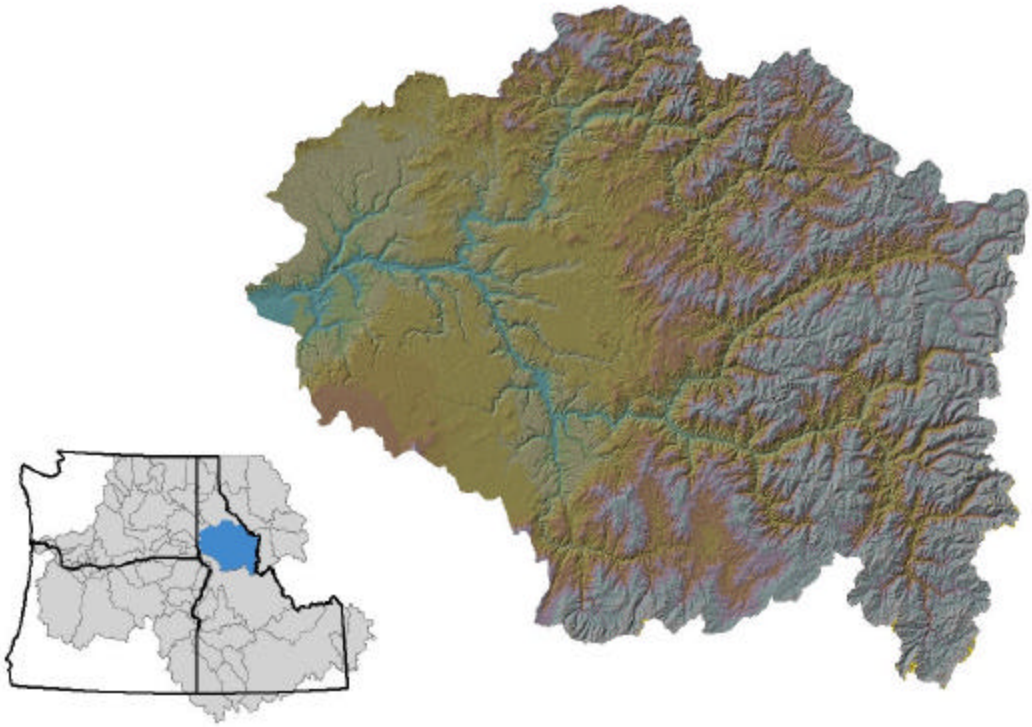
Draft
Clearwater Subbasin Inventory

November 2003



Compiled by
Ecovista

Contracted by
Nez Perce Tribe Watershed Division

In Cooperation with
Clearwater Policy Advisory Committee

PREAMBLE

In early 2001, the excitement began. Over 147,000 adult spring chinook began to cross Lower Granite Dam, most of them on their way to Idaho from the Pacific Ocean. At least a quarter of these fish were honed in on the Clearwater River subbasin in Idaho. By the time the season ended in August, over 24,000 fish had been harvested by sportsmen and tribal fishers. Over 61,000 angler trips resulted in 24 million dollars of direct angler expenditures in the Clearwater River subbasin. Large steelhead runs the following fall and winter provided additional opportunities and memories for recreational fishermen, in addition to important cultural and economic benefits in the subbasin.

Why so many fish following decades of so few? Above average spring flows in 1999 flushed juvenile fish to an ocean with better conditions for salmonid survival, including cooler water temperatures. In addition, hatcheries released full production capacity smolt numbers. Fisheries biologists predicted a large run, but even they could not have realized the memories and experiences that this run would provide the fortunate tribal fishers and sports anglers in the Clearwater subbasin.

The salmon and steelhead run of 2001/2002 provided us a glimpse of what runs were like historically, when thousands of self-sustaining wild fish returned to the Clearwater River every year. Unfortunately, wild fish continue to be much suppressed from historical numbers and the set of conditions that led to the runs of mostly hatchery fish in 2001/2002 are not expected to persist in the future. In addition, a variety of in-basin and out-of-basin factors continue to negatively impact salmon and steelhead populations.

The future of salmon and steelhead in the Clearwater River will require the protection and expansion of wild fish populations, the continued production of hatchery fish for harvest and other purposes, and an openness by all parties to consider all factors which affect these important resources in the Clearwater. The members of the Clearwater PAC hope that implementation of the Clearwater Subbasin Plan will be a step in the right direction.

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Acronym	Definition
Agencies or Groups	
APAC	Artificial Production Advisory Committee
BAG	Clearwater Basin Advisory Group (IDAPA 39-3613)
BLM	U.S. Bureau of Land Management
BoR	U.S. Bureau of Reclamation
BPA	Bonneville Power Administration (Bonneville)
CBFWA	Columbia Basin Fish and Wildlife Authority
CNF	Clearwater National Forest
Council	Northwest Power Planning and Conservation Council
CSWCD	Clearwater Soil and Water Conservation District
EDT	Ecosystem Diagnosis and Treatment Method
EPA	U.S. Environmental Protection Agency
FSA	USDA Farm Service Agency
HUC	Hydrologic Unit Code
IASCD	Idaho Association of Soil Conservation Districts
IDFG	Idaho Department of Fish and Game
IDEQ	Idaho Department of Environmental Quality
IDL	Idaho Department of Lands
IDT	Idaho Department of Transportation
IDWR	Idaho Department of Water Resources
IFIM	Instream Flow Incremental Methodology
ISWCD	Idaho Soil and Water Conservation District
LHTAC	Local Highway Technical Assistance Council
LSCD	Lewis Soil Conservation District
LSWCD	Latah Soil and Water Conservation District
NOAA Fisheries	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPNF	Nez Perce National Forest
NPS	National Park Service
NPSWCD	Nez Perce Soil and Water Conservation District
NPT	Nez Perce Tribe
NRCS	USDA Natural Resources Conservation Service
PAC	Clearwater Policy Advisory Committee
SCC	Idaho Soil Conservation Commission
TU	Trout Unlimited
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USACE	U.S. Army Corps of Engineers
WAG	Watershed Advisory Group (IDAPA 39-3615)
Terms	
APRE	Artificial Production Review and Evaluation
BiOp	Biological Opinion
BMP	Best Management Practice
BURP	Beneficial Use Reconnaissance Program
CCRP	Continuous Conservation Reserve Program (FSA)
CRFMP	Columbia River Fish Management Plan
CRP	Conservation Reserve Program (FSA)
CWA	Clean Water Act
EQIP	Envirnmental Quality Incentive Program
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
GAP	Gap Analysis Program
HGMP	Hatchery Genetic Management Plan
HUC	Hydrologic Unit Code

