An open letter from Ecology on August 23, 2003, attached to the document, describes its purpose as follows:

> *This final environmental impact statement describes the watershed planning process set forth in the Watershed Planning Act, as well as procedures for rule making that may be undertaken by state agencies to support implementation of watershed plans. It describes the existing framework of federal, state, and local laws, regulations, and programs that affect, or are related to management of watersheds. In addition, it evaluates the impacts of, and identifies mitigation measures for, various types or classes of recommended actions that may be included in watershed plans. These generic recommendations were developed based on input from lead agencies for watershed plans and Ecology watershed leads working with planning units.*
>
> *Generic recommended actions are presented and evaluated for each of the four components of watershed planning including water quantity, instream flow, water quality, and habitat. A "no action" alternative for each of the four components is also analyzed. A draft environmental impact statement was prepared and distributed on March 28, 2003 for a 45 day comment period. The document includes comments received by Ecology regarding the draft, as well as Ecology's responses to the comments.*

Hereinafter, when referring to "the Watershed Planning EIS," the Ecology statewide guidance, programmatic document will be what is meant, rather than any internal WRIA 20 document. Further explanation of the Statewide Watershed Planning EIS, in its introductory section, follows:

> *This statewide nonproject environmental impact statement has been prepared to generally address probable significant adverse environmental impacts associated with watershed planning conducted under provisions of Chapter 90.82 RCW. Individual watershed plans will require additional environmental review at the local level, which could potentially involve preparation of an addendum to the statewide nonproject environmental impact statement or preparation of a supplemental environmental impact statement.*
>
> *Many of the recommended actions of individual watershed plans may require project level or nonproject level SEPA review at time of implementation.*

From Section 2.2 of the programmatic Statewide Watershed Planning EIS, it is made clear that using this state EIS is *not* mandatory:

It should be noted that while local planning units, lead agencies, and county legislative authorities are encouraged to use the statewide watershed planning environmental impact statement to help streamline their watershed plan adoption process, they are not required to use this document in their SEPA procedures. Local planning units, lead agencies, and county legislative may choose to develop environmental documents independent of the statewide watershed planning environmental impact statement to satisfy SEPA requirements prior to plan approval.

Actions that could be included in local watershed plans are considered as SEPA "alternatives" in the programmatic Watershed Planning EIS. Probable significant adverse environmental impacts that may be associated with these "alternatives" were also discussed in the programmatic Watershed EIS. If actions in a local watershed plan are consistent with the alternatives listed in the programmatic Watershed Planning EIS, non-project programmatic SEPA requirements can be fulfilled by the programmatic Watershed Planning EIS.

Assuming WRIA 20 adopts an EIS for its proposed work under the Plan, there would be three SEPA compliance processes associated with actions in the Plan:

- Programmatic coverage of the County watershed plan approval process. *Programmatic coverage of the WRIA 20 Plan would be achieved through adoption of the Watershed Planning EIS and the issuance of a Determination of Significance for the WRIA 20 Plan.*
- SEPA compliance related directly to rule making by the state. The state may accept an obligation to propose a Water Resource Management rule as an outcome of actions in the WRIA 20 Plan. This SEPA process for rule making will be implemented by the state when the action is initiated, and is not the responsibility of the Planning Unit or the lead SEPA agency for watershed planning.

  SEPA compliance for rule making will be accomplished through a separate SEPA process, led by the state, at the time the action is implemented.
- Non-programmatic SEPA for specific actions. Some specific project or non-project actions recommended in the Plan, such as the initiation of a specific construction or management activity will go through a separate SEPA review of the individual action itself at the time the action is implemented. The SEPA review completed at the current programmatic, non-project level of the SEPA might provide coverage for these actions. Some of the documentation needed for the project-level SEPA approval process may be referenced from a Watershed Planning EIS and addendum, if needed. However, the extent of the project SEPA process needed for each action is dependent entirely upon the nature of the specific action and its potential adverse environmental impacts. In some cases, these individual actions are in their early planning stages and are not sufficiently developed to make a SEPA judgment at the time of plan adoption by the county.

  This non-programmatic SEPA review of specific actions is not a prerequisite for the SEPA compliance necessary to achieve county-level approval of the watershed plan, but will generally be necessary for plan implementation.

In summary, this section delineates how to fulfill the programmatic SEPA requirements necessary for adoption by Clallam and Jefferson Counties of the WRIA 20 Plan. SEPA compliance for individual (project and non-project) actions in the Plan may also be granted during this adoption process. However, many actions will be required to undergo specific project or non-project level review at the time that the individual action is implemented.

For federal actions, NEPA compliance is required when the action is implemented. However, this compliance is not a prerequisite for adoption of the Plan by the county, nor is it necessary during the programmatic SEPA review. Additionally, the Planning Unit cannot obligate a federal agency to pursue any actions, but can make recommendations to a federal agency. If actions in the Plan involve a federal agency or the use of federal dollars in the project, they require NEPA review when actions are implemented by federal agencies in the future.

Recommended actions in the Plan that are consistent with alternatives described in the above section do not require supplemental information or additional consideration to achieve non-project programmatic SEPA compliance. In Tables E-1 through E-6, the programmatic alternatives are identified by a "WP-" prefix and are listed next to the corresponding Plan actions.

A SEPA gap analysis must be conducted where all alternatives in the Watershed Planning EIS were reviewed and compared with recommended actions in the WRIA 20 Plan.

E.3 Other SEPA Assumptions and Qualifications

A SEPA gap analysis identifies recommended actions in the Plan that are not be covered explicitly by alternatives in the programmatic Statewide Watershed Planning EIS. However, if such actions do not have adverse environmental impacts or do not require additional SEPA coverage at the programmatic level for reasons based on the qualifications listed in the bullets below, then an additional EIS is not required, and the qualifications and assumptions used to make this determination will be provided in an addendum.

Recommended actions that do not have a foreseeable "adverse environmental impact" do not require a SEPA alternative, or a statement of SEPA compliance. Alternatives that have been addressed by the programmatic Statewide Watershed Planning EIS have been reviewed and grouped into the following types of actions and are not expected to have an adverse environmental impact:

- Recommendations for: 1) supporting existing programs; 2) participating in existing programs; 3) modeling new programs after existing programs; and, 4) encouraging entities to work together on specific projects. These types of actions have been identified in Tables E-1 through E-6 as **Coordination/Collaboration**.