Acronym	Definition
IDAPA	Idaho Administrative Procedures Act
INFISH	Interim strategies for managing fish-producing watersheds in Eastern Oregon and Washington, Idaho, Western Montana and portions of Nevada
LOD	Large Organic Debris
LSRCP	Lower Snake River Compensation Program
PACFISH	Interim Strategies for managing anadromous fish-producing watersheds in Eastern Oregon and Washington, Idaho, and parts of California.
PSSZ	Potential Sediment Source Zone
PMU	Potential Management Unit
RHCA	Riparian Habitat Conservation Area
RRWMA	Red River Wildlife Management Area
SI	Salmon Initiative
SPZ	Streamside Protection Zone
STIP	State Transportation Improvement Program
TMDL	Total Maximum Daily Load
WBAG II	Water Body Assessment Guidance 2002
WQPA	Idaho Water Quality Program for Agriculture (SCC)
WHIP	Wildlife Incentive Program (NRCS)
WRP	Wetland Reserve Program (NRCS)

1 Introduction

The Clearwater Subbasin Plan has been developed as part of the Northwest Power and Conservation Council's (Council; See Table 1 for a complete list of acronyms used in this document) Columbia River Basin Fish and Wildlife Program. Subbasin plans will be reviewed and eventually adopted into the Council's Fish and Wildlife Program to help direct Bonneville Power Administration (Bonneville) funding of projects that protect, mitigate and enhance fish and wildlife habitats adversely impacted by the development and operation of the Columbia River hydropower system. The, National Marine Fisheries Service (NMFS, also referred to as NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) intend to use subbasin plans as building blocks in recovery planning to meet the some of their requirements of the 2000 Federal Columbia River Power System Biological Opinion. Subbasin planning through the Council's program will also assist Bonneville with some of the requirements they have under the 2000 BiOp.

The Clearwater Policy Advisory Committee and the Nez Perce Tribe intend the Clearwater Subbasin Plan to serve multiple purposes. They intend the plan to meet the Council's call for subbasin plans as part of its Columbia Basin wide program and to provide a resource for federal agencies involved with Endangered Species planning efforts. But equally important this plan is a locally organized and implemented effort involving the major resource managers and local governments in the subbasin to develop the best possible approach to protecting, enhancing and restoring fish and wildlife in the Clearwater Subbasin. This plan is intended to provide resources necessary to develop activities forwarding the vision of the Clearwater Policy Advisory Committee at both subbasin/programmatic scales and to provide the context and information for developing site specific projects. The Clearwater Subbasin Plan is comprised of three volumes that are interdependent, but each provides a unique way in understanding the characteristics, management, and goals for the future of the Clearwater subbasin. The three volumes generally conform to the guidance set forth in the Council's *Technical Guide for Subbasin Planners* (2001), which became available during the middle of the project.

Assessment-- The assessment develops the scientific and technical foundation for the subbasin plan. The assessment provides an overview, a discussion of focal species and habitats, including environmental conditions and ecological relationships, limiting factors and synthesis and interpretation. The Clearwater Subbasin Assessment provides the analysis and background information to support the recommendations made in the Clearwater Subbasin Management Plan.

Inventory-- The inventory includes information on existing fish and wildlife programs, projects and activities past (last 5 years) and future. This information provides an overview of the management context, including existing resources for protection and restoration in the subbasin.

Management plan-- The management plan includes a vision for the future of the Clearwater subbasin, biological objectives, and strategies for reaching management goals.

The initial planning and cooperation building efforts that culminated in the development of the Clearwater Subbasin Plan began with the designation of the Clearwater subbasin as a Council

Focus Program in late 1996. The purpose of the Clearwater Focus Program is to coordinate projects to enhance and restore fish and wildlife habitats in the Clearwater River subbasin to meet the goals of the Council's program. Idaho Soil Conservation Commission (SCC) and the Nez Perce Tribal Watershed Division (one of 6 divisions within the NPT Fisheries Department) co-coordinate the Focus Program on behalf of Idaho State and the Nez Perce Tribe (NPT).

Beginning in the fall of 1999, the NPT Watershed Division contracted with Washington State University, Center for Environmental Education (CEEd) to produce the Clearwater Subbasin Assessment. NPT provided funding for the assessment and planning via contracts with the Bonneville Power Administration. Idaho Soil Conservation Commission provided supplemental funding and staff resources. Early assessment work focused on anadromous and resident fish populations, available habitat quantity and quality, and land management implications to fish populations.

The Clearwater Focus Program convened the Clearwater Policy Advisory Committee (PAC) to coordinate a multi-agency, ecosystem-based approach to protection and restoration of fish and wildlife habitat and to oversee the Clearwater subbasin planning process. PAC membership includes representatives from the major resource management agencies, private landowners, and local governments in the Clearwater subbasin. Current PAC members include:

George Enneking*, Idaho Association of Counties, Chairman
Cal Groen, IDFG, Vice Chairman
Bruce Bernhardt, Nez Perce National Forest
Dale Brege, U.S. National Marine Fisheries Service
Kerby Cole, Idaho Department of Environmental Quality
Terry Cundy, Potlatch Corporation
Larry Dawson, Clearwater National Forests
Allen Slickpoo, Jr.*, Nez Perce Tribe Executive Committee
Kyle Hawley*, Idaho Assoc. of Soil Conservation Districts
Bob McKnight, Idaho Department of Lands
Bill Miller, U.S. Fish and Wildlife Service
*Elected officials of local or tribal government

In response to the more complete ecosystem view of subbasin planning emerging in the Council, a terrestrial subcommittee was formed by the PAC in mid-2000 to guide the development of the Clearwater Terrestrial Subbasin Assessment. The NPT's Wildlife Department was contracted to produce the terrestrial portion of the assessment in early 2001. Terrestrial subcommittee members included representatives from the NPT, Idaho Department of Fish and Game, U.S. Bureau of Land Management, Clearwater National Forest, U.S. Army Corps of Engineers and Potlatch Corporation.

Ecovista, a private company started by the original project staff from Washington State University, produced the Draft Clearwater Aquatic Assessment in September of 2001. The NPT Wildlife Department completed the Draft Clearwater Terrestrial Assessment in October of 2001. Ecovista integrated the two assessments into one document, addressed comments and integrated the collaborative efforts of subbasin resource managers into the Clearwater Subbasin Plan during 2002. Writing team members for these efforts are listed below.

Aquatic Assessment and Subbasin Management Plan

Thomas Cichosz,	fisheries biologist
Craig Rabe,	aquatic ecologist
Anne Davidson,	spatial ecologist
Darin Saul, Ph.D. ,	project manager/editor

Terrestrial Assessment

Angela Sondenaa, Ph.D.	botanist, wildlife biologist
Gail Morgan,	wildlife biologist, GIS analyst
Shana Chandler,	wildlife ecologist
Blair McClarin,	field biologist
Jeff Cronce,	GIS Analyst
Marcie Carter,	wildlife biologist
Carl Hruska,	wildlife biologist

The aquatics portion of the assessment was disseminated for review throughout the development phase using email lists compiled by Focus Program staff and as an entire draft in August 2001. Large portions of the aquatic assessment were also incorporated into the Clearwater Subbasin Summary, released May 2001 (Cichosz et al. 2001) and reviewed accordingly as part of the development process for that document. The terrestrial portion of the assessment was first disseminated for review as described for the aquatic assessment and as an entire draft in January 2002 and then again in a merged document March 2002. Through these review processes, hundreds of comments, suggestions and clarifications were received from local, state, tribal, and federal representatives with relevant professional expertise (Individual reviewers and contributors are listed in Table 2). Data, comments, and working knowledge of these individuals as it relates to the Clearwater subbasin have been integrated into the document to improve its accuracy and utility. There were 14 PAC and 10 subcommittee technical meetings, six Focus Program contracting meetings, and 2 meetings with NOAA Fisheries, Focus Program, and CEEd staffs during development of the Clearwater Subbasin Assessment (September 1999 – August 2001).