- Recommendations to find funding for existing programs or projects. These types of actions have been identified in Tables E-1 through E-6 as **Funding.**

- Recommendations for resource assessments, research, and/or project planning. These types of actions have been identified in Tables E-1 through E-6 as **Study.**

- Recommendations for data gathering, compilation, and management. These types of actions have been identified in Tables E-1 through E-6 as **Data Management.**

- Recommendations for maintaining or adding streamflow gages, associated programs, and funding. These types of actions have been identified in Tables E-1 through E-6 as **Gaging.**

- Recommendations for: 1) convening citizen/stakeholder forums to obtain public input; 2) providing opportunity for public involvement; and, 3) developing or distributing educational or data materials to public. These types of actions have been identified in Tables E-1 through E-6 as **Public Education.**

- Recommendations to the state to improve responsiveness and communications to citizens and governments in the WRIA. These types of actions have been identified in Tables E-1 through E-6 as **Communications.**

- Recommendations where the Planning Unit offers advice on how to proceed with ordinances/policies/programs. These types of actions have been identified in Tables E-1 through E-6 as **Advice.**

- Recommended actions that will involve review or revision of existing ordinances/policies/programs and will go through a SEPA review process during implementation of the actions; therefore, these are not subject to individual SEPA analysis at this time. These types of actions have been identified in Tables E-1 through E-6 as **Other SEPA.**

These general categories are used in the following tables, along with specific alternatives cited (*e.g.*, WP-1) in the programmatic Statewide Watershed Planning EIS.

E.4 WRIA 20 Plan SEPA Compliance Tables

Tables E-1 through E-6 list each action in the Plan, along with the analysis criteria used if it achieves non-project programmatic SEPA compliance. The alternatives to these actions will be addressed at a later date.

In some cases, more than one watershed planning alternative or a combination of qualifications and assumptions and alternatives are consistent with one action. In a few cases, the alternatives in the Watershed Planning EIS are more detailed or more fully developed than actions in the WRIA 20 Plan. Consistencies drawn between these more fully developed EIS alternatives and Plan actions may be helpful in achieving non-programmatic SEPA coverage for Plan actions when needed, as the Watershed Planning EIS may again be adopted in future SEPA processes.

All actions in the WRIA 20 Watershed Plan are fully covered by the programmatic Statewide Watershed Planning EIS.

Table E-1 SEPA Analysis for Water Quantity Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Streamflow Data Collection **Motivation**: The Planning Unit has a concern that while stream flow data may exist for specific reaches at some points in time and can be correlated to larger global events such as the Pacific Decadal Oscillation, this existing data may not be complete for all rivers in which an instream flow could be established. To address this concern and perception, the WRIA participants believe that additional work to validate stream location and type as well as stream gaging data are needed. (Section 3.1.2)		
QTD-1	Recommended stream gaging sites have been identified. Although some of these streams are currently being gaged by tribal agencies, these installations are considered temporary.	**Gaging**
QTD-2	Track funding opportunities for additional stream flow gages in WRIA 20, with the goal of establishing permanent flow gage locations.	**Gaging**
QTD-3	Periodically refine the list of candidate stream gaging sites based on: the availability of funding specific sources; the motivation of individual entities in a subbasin or basin watershed to promote or champion the establishment of specific flow gages; and changing priorities for the establishment of stream gages depending on the ability to show benefit and relationship to needs of the subbasin community as a whole.	**Data Management**
QTD-4	Where continuous, automated stream gaging is not conducted, spot measurements of stream flows and/or stage are valuable. These may be collected in conjunction with water quality "grab sampling" and/or other efforts. These data should be compiled in a central location for reference.	**Data Management**

Table E-1 SEPA Analysis for Water Quantity Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Water Right Processing **Motivation:** Water rights applications in WRIA 20 are backlogged and are not being processed in a timely manner by Ecology. The average age of water right applications in WRIA 20 is ten years. (Section 3.1.3.1)		
QTR-1	The Planning Unit recommends that Ecology diligently address backlogs of unprocessed water right applications, subject to provisions of RCW 90.03; in particular, setting out four approval criteria: (1) water will be put to beneficial use; (2) there will be no impairment to existing rights; (3) water is available; and, (4) water use will not be contrary to the public interest.	**Communication**
QTR-2	Ecology will encourage pre-submittal consultation between potential water right applicants and Ecology Water Resources Program staff to discuss data needs and other permit process information needs. (See also QTR-6; Tribal inclusion in applicant consultatins.)	**Communication**
QTR-3	When Ecology begins processing a water right application they will prepare a public notice and provide it to the applicant along with instructions for publication. It is the applicant's responsibility to publish the public notice in the local newspaper.	**Communication**
QTR-4	Ecology permit processing will occur commensurate with funding, staffing, and legislative direction.	**Communication**
Tribal Consultation **Motivation**: Effective government-to-government consultation regarding natural resource management, including notification on water right applications, is a commonly desired goal between state and tribal entities. Current protocols have been less effective than desired. (Section 3.1.3.2).		
QTR-5	Ecology must keep tribes informed and provide opportunities for government to government consultation consistent with mutually agreed procedures, accords and protocols, on proposed changes or additions to rules or guidance regarding water quality, water quantity, instream flows, shoreline management, and other areas of mutual interest.	**Communication**
QTR-6	Ecology will invite tribal representatives of affected tribes (those for whom the action lies in their Usual and Accustomed hunting and fishing grounds [U&A]) to water right applicant scoping meetings and make efforts to facilitate scheduling of scoping meetings to accommodate tribal requests.	**Communication**

Table E-1 SEPA Analysis for Water Quantity Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Citizen Consultation **Motivation**: Effective communication between citizens and government regarding water rights processing and notification of water resources management changes is needed in WRIA 20 (Section 3.1.3.3).		
QTR-7	Ecology will provide information on water rights applications and status of regulation being proposed on the Water Resources Program web page. Because the Internet is not seen by a number of people in this remote WRIA, and/or dial-up is still used, newspaper notice by the applicant for water rights remains an important requirement.	**Communication**
QTR-8	Ecology will consider the development of other useful information on its website where entities and citizens can access current and planned water rights actions and the status of pending and processed water right applications. One duty of an Initiating Body will be to keep citizens informed of actions and developments.	**Communication**
QTR-9	Ecology will consider maintaining a water resources e-mail list serve for WRIA 20.	**Communication**
Water Rights Database Cleanup **Motivation**: The water rights database for WRIA 20 appears to contain incorrect, invalid, and redundant water right and claim records (Section 3.1.3.4).		
QTR-10	Use databases, GIS, and other tools to identify: water rights that are possibly not being used beneficially; and, duplicate records in Ecology's Water Rights Tracking System (WRTS) database.	**WP-15**
QTR-11	Contact registered owners of these water rights/claims and confirm the status of the water rights.	**WP-15**
QTR-12	Identify those records that the registered water right/claim owner is willing to voluntarily relinquish, and facilitate voluntary relinquishment through Ecology.	**WP-15**
QTR-13	Communicate that the WRIA 20 Planning Unit and this Plan oppose the condemnation of valid water rights for any reason.	**Advice**