Subbasin planning began January 2002. The Clearwater PAC had functioned as the aquatic technical review subcommittee during the assessment phase, calling on respective staff for participation. The PAC decided for the planning phase an Aquatic Subcommittee should be formed to complement the Terrestrial Subcommittee, to provide technical direction to the contract writers of the subbasin plan. Membership on the subcommittees included Clearwater PAC members and staff representatives from fish and wildlife agencies in the subbasin. The subcommittees reviewed and worked on components of the subbasin plan as they were developed prior to each Clearwater PAC review. E-mail announcement of component re-writes were distributed to the technical contact list developed by the Focus Program staff (also used during the assessment phase). These reviews were prior to and independent of the July, August, September, and October (2002) releases of the subbasin plan drafts, which included the subbasin assessment, for comment. There were 13 PAC and nine technical subcommittee meetings, one conference call with NOAA Fisheries staff, and 11 public meetings held during development of

the Clearwater Subbasin Management Plan and Inventory (January 2002 – October 2002). A complete description of the Public and Government Participation Plan and overview of its implementation during the planning process is provided in Appendix C in the Subbasin Management Plan. Individuals who participated in meetings, provided comment, or drafted portions during the planning phase of the Clearwater Subbasin Plan are listed in Table 2.

The Nez Perce Tribe Executive Committee passed a resolution on October 8, 2002 approving the motion to forward the Clearwater Assessment and Plan to the Council for review. The members of the Clearwater PAC endorsed the Final Draft Clearwater Subbasin Plan on October 8, 2002.[1]

The *Final Draft Clearwater Subbasin Plan* was presented to the full Council on November 14, 2002; a workshop was held later in November 2002 for the Independent Scientific Review Panel (ISRP) and a number of federal agencies in November 2002. The ISRP review of the Clearwater Subbasin Plan became available in February (Council Document 2003-3). NOAA Fisheries provided informal comments on the plan in February 2003 as well. The Clearwater PAC decided to go through a revision phase prior to submitting the subbasin plan for adoption into the Council's program.

Revision of the *Final Draft Clearwater Subbasin Plan* began April 2003 and was completed October 31, 2003 with the Clearwater PAC having held six meetings and the technical subcommittees four to complete revisions. Clearwater PAC representatives, Ecovista staff, and Council staff (Idaho) meet with NOAA fisheries staff from Idaho and Portland on May 8, 2003 to discuss the ESU population delineations made by the Interior Columbia Technical Recovery Team and again in a more regional meeting in July 2003. After each technical subcommittee meeting another draft of the subbasin management plan was prepared and announced for review using email lists compiled throughout the process. Individuals who participated in meetings, provided comment, or drafted portions during the revision phase of the Clearwater Subbasin Plan are listed in Table 2.

The Clearwater PAC endorsed the Clearwater Subbasin Plan and recommended it be submitted to the Council for adoption by motion on October 31, 2003.

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[1] The Clearwater PAC (referred to hereafter as the Parties) understand that this Plan shall be presented to the Northwest Power and Conservation Council (Council), as a proposed amendment to the Fish and Wildlife Program, for its review and appropriate action under the authority of the Northwest Power Planning Act. The Parties, except where specifically noted therein, support the Plan as an amendment to the Council's Fish and Wildlife Program, and its implementation if adopted as an amendment by the Council. The Parties believe that the Plan represents many areas of agreement, reached through a broadly collaborative process. However, the Parties recognize that the Plan does not resolve all differing legal, scientific and/or policy perspectives of the Parties, and that each Party may, at its own discretion, continue to advance their unique perspectives in the many fora dealing with the subject matter of the Plan. The Parties to this Plan specifically recognize that each Party reserves all legal rights, powers, and remedies now or hereafter existing in law or in equity, by statute, treaty, or otherwise. Nothing in this Plan is nor shall be construed to be a waiver, denial, or admission of any current or future legal claim or defense.

The Clearwater PAC will continue under the 2000 Columbia Fish and Wildlife Program and the Clearwater Subbasin Plan. The Clearwater Subbasin Plan will be reviewed and amended as necessary at least every five years after adoption into the Council's program.

The Clearwater Focus Program created by the 1994 Columbia Basin Fish and Wildlife Program will continue under the 2000 Columbia Basin Fish and Wildlife Program and the Clearwater Subbasin Plan. Proposals for appropriate operational funding will be made during provincial reviews or whatever other funding cycle the program endorses after subbasin planning. See Section 2 of this volume for a description of the subbasin plan review process and the functions of the Focus Program and PAC.

Table 2. Individuals who participated in the development of the Clearwater Subbasin Plan. Present and former Clearwater PAC members and alternates are shown in bold print.

Name	Agency	Specialty
Althouse, Scott	NPT	Law
Ballou, Erv	IDWR	Mining/Water Resources
Beach, Ted	Rocky Mtn Elk Foundation	
Bellatty, Jim	**IDEQ**	**Management**
Bennett, David	UI	Biology Fish
Blair, Steve	NPNF	Biology Wildlife
Blew, David	IDWR	Biology Aquatic
Bowler, Bert	IDFG	Biology Fish
Brege, Dale	**NOAA**	**Biology Fish**
Brostrom, Jody	IDFG	Biology Fish
Burge, Howard	USFWS	Biology Fish
Butterfield, Bart	IDFG	Biology Fish
Carter, Marcie	NPT	Biology Wildlife
Caswell, Jim	**IOSC**	**Management**
Cichosz, Tom	Ecovista	Biology Fish
Cochanauer, Tim	IDFG	Biology Fish
Cronce, Jeff	NPT	Biology Wildlife
Cundy, Terry	**Potlatch Corp**	**Hydrology**
Dansart, Bill	**ISCC**	**Geology/Hydrology/GIS**
Davidson, Anne	Ecovista	Biology Wildlife
Davis, Dan	CNF	Biology Wildlife
Davis, Russ	ACOE	Biology Wildlife
Dawson, Larry	**CNF**	**Management**
Dupont, Joe	**IDL**	**Biology Fish**
Eichert, Joe	**IDL**	**Management**
Eichstaedt, Rick	NPT	Law
Enneking, George	**Idaho County Commissioner**	**Local Government**
Espinoza, Al	Consultant	Biology Fish
Falter, Michael	UI	Limnology
Funkhouser, Zachary	ITD	Planner
Garcia, Steve	USGS	Hydrology
Gerhardt, Nick	NPNF	Hydrology

Name	Agency	Specialty
Gould, Justin	**Nez Perce Tribe Executive Committee**	**Local Government**
Graham, Bill	IDWR	Planning
Gray, Karen	Idaho Native Plant Society/Palouse Prairie Foundation	Biology Botany
Green, Dave	NPNF	GIS/database
Groen, Cal	**IDFG**	**Management**
Haagen, Ed	NRCS	Soils
Hansen, Jerome	**IDFG**	**Biology Wildlife**
Hansen, Richard	IDWR	Water Rights
Hassemer, Pete	IDFG	Biology Fish
Hawley, Kyle	**Farmer**	**Local Government**
Henderson, Kent	Idaho Wildlife Federation	
Hesse, Jay	NPT	Biology Fish
Hohle, Janet	SCC – Focus Program	Management
Hood, Ric	Clearwater County Commissioner	Local Government
Hornbeck, Twila		State Legislator
Huntington, Chuck	Clearwater Biostudies	Biology Fish
Iverson, Tom	CBFWA	Biology Fish
Jackson, Bob		Rancher/Houndhunter
Jahn, Phil	**NPNF**	**Management**
Johnson, Craig	BLM	Biology Fish
Johnson, Dave	NPT	Biology Fish
Jones, Dick	CNF	Hydrology
Jones, Ira	**NPT – Focus Program**	**Management**
Keen, Shelly	IDWR	Water Rights Coordinator
Keersemaker, John	**CNF**	**Management**
Kendrick, John	NRCS	Planning
Kiefer, Sharon	IDFG	Biology Fish
Klein, Linda	LRK Communications	Soils
Kozakiewicz, Vince	**NOAA**	**Biology Fish**
Koziol, Deb	NPSWCD	Biology Wildlife
Krakker, Joe	USFWS	Biology Fish
Kronemann, Loren	NPT	Biology Wildlife
Kucera, Paul	NPT	Biology Fish
Larson, Ed	NPT	Biology Fish
Larson, Jessica	IDWR	GIS / Water Planning
Lawrence, Keith	NPT	Biology Wildlife
Leitch, Joe	Lewis County Commissioner	Local Government
Lewis, Reed	Idaho Geological Survey	Geology
Lloyd, Rebecca	NPT	Engineer Environmental
Lozar, Ed	CNF	GIS/database
Macfarlane, Gary	Friends of the Clearwater	Range Ecology
Maiolie, Melo	IDFG	Biology Fish
McCool, Don	USDA Research	Agriculture
McGowan, Felix	NPT	Biology

Name	Agency	Specialty
McKnight, Bob	**IDL**	**Management**
McRoberts, Heidi	NPT	Biology Aquatic
Miles, Aaron	NPT	Forestry
Miller, Bill	**USFWS**	**Biology Fish**
Mitchell, Victoria	USGS	Geology
Morgan, Gail	NPT	Biology Wildlife
Morse, Tony	IDWR	Geology/GIS
Moser, Brian	**Potlatch Corp**	**Biology Wildlife**
Murphy, Pat	CNF	Biology Fish
Papanicolaou, Thanos	WSU	Hydrology
Paradis, Wayne	NPNF	Biology Fish
Parsons, Russ	UI Landscape Dynamics Lab	GIS
Peppersack, Jeff	IDWR	Water Rights
Rabe, Craig	Ecovista	Biology Aquatic
Rabe, Fred	Consultant	Biology Aquatic
Rasmussen, Lynn	NRCS	Agriculture
Rieman, Bruce	USFS-RMRS	Biology Fish
Ries, Bob	NOAA	Biology Aquatic
Russell, Scott	NPNT	Biology Fish
Saul, Darin	Ecovista	Ecology
Schriever, Ed	IDFG	Biology Fish
Scott, Mike	UI Landscape Dynamics Lab	Spatial Ecology
Servheen, Gregg	**IDFG**	**Biology Wildlife**
Somma, Angela	NOAA	Biology Fish
Sondenaa, Angela	NPT	Biology Wildlife/Botany
Spinazola, Joe	Bureau of Reclamation	Planner
Sprague, Sherman	NPT	Biology Fish
Statler, Dave	NPT	Biology Fish
Stinson, Ken	**LSWCD**	**Management**
Storrar, Ann	NPT	Water Resources
Svancara, Leona	UI Landscape Dynamics Lab	GIS
Taylor, Emmit	NPT	Engineer
Ulmer, Lewis	**Idaho County Commissioner**	**County Government**
Villavicencio, Adam	NPT	Conservation Enforcement
Weigel, Dana	BoR	Biology Fish
Yetter, Dick	NRCS	Biology Fish

2 Management Programs and Policies

2.1 Programs

Clearwater Focus Program and Policy Advisory Committee

In 1980, Congress passed the Pacific Northwest Electric Power Planning and Conservation Act, which authorized the states of Idaho, Montana, Oregon, and Washington to create the Northwest Power and Conservation Council (Council). The Act directs the Council to prepare a program to protect, mitigate, and enhance fish and wildlife of the Columbia River Basin that have been affected by the construction and operation of hydroelectric dams while also assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. The Act also directs the Council to inform the public about fish, wildlife, and energy issues and to involve the public in its decision-making. In late 1996, the 9,645 square mile Clearwater River subbasin was designated a Focus Program under the Council's Columbia River Basin Fish and Wildlife Program.

The purpose of the Clearwater Focus Program is to coordinate projects and interagency efforts to enhance and restore aquatic and terrestrial habitats in the Clearwater River subbasin to meet the goals of the Council's fish and wildlife program. The Idaho Soil Conservation Commission and the Nez Perce Tribal Watershed Division co-coordinate the program on behalf of Idaho State and the Nez Perce Tribe.

The Focus Program convened the Clearwater Policy Advisory Committee (PAC) in September 1999 to provide guidance in the development of a subbasin assessment and plan. The PAC adopted the Clearwater Policy Advisory Committee Charter January 2000. The charter includes a mission statement, goals and objectives, operating protocols, and membership. Membership to the PAC was established by the charter; new membership is accomplished by amendment to the charter. Work on the Clearwater Subbasin Summary, Provincial Review, Clearwater Subbasin Assessment and Plan has been coordinated through the Focus Program and the PAC.

Restoration projects have been conducted on private, state, federal, and tribal lands, partnerships have been developed for all projects. In addition to the ISCC and NPT, project partners have included the U.S. Forest Service, U.S. Natural Resources Conservation Service, soil and water conservation districts, private landowners, Idaho Department of Fish and Game, Idaho Department of Lands, and the Bureau of Land Management.