Table E-1 SEPA Analysis for Water Quantity Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Storage Actions		
Motivation: The City of Forks has an excellent municipal water supply system. However, updates and maintenance of facilities are needed consistent with their current Capital Improvements Plan, and water supply may also need supplementation. (Section 3.1.4)		
QTS-1	Support efforts by the City of Forks to increase the security and reliability of municipal water supply to provide adequate water to fight fires and to provide programmatic support for funds to replace and diversify existing and aging infrastructure, including: Installing a new well to reduce the vulnerability and susceptibility of the municipal water supply to contamination; replacing and expanding aboveground storage facilities to improve water supply under conditions of interruption of normal groundwater supply; processing new water rights needed to meet the near term anticipated demand; and, the parties to this plan agree that providing notice of intentions to pursue expansion of water rights could be advantageous to resolve the potential of any dispute about those new rights. Therefore, the Washington State Departments of Ecology and Health are to encourage applicants for water right expansions of existing systems like those of the City of Forks to provide notice of their intentions to seek expansion of existing rights to the participating governments, including tribal governments, in this plan.	**Other SEPA**
Motivation: The distribution of productive groundwater zones in the Lake Pleasant/Sappho area is not well understood. As a result, installing productive groundwater wells may require multiple costly efforts.		
QTS-2	Commission a geophysical survey of groundwater sources in the Lake Pleasant/Sappho area to improve the predictability and probability of siting productive groundwater wells.	**Study**
Motivation: The hydrogeology of the Lake Ozette area does not readily support productive groundwater wells and residents need to find reliable drinking water supplies.		
QTS-3	Commission a study to identify alternative means of securing a reliable and ecologically sustainable drinking water supply that ensures the conservation of native fish in the Ozette watershed.	**Study**
Motivation: Loss of large woody debris (LWD), from earlier state stream channel management practices and from other riparian activities, has exacerbated down cutting of stream channels, which drains and lowers ambient groundwater levels. This in turn has affected floodplain wetlands and possibly diminished low summer stream flows. The natural storage capacity of reaches within a subbasin can in some cases be improved by strategic placing of LWD and ensuing water retention.		

Table E-1 SEPA Analysis for Water Quantity Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
QTS-4	Commission a study to identify reaches that are good candidates for storage enhancement by strategic placement of LWD, including an evaluation of adverse impacts on real property that may be created by such a project.	**Study**

Table E-2: SEPA Analysis for Instream Flow Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Instream Flow Actions **Motivation**: Develop ISF rules to protect aquatic habitat and provide guidance in the allocation of future water rights. (Section 3.2.2)		
ISF-1	Ecology will make all reasonable efforts to invite affected parties to discuss setting instream flows prior to the initiating the process of instream flow rule-making. Persons with legal standing to do so may participate as parties in any future ISF rule setting process with Ecology. They may provide input regarding the location of flow control points, the technical analyses used to quantify ISFs, and the conditions included in the rule (*e.g.*, reservations, exemptions, *etc.*) if such data are available.	**WP-26, Communication**
ISF-2	The Planning Unit may be supportive of a future numeric ISF rule in WRIA 20. For rivers and their major tributaries, the setting of any ISF rule must be based on adequate data and technically defensible methods.	**Advice, Study**
ISF-3	The Planning Unit recommends that the following policy components be considered in the development of all ISF rules include: Closures to the allocation of additional surface water rights during the summer low flow period unless they are non-consumptive; creative mitigation strategies to allow for the allocation and exercise of water rights during stream closures; creative strategies for storing water during the wet season to provide additional water supply during the dry season stream closure periods; future reservations for specific uses; the transfer of water outside of WRIA 20 is strongly discouraged: the transfer of any water between the watershed sub-areas other than the groundwater exchange occurring under the Forks Municipal Water Plan is strongly discouraged.	**WP-10, WP-19, WP-21. WP-26, Advice**
ISF-4	Prioritization of streams for rule-making should be by the following criteria, which should be given due weight by Ecology in working on streams within this WRIA: Streams from which allocations are being considered that would result in the transfer of water outside of WRIA 20; streams that contain salmonid stocks; and streams where there may be an existing or impending impact to existing stream flows, due to development pressures and/or land use changes, that should lead to prioritizing ISF research on such streams.	**WP-26, Advice**

Table E-3: SEPA Analysis for Water Quality Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Water Quality Data Management and Program Actions		
Motivation: Encourage integration and coordination of water quality data management, collection, and dissemination between multiple entities to improve efficiency and effectiveness of water quality monitoring efforts. These entities include: the Makah Tribe, Hoh Tribe, Quileute Tribe, Clallam County, Jefferson County, City of Forks, ONP, ONF, WDNR, Clallam County Conservation District, private landowners, and others. Additionally, this coordination will assist with the implementation of FFR, Habitat Conservation Plans, and regulations managed by the EPA (per the Clean Water Act), and Ecology (Section 3.3.2 and 3.3.3).		
QLM-1	Participate in an existing water quality data clearing house. Several options exist.	**Data Management**
QLM-2	Commission the Olympic Natural Resources Center of the University of Washington to update the existing metadata clearinghouse hosted at: www.onrc.washington.edu/clearinghouse/	**Data Management**
QLM-3	Develop a WRIA-wide GIS database of water quality monitoring locations.	**Data Management**
QLM-4	Create or use an existing water quality database to store and track water quality parameters across WRIA 20.	**Data Management**
QLM-5	Use the above metadata and databases to review spatial, temporal and parameter coverage of current programs, and improve data collection efforts by eliminating overlap, closing data gaps, and extending complementary analyses.	**Data Management**
QLP-1	Support establishing water quality monitoring consistent with ratified HCPs within WRIA 20.	**Data Management, Study**
QLP-2	Request Streamkeepers and analogous groups provide staffing to monitor streams in the WRIA.	**Coordination/ Collaboration**
QLP-3	Support current and future funding applications by Streamkeepers and like organizations for monitoring activities conducted in WRIA 20.	**Funding**
QLP-4	Encourage participation in Ecology's Water Quality Management Area process in future program cycles by recommending specific research and/or restoration projects within the WRIA through the Watershed Plan.	**Data Management**