The Clearwater Focus Program of the 1994 Columbia Basin Fish and Wildlife Program will continue under the 2000 Columbia Basin Fish and Wildlife Program and the Clearwater Subbasin Plan. Requests for appropriate operational funding will be made during provincial reviews or whatever other funding cycle the program endorses after subbasin planning. The Focus Program will coordinate projects and interagency efforts to enhance and restore aquatic and terrestrial habitats in the subbasin to meet the goals of the Council's fish and wildlife program. The Focus Program co-coordinators will prepare an annual report on activities in the subbasin including a summary analysis of the efficacy of each habitat project by contract to be presented at the winter quarter PAC meeting. Subbasin reviews (Provincial Reviews) and scheduled reviews and amendment to the Clearwater Subbasin Plan will be coordinated by the

Focus Program. The Clearwater Subbasin Plan will be reviewed and amended as necessary beginning in 2008 and every five years thereafter. The Focus Program co-coordinators will present a schedule for the Clearwater Subbasin Plan review and amendment to the PAC at the winter quarter PAC meeting of the review year.

The Focus Program co-coordinators will provide the PAC with administrative and management support and maintain records of activities; the Nez Perce Tribe Focus Program co-coordinator will be a designated alternate PAC member. The PAC will operate under the Charter, which will be amended to include a review function of project proposals submitted through the Council program for Bonneville funding during Provincial Review.

USDA Natural Resources Conservation Service Programs

The NRCS administers several cost sharing programs on private lands. The Environmental Quality Incentive Program (EQIP) and the Public Law (P.L.) 566 Small Watershed Program can be leveraged with other federal, state, or local program funds. The Wildlife Habitat Incentives Program (WHIP) and the Wetland Reserve Program (WRP) restrict the sources of cost-share funding on projects to non-mitigation funds. (Richard Sims, NRCS, letter to Janet Hohle, May 31, 2002) Landowners work with technical staff of the NRCS to use these programs for implementing conservation practices on their lands. Soil and water conservation districts using other project funding sources leverage NRCS program resources in combination to concentrate conservation within watersheds of concern.

Conservation Reserve Program and Continuous Conservation Reserve Program

The Conservation Reserve Program (CRP) and the Continuous Conservation Reserve Program (CCRP) are protection programs implemented on croplands and riparian areas respectively by the USDA Farm Services Agency (FSA). These two programs are managed through the U.S. Department of Agriculture Farm Service Agency with technical assistance provided by the USDA Natural Resources Conservation Service. These programs are voluntary and include some combination of the following: incentive payments (CCRP), cost-sharing with plantings, and rental payments. A request for a determination by the National FSA office has been requested by the Idaho State FSA office to establish cost-sharing between these programs and Bonneville funds where watershed projects exist.

NOAA Restoration Center's Community-Based Restoration Program

The NOAA Restoration Center's Community-Based Restoration Program's objective is to bring together citizen groups, public and nonprofit organizations, industry, corporations and businesses, youth conservation corps, students, landowners, and local government, state and federal agencies to restore fishery habitat across Coastal America. The program partners with national and regional organizations to solicit and co-fund proposals for locally-driven, grass roots restoration projects that address important habitat issues within communities. Several restoration projects in the Clearwater subbasin have been funded through various components of this program, particularly with the Nez Perce Tribe.

Idaho Nonpoint Source Management Program

The Idaho Department of Environmental Quality has primacy to administer the Clean Water Act §319 Nonpoint Source Management Program for areas outside the Nez Perce Reservation. The program is responsible for administering grants awarded annually on a competitive basis and for

providing technical support to watershed implementation activities. Funding projects must focus primarily on improving the water quality of lakes, streams, rivers, and aquifers. Projects must be consistent with the Idaho Nonpoint Source Management Plan for which there are seven project sectors: agriculture, urban stormwater runoff, transportation, silviculture, mining, ground water activities, and hydro-habitat modification. Projects located in watersheds with an approved TMDL are priorities in this program.

Idaho Water Quality Program for Agriculture

This is a state program administered by the Idaho Soil Conservation Commission to assist rural landowners and farmers with implementation of agricultural best management practices. The program is delivered through the soil and water conservation districts and is often combined with federally funded programs where they exist, for example, the CWA §319 and Bonneville watershed projects. Projects are prioritized first by water quality concerns and second by listed species considerations.

2.2 Policies

Nez Perce Tribe Treaty Rights

The Nez Perce People have inhabited the Clearwater subbasin for millennia. The first Indian groups may have occupied the area as early as 10,000 years ago (Paradis et al. 1998). Prior to the treaty of 1855, the Nez Perce used the Clearwater area for hunting, fishing, gathering food, horse pasturing and other cultural uses. The Clearwater subbasin is a part of the over 13 million acres in central Idaho, northeastern Oregon and southeastern Washington included in the pre-treaty area of tribal use.

The Tribe reserves the right of its members to hunt and fish within and outside of the Nez Perce Reservation, and treaty rights apply to areas beyond current reservation boundaries. The treaty rights are based on the Treaties of 1855 and 1863 which maintained and protected the Nez Perce Tribe's historic rights to fish, hunt, and gather roots and berries and other resources on the reservation and at usual and accustomed places:

- 1855 Treaty, Article 3: "The exclusive right of taking fish in all streams where running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land."
- 1863 Treaty, Article 8: "The United States also agrees to reserve all springs or fountains not adjacent to, or directly connected with, the streams and rivers within the lands hereby relinquished, and to keep back from settlement or entry so much of the surrounding land as may be necessary to prevent the said springs or fountains being enclosed; and, further, to preserve a perpetual right of way to and from the same, as watering places, for the use in common of both whites and Indians"

Federal Water Pollution Control Act of 1972 Section 404

Department of Army permits are required under §404 of the Clean Water Act for discharges of dredged or fill material into waters of the United States, including wetlands. This includes excavation activities that result in the discharge of dredged material that destroy or degrade waters of the United States. Department of Army permits are also required under §10 of the rivers and Harbors Act of 1899 for work or structures waterward of the ordinary high water mark of or affecting, navigable waters of the United States. In the Clearwater subbasin these waters

include the Clearwater River upstream to River Mile 40 and the North Fork of the Clearwater River upstream to River Mile 57.9 (USACE et al. 2000).

PACFISH and InFish

These federal strategies were developed to be interim strategies to protect populations and habitats of fish species of concern on lands managed by the U.S. Forest Service and the Bureau of Land Management. The strategies restrict actions in Riparian Habitat Conservation Areas, most notably by defining the standard width of the four categories of RHCAs. The categories include fish-bearing streams, permanently flowing nonfish bearing streams, ponds, lakes, and wetlands greater than one acre and intermittent streams, wetlands less than one acre, landslides, and landslide-prone areas. Deviation from the defined RHCA width requires consultation with NOAA Fisheries and USFWS.

Analysis to determine the effectiveness of PACFISH and InFish has not been done or the results of that analysis are not widely known (Scott Russell, E-mail to Janet Hohle, July 2, 2002).

Forest Practices Act, Title 38, chapter 13, Idaho Code

The Idaho Forest Practices Act (FPA) was passed by the state Legislature in 1974 and amended by the Legislature in 1980, 1986, 1987, 1989, 1990, 1991, 1992, 1995 and 2001 (Idaho Department of Lands 1996). These rules constitute the minimum standards for the conduct of forest practices on forest land and describe the administrative procedures necessary to implement those standards. In this act, forest land is defined as federal, state, and private land growing forest tree species which are, or could be, at maturity, capable of furnishing raw material used in the manufacture of lumber or other forest products. Although the FPA rules apply to activities on Federal and private lands within the state of Idaho, the State does not hold management authority over these lands. Standards are established for Stream Protection Zones (SPZ) around streams. These standards condition or limit practices within the SPZs. Skidding logs in or through streams is prohibited. There is no prohibition against slash burning within SPZs. The FPA also addresses large organic debris (LOD) functions, harvest practices must retain at least 75% of existing shade, and leave trees are designated by distance from stream, stream width, tree diameter, and number of trees. Class I streams, including lakes, are those used for domestic water supply and/or are important for spawning, rearing or migration of fish. The Class I SPZ is the area encompassed by a slope distance of 75 feet on each side of ordinary high water marks. The Class II SPZ is the area encompassed by a slope distance of 30 feet on each side of ordinary high water marks. Class II streams that do not contribute flow to Class I streams have minimum Stream Protection Zones of 5 feet (Belt et al. 1992).

The Idaho Forest, Wildlife, and Range Policy Analysis Group prepared an analysis of scientific literature on forest riparian buffers (Belt et al. 1992). The fixed minimum width and use-dependent approach used in Idaho has the virtue of simplicity in application, but has greater potential for providing either not enough or too much protection. The analysis compared Idaho practices with California, Oregon and Washington and reported that using stream classification with additional site-specific factors adds operational complexity, but has greater potential sensitivity to local stream protection needs.

3 Existing Management Plans

Information presented here highlights some of the most recent or relevant plans guiding land and resource management within the Clearwater subbasin as a whole. Where information was available, plans currently under development or slated for development in the near future are also described. Plan descriptions are organized according to the primary management entity responsible for their development and/or implementation. Planning and assessments focused on finer scale watershed levels are described in the following section, watershed assessments and watershed scale plans.

3.1 Tribal Plans

The Nez Perce Tribe (NPT) is a major natural resource manager with a number of departments and divisions responsible for protecting, enhancing, and restoring tribal resources both on the reservation and within the Tribe's treaty territory. Tribal departments contributing to this document include Department of Fisheries Resource Management (with 7 divisions) and the Department of Natural Resources comprised of Wildlife, Forestry, Water Resources Division, and Cultural Resources. A number of planning processes are currently under way as a result of interagency coordination (e.g., Dworshak semi-annual coordination and Hatchery Annual Operating Plans). These types of documents and forums are aware of the larger subbasin planning process and work to ensure their programs are recognized within the overall subbasin planning program being developed by the Council. Data collection and development regarding water, land, and aquatic and terrestrial populations occurs at a base level within the individual projects. This process provide most of the current information for this subbasin plan, and most likely future modifications to this plan will result from continued data collection from individual projects. In addition, the following plans developed by the NPT are currently being implemented

1998 Unified Watershed Assessment and Watershed Restoration Priorities

This plan was prepared by the NPT in response to the Clean Water Action Plan of 1998. It identifies watersheds containing tribal fee and trust lands and tribal usual and accustomed fishing places, and sets out priorities for restoration. The prioritization list of watersheds is similar to that of applicable Clean Water Act Section 303(d) lists of water quality impaired streams. The Nez Perce Tribe Water Resources Division implements restoration work in watersheds within the Reservation upon completion of TMDLs that have been developed under a tri-party agreement between the Nez Perce Tribe, U.S. Environmental Agency, and the Idaho Department of Environmental Quality (Nez Perce Tribe 1998).

Wy-Kan-Ush-Mi Wa-Kish-Wit

This is the Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama Tribes (CRITFC 1996). This plan includes adult return targets for each subbasin in the Columbia Basin. Wy-Kan-Ush-Mi Wa-Kish-Wit recommends habitat restoration actions that focus on limiting, restricting, or eliminating land uses and enhancing populations with implementation of new broodstock, release and production programs. The plan was published in 1996, and habitat restoration projects emphasizing implementation of forest, range, and agricultural best management practices have been initiated in priority watersheds since 1997 through the Council's program.

In addition, various programs have been implemented by the NPT as part of the plan, including the fall chinook acclimation program, the coho reintroduction program, and construction of the Nez Perce Tribe's hatchery scheduled to be completed in the fall of 2002. The NPT has also garnered a greater cooperative role in the management of Dworshak and Clearwater anadromous production facilities operated by the USFWS since Wy-Kan-Ush-Mi Wa-Kish-Wit was developed. The NPT hatchery (NPTH) will add to and coordinate its production along with three other hatcheries in the subbasin in providing artificial production programs focused on mitigating for commercial development impacts. Lyons Ferry Hatchery Complex, managed by WDFW, will provide fall chinook broodstock for the NPTH and IDFG Oxbow supplementation programs in the Clearwater subbasin and the mainstem Snake River to Hells Canyon Dam.

3.2 Federal Plans

Clearwater and Nez Perce National Forest Plans

The U.S. Forest Service land allocation, management standards, and guidelines for the Clearwater subbasin are specified in the Clearwater and Nez Perce National Forest Plans (U.S. Forest Service 1987a, 1987b). PACFISH (anadromous fish) and the Inland Native Fish Strategy (resident fish) interim strategies are measures designed to protect habitats and populations of fish. PACFISH was adopted as an amendment to the Clearwater and Nez Perce forest plans in 1995. InFish does not apply to the Nez Perce National Forest (Scott Russell, E-mail to Janet Hohle, July 2, 2002).

The Clearwater and Nez Perce National Forests are scheduled to receive funding Fiscal Year 2003 to begin revision of their forest plans. The two forests will use the same planning team for this project, although each forest will have a separate plan (Pat Murphy, CNF, personal communication, June 27, 2002).

Monitoring is required in both forest plans and the Idaho State Water Quality Standards. The format for the monitoring plans is that agreed upon by the Northern and Intermountain Regions of the U.S. Forest Service and the Idaho Department of Environmental Quality. Annually each forest publishes a compilation of monitoring projects and releases it at the Clearwater Interagency Monitoring Coordination meeting held each spring.

Interior Columbia Basin Ecosystem Management Project

The Interior Columbia Basin Ecosystem Management Project (ICBEMP) was conducted from 1993 to1997 to develop and implement a scientifically sound, ecosystem-based management strategy for lands administered by the U.S. Forest Service and U.S. Bureau of Land Management for lands administered in Idaho, Montana, Wyoming, Nevada, and Utah. An important goal of ICBEMP was to provide longterm direction to replace PACFISH and InFish. The Draft Environmental Impact Statement for ICBEMP was released in June 1997. A strategy is being worked on now to conclude the project (ICBEMP 2002).

Idaho Bull Trout Recovery Plan

The USFWS has drafted the Idaho Bull Trout Recovery Plan in cooperation with 22 recovery teams from throughout the state, one of which is the Clearwater Bull Trout Recovery Team. The plan was released for public review and comment in January 2003. A final decision is pending.