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Water Quality Data Collection Actions **Motivation**: The ambient baseline water quality conditions and variability within WRIA 20 are not well understood. (Section 3.3.3)		
QLD-1	The Planning Unit supports water quality monitoring efforts through logistical support where available resources allow, and endorsement of the following programs in the application of grants: Streamkeepers of Clallam County or, should an analogous organization be formed, in Jefferson County; Independent monitoring by the state, tribes, and local governments and or landowners; and Cooperative Monitoring Evaluation and Research (CMER).	**Study, Funding, Coordination/ Collaboration**
	Motivation Elevated fecal coliform in surface water may be an indicator of increased exposure to human or other problematic sources of bacteria. Elevated bacterial levels could lead to an increased risk of exposure to human pathogens. Possible sources in some instances may be wildlife (*e.g.*, elk), livestock (*e.g.*, cattle), septic systems, and/or pets. There is a need to better understand the source of fecal coliform, and to implement BMPs or other form of mitigation, if needed.	
QLD-2	Encourage those responsible for noting water quality violations to consider the variety of sources of fecal coliform exceedances (*e.g.*, wildlife) to avoid undue concern about potential enforcement against septic system owners. Owners should properly install and maintain on-site disposal systems.	**Coordination/ Collaboration**
QLD-3	Conduct fecal coliform studies with established protocols (e.g., Ecology's methods) in the following locations to determine where regulatory limits may be exceeded: Floodplain reaches of Big River; lower Lake Creek (downstream of Lake Pleasant); cattle grazing areas in the Sol Duc, Bogachiel, and Hoh drainages; Hoh River (Taft Creek), downstream of the Hoh Rainforest Ranger Station of the ONP; and water bodies whose quality is listed as impaired under Section 303(d) of the Clean Water Act.	**Study**
QLD-4	Review the study results and potential actions generated by Clallam County's pending study of fecal coliform in streams near campgrounds along the Sol Duc River.	**Study, Data Management**
QLD-5	Query environmental surface water quality databases for information regarding fecal coliform in WRIA 20. Databases maintained by the ONRC, Streamkeepers, the EPA (e.g., in the establishment of the 303(d) list), and Ecology e.g.,(EIM) should be queried for additional information related to fecal coliform monitoring).	**Data Management**

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Water Quality Education Actions **Motivation**: Realize significant improvement to water quality in WRIA 20 through education (Section 3.3.5).		
QLE-1	Develop a water quality outreach program by pursuing the following options: Combine or coordinate water quality outreach and education with the currently ongoing invasive weeds public outreach effort: Support the maintenance and expansion of on-going educational (K-12) efforts in local schools: develop a water quality education booth for local festivities and events; and create a list of contacts to conduct water quality monitoring field trips for interested groups including children.	**WP-36, WP-37, Public Education**
QLE-2	Establish an outreach and education plan that includes landowner education about the variety of causes of water quality problems, including elevated fecal coliform levels, to be managed by: Clallam County Streamkeepers and Jefferson County equivalent; Clallam and Jefferson Counties or Conservation Districts; and/or Washington Department of Ecology.	**WP-36, WP-37, Public Education**
QLE-3	Encourage Clallam and Jefferson Counties to provide educational opportunities to septic system owners, such as "Septic 101" classes, which cover basic operation and maintenance of septic systems.	**WP-36, WP-37, Public Education**
QLE-4	Inform homeowners of their responsibility and benefits of maintaining their septic systems.	**WP-36, Public Education**
QLE-5	Develop, adopt, and/or support a hazardous waste education program that includes education about illegal dumping and the potential toxic effects of hazardous waste in the watershed.	**WP-36, WP-37, Public Education**

Table E-4: SEPA Analysis for Fish Habitat Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Riparian Restoration Actions **Motivation**: Historical clearing of land in riparian zones has altered stream channels. In addition, prior to the 1970's, state agency policies included removal of large woody debris (LWD) and clearing of land in riparian zones. Large woody debris is now recognized to perform valuable functions, including, but not limited to, stream channel diversity and pooling for refugia (Section 3.4.2).		
HBR-1	Identify candidate stream reaches for reintroduction of LWD and pursue funding opportunities to conduct such projects. Identified reaches to date include: multiple reaches of Big River: multiple reaches of the Quillayute, Hoh and Ozette systems.	**WP-42**
HBR-2	Identify riparian zones that have been cleared for agricultural use. Conduct public outreach to obtain conservation easements for reestablishing riparian vegetation. Coordinate with the Clallam and Jefferson County Conservation District on these projects. Identified reaches to date include the middle reach of Big River (*i.e.*, Reach C) and the lower reaches of the Sol Duc, Calawah and Bogachiel Rivers in the vicinity of the City of Forks	**WP-42, Study, Data Management**
HBR-3	Obtain funding and conduct riparian zone restoration in degraded stream channel riparian buffers to provide natural LWD recruitment material. Solicit county conservation districts to actively pursue funding for consultation and design, acquisition of seedlings and plugs, and public outreach/community development of such projects	**WP-42, Funding, Coordination/ Collaboration**
HBR-4	Promote the reintroduction of salmonid species (chum and Chinook) where extirpated from their original natural distribution in the Lake Ozette drainage basin. This will involve fish habitat restoration projects tailored to stream reach conditions in the respective tributaries.	**WP-42, Other SEPA**
HBR-5	Conduct assessments to determine the fish species present in the system and to consider the role of hatchery supplementation as a tool for restoration and/or reintroduction of a species to the system at large.	**WP-55, Study**