Lower Snake River Fish and Wildlife Compensation Plan

The USFWS administers the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP). This plan was authorized by the Water Resources Development Act of 1976, Public Law 94-587 to mitigate and compensate for fish and wildlife losses caused by the construction and operation of the four lower Snake River dams and navigation lock projects. The fishery resource compensation plan identified the need to replace adult salmon and steelhead and resident trout fishing opportunities. The size of the anadromous program was based on estimates of salmon and steelhead adult returns to the Snake River basin prior to the construction of the four lower Snake River dams. In the Clearwater, the LSRCP funds Clearwater Hatchery operated by Idaho Department of Fish and Game and the chinook salmon production portion of the Dworshak NFH operated by the USFWS. A summary document describing the LSRCP and its role in individual subbasins (including the Clearwater) has been compiled and submitted under separate cover to the ISRP and CBFWA (U.S. Fish and Wildlife Service 2001).

Endangered Species Act Implementation Plan for the FCRPS

The three action agencies have prepared the implementation plan (Bonneville Power Administration et al. 2001) in acknowledgement of responsibilities for fish protection under the Northwest Power Act and water quality protection under the Clean Water Act, and their obligations to Indian tribes under law, treaty, and Executive Order. The plan responds to the December 2000 Biological Opinions issued by the U.S. Fish and Wildlife Service and the NOAA Fisheries on the effects to listed species from operations of the Columbia River hydropower system.

The plan is a five-year blueprint that organizes collective fish recovery actions by the three agencies. The plan looks at the full cycle of the fish, also known as "gravel to gravel" management or an "All-H" approach (hydro, habitat, hatcheries, and harvest). However, it describes only commitments connected to the FCRPS, not the obligations of other federal agencies, states, or private parties. The plan describes the three agencies' goals; the performance standards to gauge results over time; strategies and priorities for each H; detailed five-year action tables for each H; research, monitoring, and evaluation plan (RM&E); and expectations for regional coordination.

The plan identifies priority watershed actions and assigns responsibilities for the Middle Fork Clearwater River to the Bureau of Reclamation. This work is scheduled to begin in Fiscal Year 2003. Work in the Middle Fork will include actions to correct passage barriers, stream flow and screen deficiencies on privately owned agricultural lands (Joseph Spinazola, USBR, Presentation to PAC January 30, 2002). Bureau of Reclamation staff has been coordinating with the Clearwater Focus Program and Clearwater Policy Advisory Committee.

FCRPS Biological Opinion and the Basinwide Salmon Recovery Strategy

NOAA Fisheries has recently developed several documents and initiatives for the recovery of Endangered Species Act listed Snake River steelhead, chinook and sockeye. The Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp) and the Basinwide Salmon Recovery Strategy issued at the end of 2000 contain actions and strategies for habitat restoration and protection for the Columbia River Basin. Action agencies are identified that will lead fast-start efforts in specific aspects of restoration on nonfederal lands. Federal land management will be implemented by current programs that protect important aquatic habitats (PACFISH,

ICBEMP). Actions within the FCRPS BiOp are intended to be consistent with or complement the Council's amended Fish and Wildlife Program and state and local watershed planning efforts.

NOAA Fisheries has also initiated recovery planning with the establishment of a Technical Recovery Team for the Interior Columbia, which includes Snake River stocks. The Technical Recovery Team will identify delisting criteria and viability criteria for populations within ESUs, identify factors that limit recovery, and identify early actions for recovery among other things. A stakeholder-based forum will develop a formal recovery plan from these products.

Under the 2000 FCRPS BiOp, NOAA Fisheries expects the Bonneville Power Administration, the Corps of Engineers, and the Bureau of Reclamation to meet their ESA obligations in part through offsite mitigation (Lohn 2002). Subbasin plans will become local recovery plans or will become a substantial component of NOAA Fisheries recovery planning. The BiOp relies on subbasin plans to identify and prioritize specific actions needed to recover listed salmon and steelhead in tributary habitats. NOAA Fisheries expects subbasin plans to include implementation of the BiOp's offsite mitigation actions in the Reasonable and Prudent Alternative (RPA). Specifically, subbasin planning should provide for RPA habitat actions 149 through 163 and harvest and hatchery RPA actions 164 through 178 that pertain to and require local planning and management. NOAA Fisheries also expects subbasin plans to incorporate the research, monitoring, and effective strategies and actions, particularly those described in RPA action 179, 180, and 183 (See Appendix B of the Management Plan for a summary of RPAs).

The USFWS issued a biological opinion in December, 2000 to the U.S. Army Corps of Engineers, Bonneville Power Administration, and the Bureau of Reclamation on the effects of the FCRPS on listed species and their critical habitat. In the Clearwater River bull trout was the only listed species included in the consultation. The document outlined reasonable and prudent measures directing the action agencies to implement monitoring and studies to provide critical information on bull trout entrainment and distribution, timing, and usage of Dworshak Reservoir for modifying facilities and/or operations. The USFWS also included a term and condition recommending that the action agencies estimate annual population size of bull trout migrating to and from Dworshak Reservoir, and develop abundance trends over time.

Columbia River Fish Management Plan

The Columbia River Fish Management Plan (CRFMP) is an agreement resulting from the U.S. District Court case of U.S. V. Oregon (Case No. 68-513). This agreement between federal agencies, Indian tribes and state agencies (except Idaho) set guidelines for the management, harvest, hatchery production, and rebuilding of Columbia River Basin salmonid stocks. Appropriate harvest levels and methods were established for various levels of attainment of interim population goals for spring chinook, summer chinook, sockeye, fall chinook, summer steelhead, and coho salmon. The plan guaranteed the treaty Indian fisheries a minimum of 10,000 spring and summer chinook annually, not dependent on run size. The original CRFMP terminated in 1998; it is currently being renegotiated, with completion anticipated by December 2003. In the interim, seasonal fish management plans have been drafted and agreed to by relevant parties.

U.S. Army Corps of Engineers Master Plan and Supplemental EIS

The USACE manages over 30,000 acres of land surrounding Dworshak Reservoir. Their policies and regulations for fish and wildlife describe three management concepts: stewardship, mitigation, and enhancement. Project goals and objectives reflecting these concepts are currently being revised as a new Master Plan and Supplemental Environmental Impact Statement. Completion of these is expected within the next two years (Russell Davis, USACE, E-mail to Janet Hohle, July 2, 2002).