Table E-4: SEPA Analysis for Fish Habitat Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Critical Areas Ordinances Actions **Motivation**: Land use regulations are not always fully implemented and/or enforced (Section 3.4.3).		
HBO-1	Initiate and implement a public education campaign about CAO protections along streams. Include local maps of the protected streamside areas in the campaign. Education should address BMPs, Low Impact Development (LID), and other considerations.	**WP-36, Public Education**
HBO-2	Through education, encourage landowners and public agencies to be good land stewards through restoration and enhancement work in riparian buffers that are already protected through CAOs. Education will include information about incentive programs available to landowners.	**WP-36, Public Education**
HBO-3	Recommend that Jefferson and Clallam Counties enforce existing CAO regulations with respect to timber harvest in riparian zones.	**WP-49, WP-54, Advice**
HBO-4	For Clallam and Jefferson Counties, find ways to encourage LID practices and, to the extent possible, remove disincentives to LID in the permitting process and include incentives.	**WP-49, Advice**
HBO-5	Clallam and Jefferson Counties, and the City of Forks, work with the Department of Natural Resources and non-governmental groups to validate the stream locations and typing designations in WRIA 20 with ground-truthing, especially where population growth is occurring or anticipated.	**WP-55, Study**

Table E-4: SEPA Analysis for Fish Habitat Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Invasive Weeds Actions **Motivation**: Invasive weeds that negatively impact watershed health, such as knotweed, adversely affect fish habitat (Section 3.4.4).		
HBI-1	Strongly support the mission of the Olympic Knotweed Working Group and the Clallam and Jefferson County Noxious Weed Control Boards. Encourage the formation of other cooperative partnerships for the control of noxious weeds, and the favorable consideration of all funding applications to support and implement programs and efforts to control/eradicate the noxious weeds.	**WP-47, Coordination/ Collaboration**
HBI-2	Obtain increased support for WRIA 20 in statewide and federal noxious species control efforts, including: Washington State Department of Agriculture Noxious Weed Control Board and Knotweed pilot program; The Title II program from the USFS to counties for the promotion, education and restoration of watershed health; Forest Health Protection Fund; Salmon Recovery Funding Board; Bureau of Indian Affairs watershed assessment and restoration projects.	**WP-47, Coordination/ Collaboration, Funding**
HBI-3	Send letters of support) to state and federal elected officials (in conjunction with grant applications submitted by third parties) to request additional funding for noxious weed eradication in WRIA 20.	**WP-47, Coordination/ Collaboration**
HBI-4	Support noxious weed education in conjunction with public outreach efforts for water quality such as: those sponsored for schools and county fairs; and those for landowners, to facilitate access to private lands for eradication efforts/programs.	**WP-36, WP-47, Public Education**
HBI-5	Except for areas within the ONP boundary, conduct surveys to locate and prioritize areas for additional knotweed eradication work, with immediate attention on the Quillayute System including: the Sol Duc, Bogachiel and Calawah Rivers, and the Quillayute mainstem; and, the Big River of the Ozette drainage.	**WP-47, Study**
HBI-6	Incorporate noxious weed prevention and removal measures into road, forestry and construction maintenance activities within riparian and aquatic environments and encourage the use of "clean" materials in road maintenance and handling of debris.	**WP-36, WP-38, WP-47, WP-50**
HBI-7	Incorporate noxious weed control/monitoring into restoration projects .	**WP-47**
HBI-8	Facilitate and expedite permitting and consultations for noxious weed control projects.	**WP-47**

Table E-4: SEPA Analysis for Fish Habitat Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
HBI-9	Promote collaborative noxious weed control projects and data-sharing opportunities among landowners and governments (including interlocal agreements).	**Data Management, Coordination/ Collaboration**
Land Conversion from Forest Use Actions **Motivation**: Conversion from forestry to other land uses may lead to development that does not have parallel regulations to protect fish habitat and water quality. Further, conversion to other land uses may reduce the traditional recreational uses in this watershed, which the Planning Unit desires to maintain. (Section 3.4.5).		
HBC-1	Subject land use proposals that require a change or exception from current Clallam or Jefferson County zoning to a full environmental and comprehensive plan review/update. As per existing law, for conversions, include affected party input. Discourage conversion of forest land to non-forest land uses.	WP-38, WP-49, Advice
HBC-2	Counties should continue land use zoning practices that encourage the maintenance of working forest lands within WRIA 20. Consider additional uses associated with secondary forest uses (recreation, low-impact development, *etc.*) as a means of providing additional economic incentive to slow conversions.	WP-38, WP-49, Advice
HBC-3	Create a list of strategies for working timber land protection that could be used including state, county, and federal programs.	WP-53, WP-38, WP-49, Advice
HBC-4	Forest agencies and private landowners should take a leadership role in establishing and evaluating innovative forestry pilot projects. Explore, develop and promote emerging or non-traditional income sources to include ecotourism, specialty forest products, and entry permits. Encourage biomass industries which bring an innovative approach in use of resources. As the developers of these industries determine what is needed to implement the ideas, promote parallel processes regarding innovative uses of the water resources to ensure the best support for those ideas.	WP-38, Study, Coordination/ Collaboration
HBC-5	Local, state and federal governments should develop and/or enhance incentives through financial and/or mitigation credits to maintain forest lands within the WRIA including conservation or other easements that compensate landowners for maintaining forests.	Coordination/ Collaboration, Advice
HBC-6	Facilitate and expedite zoning, permitting and industrial infrastructure critical to siting of forest products facilities in a manner consistent with adopted plans and regulations.	WP-38, WP-49

Table E-4: SEPA Analysis for Fish Habitat Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
HBC-7	Request that the economic development entities (state and county) consider the development, enhancement, and/or promotion of alternative financing options designed to develop capital investment in infrastructure. In developing criteria for applicants, include cooperative stewardship agreements across ownerships, forest restoration activities, establishing new and/or creative forest product markets, SRFB projects, and others.	Advice, Funding, Coordination/ Collaboration
Control of Sediment Actions **Motivation**: Both natural processes and human activities can generate sediment in streams. Anthropogenic sediment inputs should be controlled (Section 3.4.6).		
HBS-1	Working with the ONRC, Clallam and Jefferson Counties should develop a sediment control education program oriented toward landowners, contractors, and workers tailored to WRIA 20. This program will explain existing laws, rules, BMPs, the desired outcomes of management activities, and how to most effectively execute daily work routines to maximize efficiency and minimize adverse impacts to WRIA 20 water resources.	**WP-36, WP-50, Public Education, Coordination/ Collaboration**
HBS-2	Prepare a compilation of completed restoration and abandonment projects. This document will describe before and after conditions and will encourage more extensive effectiveness monitoring in future efforts. This document will also highlight lessons learned and provide guidance for stakeholder interaction and communication.	**Data Management, Public Education**
HBS-3	Develop a catalogue of grants applicable to WRIA 20 that landowners may pursue with willing partners in WRIA 20 in order to conduct desirable restoration and/or abandonment projects.	**Data Management, Funding**
HBS-4	Encourage investigation into causes of sediment loading, natural and anthropogenic, with focus on whether elimination of such causes would be desirable or not from a water resource management and fisheries protection standpoint.	**WP-50, Study, Advice**

Table E-5: SEPA Analysis for Special Projects Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Special Projects Actions **Motivation**: Specific projects have been identified that will have beneficial effects on the water resources of WRIA 20. This Plan wishes to facilitate the realization of these projects (Section 3.5).		
SP-1	Review the list of fish habitat improvement projects developed in: Limiting Factors Analysis of WRIA 20 by the Washington Conservation Commission (Smith, 2000); NOAA Draft Lake Ozette Sockeye Limiting Factors Analysis; DNR and USFS-sponsored watershed analyses; the NOPLE web page; other programs. Support projects not yet addressed and obtain funding to complete these projects. Incorporate the results of that review into Plan updates.	**Data Management, Coordination/ Collaboration, Funding**
SP-2	Support the restoration of threatened and extirpated salmonid species (sockeye, and chum/Chinook respectively) in the Ozette drainage.	**WP-42, Other SEPA**
SP-3	Support the City of Forks in their efforts to add a septage dump or improve transfer station support.	**Other SEPA**
SP-4	Support appropriate RV dump stations within camp grounds, public and private, within the WRIA).	**Other SEPA**
	Motivation: Annually recurring low flows of sufficient durations impede the migration of anadromous salmonids returning to spawn. This may disrupt the continued viability of this fishery.	
SP-5	Evaluate alternatives and provide recommendations to support migration and reproduction of salmonids in WRIA 20 rivers during periods of low flow. Examples of rivers of concern include the Hoh, Ozette, Big and Quillayute Rivers.	**Other SEPA**

Table E-6: SEPA Analysis for Management and Implementation Actions

Action Code	Action	Criteria for Compliance with Programmatic SEPA
Management and Implementation Actions **Motivation**: It is unclear how implementation of the plan will occur. (Section 3.6)		
MGT-1	Determine whether or not there exists a need for a locally-based Implementation Body to coordinate the successful implementation of the WRIA 20 Plan.	**Data Management, Coordination/ Collaboration**
MGT-2	Develop a Detailed Implementation Plan.	**Coordination/ Collaboration**
MGT-3	Build an implementation schedule and revision process for the Plan. Ensure that new Plan actions are scientifically based and can be integrated in the future. If additional updates are necessary based on the availability of data or unforeseen water-related issues, the process should be designed such that these updates are possible.	**Coordination/ Collaboration**
MGT-4	Prioritize Plan recommendations including educational needs, outreach, projects, policies, and management strategies for funding and implementation.	**Coordination/ Collaboration, Data Management**
MGT-5	Develop recommendations (such as cooperative agreements) for entities identified as responsible for Plan actions.	**Coordination/ Collaboration**
MGT-6	Organize regularly scheduled (*e.g.*, semi-annual) forum meetings on water resources programs being conducted by various entities to exchange information and encourage coordination among efforts, including preparation of strategic grant applications.	**Coordination/ Collaboration, Public Education**
MGT-7	Recruit entities to establish data management protocol, and custodians to store and manage data, and generally oversee these efforts into the future.	**Data Management, Coordination/ Collaboration**
MGT-8	Identify alternate funding sources (alternative to watershed planning funds), and assign responsibility for coordination and preparation of grant applications.	**Funding**
MGT-9	Recommend that the State Legislature make unused Supplemental Phase II Watershed Planning funds available during Phase IV implementation.	**Funding, Advice**

E.5 SEPA Checklist

WAC 197-11-960 Environmental Checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, `complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. *Name of proposed project, if applicable:*

   Water Resource Inventory Area (WRIA) 20 Watershed Management Plan

2. *Name of applicant:*

   Clallam County, Lead Agency for WRIA 20 Watershed Planning, on behalf of the WRIA 20 Planning Unit.

3. *Address and phone number of applicant and contact person:*

   Andy Brastad (360) 417-2415
   Clallam County Dept. of Community Development. 223 East 4th Street Port Angeles, WA 98362
   development@co.clallam.wa.us

4. *Date checklist prepared:*

   March 19, 2007

5. *Agency requesting checklist:*

   Department of Ecology

6. *Proposed timing or schedule (including phasing, if applicable):*

   The WRIA 20 Watershed Management Plan (Watershed Plan) establishes recommendations to manage water resources and related habitat within WRIA 20 into the future. Following the adoption of the plan by Clallam and Jefferson Counties, the WRIA 20 Planning Unit will develop an implementation plan, including timelines, priorities, and interagency agreements necessary to ensure the plan is implemented into the future. Many actions listed in the plan may be initiated within the first year after the plan is adopted by the counties. Other actions may be implemented further into the future.

7. *Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.*

   Yes, the plan establishes recommendations to manage water resources and related habitat within WRIA 20 into the future. Following the adoption of the plan by Clallam and Jefferson counties, the WRIA 20 Planning Unit or an Implementation Body may develop a detailed implementation plan, including timelines, priorities, and interagency agreements necessary to best ensure the plan recommendations are implemented into the future. Additionally, this plan calls for a number of adaptive management strategies that will guide the direction of implementation of actions under many of the topics in the plan.

8. *List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.*
   - Level I Technical Assessment (Hook, 2004)
   - Phase II Technical Assessment (Golder, May 2005)
   - Multi-Purpose Storage Assessment (Golder, June 2005)
   - Watershed Conditions and Seasonal Variability for Select Streams (BOR, 2005)
   - Summary Report for Geomorphic Assessment of Hoh River (BOR, 2004)
   - Makah Continuous Temperature Monitoring Summaries (Makah Tribe, ongoing)

- Toe-Width summary (provided by Washington State Department of Ecology (Ecology))
- SEPA Gap Analysis (Appendix E of WRIA 20 Watershed Plan)

For additional information, see the References section of the Plan.

9. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.*

   Does not apply.

10. *List any government approvals or permits that will be needed for your proposal, if known.*
    - The Washington State Watershed Management Act (RCW 90.82) requires final watershed plans developed under the Act to be adopted by the participating counties. In the case of WRIA 20, this requires adoption by Clallam and Jefferson Counties.

11. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)*

    The WRIA 20 Watershed Plan is a product of approximately eight years of collaborative work by the WRIA 20 Planning Unit. The plan addresses the required water quantity component of watershed planning, as well as the three other components of instream flow, habitat, and water quality. On _____, the WRIA 20 Planning Unit unanimously approved the plan and submitted the WRIA 20 Watershed Management Plan to Clallam County and Jefferson County for their consideration.

    The plan includes the following chapters:

    - Chapter 1 – presents an introduction and background information regarding watershed planning in WRIA 20 and includes a brief summary of the physical aspects of the watershed and references to technical data that support this watershed management plan.
    - Chapter 2 – presents a summary of the watershed planning process.
    - Chapter 3 – a summary of the actions recommended in the plan.
    - Chapter 4 – includes background information and recommended actions presented in Chapter 3 in the form of management strategies, recommendations, and projects for water quantity actions that support the water resource management strategy.

12. *Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.*

    WRIA 20 encompasses over 1,000 square miles of the western Olympic peninsula extending from Cape Flattery in the north, to south of the Hoh River, and from Mount Olympus to the Pacific Ocean (see Figure 1-1 in the Watershed Plan).

B. ENVIRONMENTAL ELEMENTS

Note: Some projects described in the WRIA 20 Watershed Plan will be required to undergo specific project or non-project level review at the time that the individual action is implemented.

1. **Earth**
   a. *General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other.*

      Does not apply.

   b. *What is the steepest slope on the site (approximate percent slope)?*

      Does not apply.

   c. *What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.*

      Varies throughout the watershed.

   d. *Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.*

      Does not apply.

   e. *Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.*

      Does not apply.

   f. *Could erosion occur as a result of clearing, construction, or use? If so, generally describe.*

      Does not apply.

   g. *About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?*

      Does not apply.

   h. *Proposed measures to reduce or control erosion, or other impacts to the earth, if any:*

      The plan calls for research into causes of water body sediment loads and an outreach program developed for land managers and contractors to reduce erosion.

2. **Air**
   a. *What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.*

      Does not apply.

   b. *Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.*

      Does not apply.

c. *Proposed measures to reduce or control emissions or other impacts to air, if any:*

Does not apply.

3. **Water**

a. *Surface:*

1) *Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.*

Within WRIA 20, there are 569 streams (1,355 stream miles; Hook, 2004) and three major lakes: Lake Ozette, Dickey Lake, and Lake Pleasant. WRIA 20 drains into the Pacific Ocean.

2) *Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.*

The plan calls for:

- A variety of monitoring activities that, when coupled with adaptive management, are intended to benefit water quality, quantity and habitat.
- Supporting improving habitat in and around the streams.
- Shade improvement projects that would involve establishing mature riparian vegetation.
- Increasing large woody debris in the side channels.

All of these activities are described in the WRIA 20 Watershed Plan.

3) *Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.*

Does not apply.

4) *Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.*

Does not apply.

5) *Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.*

Does not apply.

6) *Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.*

Does not apply.

b. *Ground:*

1) *Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.*

Does not apply.

2) *Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following*

chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

This plan discusses the need for general education on septic system maintenance and hazardous waste. Additionally, Plan actions support the construction of a septage transfer station and RV dump stations.

c. *Water runoff (including stormwater):*

1) *Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.*

Does not apply.

2) *Could waste materials enter ground or surface waters? If so, generally describe.*

Does not apply.

d. *Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:*

Does not apply.

4. **Plants**

a. *Check or circle types of vegetation found on the site:*

☑ *deciduous tree: alder, maple, aspen, other*

☑ *evergreen tree: fir, cedar, pine, other*

☑ *shrubs*

☑ *grass*

☑ *pasture*

☑ *crop or grain*

☑ *wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other*

☑ *water plants: water lily, eelgrass, milfoil, other*

☑ *other types of vegetation*

Varies throughout watershed. The Olympic Peninsula is home to eight kinds of plants that are not found anywhere else on Earth. The watershed also contains the Hoh rainforest, a temperate area protected within the Olympic National Park that receives over 200 inches of rain per year in some places, and supports an ancient Sitka spruce ecosystem.

b. *What kind and amount of vegetation will be removed or altered?*

The plan supports the removal of noxious weeds to improve habitat.

c. *List threatened or endangered species known to be on or near the site.*

Endangered or threatened plant species within WRIA 20 may include Brewer's Cinquefoil, Cotton's Milk-vetch, Cut-leaf Synthyris, Great Polemonium, Golden Paintbrush, Long-stalked Draba, Menzies' Burnet, Quinault Fawnlily, Water Bur-reed, Water Lobelia, and Western Yellow Oxalis.

d. *Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:*

The plan supports removing noxious weeds, restoring riparian vegetation to improve habitat, creating riparian buffers, and planting riparian vegetation to bring water temperatures within State and federal water quality standards.

5. **Animals**

   a. *Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:*

   ☑ Birds: Hawk, heron, eagle, songbirds, other
   ☑ Mammals: Deer, bear, elk, beaver, other.
   ☑ Fish: Bass, salmon, trout, herring, shellfish, other

   b. *List any threatened or endangered species known to be on or near the site.*

   The Lake Ozette sockeye and bull trout are listed as threatened under the Endangered Species Act. Other threatened or endangered species that may exist within WRIA 20 include: Bald Eagle, Fisher, Green Sea Turtle, Leatherback Sea Turtle, Loggerhead Sea Turtle, Lynx, Marbled Murrelet, Mazama (Western) Pocket Gopher, Northern Leopard Frog, Sea Otter, Spotted Owl, and Steller Sea Lion.

   c. *Is the site part of a migration route? If so, explain.*

   Does not apply.

   d. *Proposed measures to preserve or enhance wildlife, if any:*

   This Plan establishes recommendations to manage water resource and related habitat within WRIA 20 currently and into the future. The Plan makes a significant number of habitat-specific recommendations which are intended to benefit the following components that create quality wildlife habitat: stream channel geometry restoration, riparian vegetation restoration, wetland protection, and public education. The plan calls for management of fine sediment, roads, and noxious weeds. The plan also calls for an extensive monitoring and adaptive management program with the goal of improving habitat and water quality.

6. **Energy and Natural Resources**

   a. *What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.*

   Does not apply.

   b. *Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.*

   Does not apply.

   c. *What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:*

   Does not apply.

7. **Environmental Health**

   a. *Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.*

Does not apply.

1) *Describe special emergency services that might be required.*

Does not apply.

2) *Proposed measures to reduce or control environmental health hazards, if any:*

Does not apply.

8. **Noise**

a. *What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?*

Does not apply.

b. *What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.*

Does not apply.

c. *Proposed measures to reduce or control noise impacts, if any:*

Does not apply.

9. **Land and Shoreline Use**

a. *What is the current use of the site and adjacent properties?*

Land uses in WRIA 20 include agriculture, livestock production and grazing, timber harvest, residential housing, commerce, industry and recreation. Approximately 79% of the watershed is public or privately owned forest land.

b. *Has the site been used for agriculture? If so, describe.*

Portions of the watershed are zoned for agriculture.

c. *Describe any structures on the site.*

Does not apply.

d. *Will any structures be demolished? If so, what?*

Does not apply.

e. *What is the current zoning classification of the site?*

The majority of the watershed is public or privately owned forest land. While the population of WRIA 20 is approximately 9,300, the majority of people live in unincorporated areas. The primary population center in WRIA 20 is the City of Forks.

f. *What is the current comprehensive plan designation of the site?*

See above.

g. *If applicable, what is the current shoreline master program designation of the site?*

Varies throughout watershed.

h. *Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.*

Varies throughout watershed.

i. *Approximately how many people would reside or work in the completed project?*

Does not apply.

j. *Approximately how many people would the completed project?*

Does not apply.

k. *Proposed measures to avoid or reduce displacement impacts, if any:*

Does not apply.

l. *Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:*

This Plan acknowledges the importance of the Shoreline Management Act, Growth Management Act, planning documents prepared by the counties in accordance with these and the regulations developed by the DNR to implement the goals of the Forest and Fish Rules. This Plan endorses Critical Area Ordinance (CAO) implementation, including public education, encouraging low-impact development practices, and urging Clallam and Jefferson counties to make certain that penalties for CAO violations are appropriate deterrents.

10. **Housing**

a. *Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.*

Does not apply.

b. *Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.*

Does not apply.

c. *Proposed measures to reduce or control housing impacts, if any:*

Does not apply.

11. **Aesthetics**

a. *What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?*

Does not apply.

b. *What views in the immediate vicinity would be altered or obstructed?*

Does not apply.

c. *Proposed measures to reduce or control aesthetic impacts, if any:*

Does not apply.

12. **Light and Glare**

a. *What type of light or glare will the proposal produce? What time of day would it mainly occur?*

Does not apply.

b. *Could light or glare from the finished project be a safety hazard or interfere with views?*

Does not apply.

c. *What existing off-site sources of light or glare may affect your proposal?*

Does not apply.

d. *Proposed measures to reduce or control light and glare impacts, if any:*

Does not apply.

13. **Recreation**

a. *What designated and informal recreational opportunities are in the immediate vicinity?*

Boating, fishing, swimming, camping, and hiking occur within the watershed. The rivers, tributaries and lakes provide users with a wide range of recreation experiences, from developed campgrounds to undeveloped primitive campsites. An extensive road network that ranges from two-lane asphalt roads to single lane dirt trails provides access to recreation within the watershed. The plan supports the maintenance of lands in forest use, including for the purpose of supporting recreational uses.

b. *Would the proposed project displace any existing recreational uses? If so, describe.*

Does not apply.

c. *Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:*

Does not apply.

14. **Historic and Cultural Preservation**

a. *Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.*

Does not apply.

b. *Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.*

WRIA 20 includes four Native American Treaty Reservations and U&As. The three tribes in WRIA 20 are signatories to the Watershed Plan.

c. *Proposed measures to reduce or control impacts, if any:*

If and/or when actions are implemented by the successor to the Planning Unit, a SEPA checklist (if necessary) will be completed with mitigation measures for the specific project.

15. **Transportation**

a. *Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.*

Does not apply.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Does not apply.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Does not apply.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Does not apply.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Does not apply.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Does not apply.

g. Proposed measures to reduce or control transportation impacts, if any:

Does not apply.

16. **Public Services**

a. Would the project result in an increased need for public services (for example: Fire protection, police protection, health care, schools, other)? If so, generally describe.

Does not apply.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Does not apply.

17. **Utilities**

a. Circle utilities currently available at the site: Electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Does not apply.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Does not apply.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: John Miller
Date Submitted: 9/8/2008

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. *How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?*

   Does not apply.

   Proposed measures to avoid or reduce such increases are:

   Does not apply.

2. *How would the proposal be likely to affect plants, animals, fish, or marine life?*

   The WRIA 20 Watershed Plan provides the foundation for a comprehensive strategy for balancing competing demands for water, while at the same time preserving and enhancing the future integrity of the watershed (including habitat for fish and animals).

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

   The Plan supports salmon recovery efforts through the support of habitat improvements and proposed instream flow and water allocation strategies.

3. *How would the proposal be likely to deplete energy or natural resources?*

   Does not apply.

   Proposed measures to protect or conserve energy and natural resources are:

   The Plan supports the prevention of land conversion from forest or forest-related uses.

4. *How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?*

   This watershed-wide proposal addresses water resources throughout the watershed including those in environmentally sensitive areas, and attempts to improve or monitor the condition of those resources. A number of actions address habitat improvements for threatened or endangered fish species. Storage opportunities are addressed. Many actions address improvement of water quality and instream flows on the river systems in the watershed.

Proposed measures to protect such resources or to avoid or reduce impacts are:

These measures are included in monitoring recommendations and adaptive management strategies that form the basis of the plan. Generally, the management recommendations in the Plan are intended to protect or improve the water resource.

5. *How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?*

   Does not apply.

   Proposed measures to avoid or reduce shoreline and land use impacts are:

   Does not apply.

6. *How would the proposal be likely to increase demands on transportation or public services and utilities?*

   Does not apply.

   Proposed measures to reduce or respond to such demand(s) are:

   Does not apply.

7. *Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.*

   Does not apply.

E.6 Summary

This appendix (Appendix E of the Water Resources Area Inventory 20 Watershed Management Plan Public Draft) has provided documentation of compliance of the WRIA 20 Plan with programmatic SEPA requirements.