3.3 State Plans

Idaho Department of Environmental Quality 2002-2007 Strategic Plan

The following three priorities from the Idaho Department of Environmental Quality 2002-2007 Strategic Plan are relevant to protecting and restoring ecosystem resources (Jim Bellatty, IDEQ, personal communication, March 28, 2001):

- Improve ground water quality in degraded areas and protect all ground water
- Improve the surface water quality in areas identified as not supporting their beneficial uses or where the state believes threatened or endangered species exist
- Improve environmental quality in areas subject to past or present mining activities

The IDEQ is the lead agency to produce Total Maximum Daily Load (TMDL) assessments for streams on the Idaho Clean Water Act (CWA) §303(d) list. The court-approved schedule for completion of these TMDLs has recently been amended. TMDLs for all streams listed in the Clearwater are scheduled to be completed by the end of calendar year 2006. TMDLs for streams within the exterior boundaries of the Nez Perce Indian Reservation are completed via a three party agreement between the Nez Perce Tribe, the IDEQ, and the U.S. Environmental Protection Agency. TMDL implementation plans have been developed by local watershed advisory groups (WAGs) and are available through IDEQ. The plans are important for CWA §319 funding directed towards improving water quality.

Idaho Department of Fish and Game Plans

Under Title 36 of the Idaho Code, the Idaho Department of Fish and Game is responsible to preserve, protect, and perpetuate fish and wildlife in the state of Idaho and provide continued supplies of fish and wildlife to the citizens of the state for hunting, fishing, and trapping. IDFG works to preserve, protect, perpetuate, and manage all wildlife. IDFG management plans and policies relevant to fish and wildlife and their habitat in the Clearwater subbasin include the *A Vision for the Future: Idaho Department of Fish and Game Policy Plan, 1990-2005* (Idaho Department of Fish and Game 1990); the *Idaho Department of Fish and Game Strategic Plan* (Idaho Department of Fish and Game 2001a); the *Idaho Department of Fish and Game Five Year Fish Management Plan: 2001-2006* (Idaho Department of Fish and Game 2001b); *White-tailed Deer, Mule Deer and Elk Management Plan* (Idaho Department of Fish and Game 1999a); the *Black Bear Management Plan 2000-2010* (Idaho Department of Fish and Game 1998); the *Nongame Plan 1991-1995* (Idaho Department of Fish and Game 1991a); the *Upland Game Plan 1991-1995* (Idaho Department of Fish and Game 1991b); the *Waterfowl Plan 1991-1995* (Idaho Department of Fish and Game 1991c); the *Moose, Sheep and Goat Plan 1991-1995* (Idaho Department of Fish and Game 1991d); the *Mountain Lion Plan 1991-1995* (Idaho Department of Fish and Game 1991e)and the *Furbearer Plan 1991-1995* (Idaho Department of Fish and Game 1991f).

Comprehensive State Water Plan for the North Fork Clearwater Basin

The Idaho Water Resource Board, through the Idaho Department of Water Resources, prepared the Comprehensive State Water Plan for the North Fork Clearwater Basin (IWRB 1996). The North Fork Clearwater Basin Plan was adopted by the Water Resource Board in January 1996, and was ratified by the Idaho Legislature in that same year. As such, it carries the effect and force of Idaho State law.

The plan provides guidance for the development, management, and protection of water and related resources in the North Fork Clearwater subbasin in compliance with provisions of the Idaho State Constitution and Idaho State Code. This document describes and evaluates the water resources and related economic, cultural, and natural resources of the basin. It recognizes past actions, addresses present issues and opportunities, and seeks to ensure that uses of the water will complement state goals of achieving a high quality of life in Idaho.

Protected river designations were made to maintain the primitive character and aesthetic quality of valuable fish and wildlife habitat and to maximize recreational opportunities. The following North Fork Clearwater River waterways are designated as State Natural or Recreational Rivers.

- North Fork Clearwater River, headwaters to Dworshak Reservoir
- Isabella Creek, headwaters to mouth — HUC 17060308
- Weitas Creek, headwaters to mouth — HUC 17060307
- Kelly Creek, headwaters to mouth — HUC 17060307
- Cayuse Creek, headwaters to mouth — HUC 17060307
- Little North Fork Clearwater River, headwaters to Dworshak Reservoir — HUC 17060308
- Reeds Creek, Calhoun Creek to mouth — HUC 17060308
- Beaver Creek, Charlie Creek to mouth — HUC 17060308
- Elk Creek, headwaters to Deep Creek — HUC 17060308

The Board further recommended that the Council's Protected Areas Designations be modified to reflect plan actions and recommendations.

Comprehensive State Water Plan for the South Fork Clearwater River Basin

The Idaho Water Resource Board, through the Idaho Department of Water Resources has released the Draft Comprehensive State Water Plan for the South Fork Clearwater River (9/5/03). The document describes comprehensive water resource planning for the conservation, development, management, and optimum use of unappropriated water resources in the South Fork Clearwater River. Adoption and ratification by the Water Resources Board and the Idaho Legislature respectively is pending.

The Idaho Water Resource Board recommends that minimum stream flow water rights be pursued for the following streams to preserve fish and wildlife habitat, water quality, aesthetics, and recreational values: Red River, American River, Crooked River, Newsome Creek, Tenmile Creek, South Fork Clearwater River, Johns Creek, Mill Creek, and Meadow Creek.

The Idaho Water Resource Board recommends approximately 122 miles of streams and stream segments be designated Natural Rivers. All of the Natural designated rivers are on federally managed lands and most originate in wilderness areas. They are: East Fork Crooked River, West Fork Crooked River, Tenmile Creek and tributaries - Williams Creek and Sixmile Creek, Johns Creek and tributaries – Hagen Creek, Square Mountain Creek, Moores Creek, Gospel Creek, West Fork above Gospel Creek, Twentymile Creek, Wing Creek, and Silver Creek.

The following rivers have been recommended for Recreational River designations by the Idaho Water Resource Board: Red River and tributaries – Otterson Creek, South Fork Red River, West Fork Red River, Moose Butte Creek, and Red Horse Creek, American River and tributaries – Limber Luke Creek, West Fork American River, East Fork American River, and Kirks Fork, Crooked Fork river and tributary Relief Creek, Newsome Creek and tributaries – Haysfork Creek, Baldy Creek, Pilot Creek Sawmill Creek, Sing Lee Creek, and West Fork Newsome Creek, Meadow Creek, Mill Creek, and South Fork Clearwater.

Minimum Instream Flows

Idaho Code gives the Water Resource Board the authority to hold instream flow water rights for the purpose of maintaining minimum streamflows to protect a variety of instream uses. Minimum streamflows have been established on rivers within the Clearwater subbasin to protect fish habitat, recreation, aquatic life, and wildlife habitat. The Idaho Water Resource Board holds minimum streamflow water rights on several streams within the Clearwater River subbasin:

• Clearwater River – three water rights on three segments	HUC 17060306
• North Fork Clearwater River – two water rights on two segments	
• Lochsa River	HUC 17060303
• Selway River	HUC 17060301+17060302
• Elk Creek	HUC 17060308
• Cayuse Creek	HUC 17060308
• Little North Fork Clearwater River	HUC 17060308
• Kelly Creek	HUC 17060307

The Dworshak Operation Plan

The Dworshak Operation Plan was adopted by the Idaho Water Resource Board in 2000 and ratified by the 2001 Idaho Legislature as an amendment to the Comprehensive State Water Plan for the North Fork Clearwater Basin. The objective of this plan is to implement procedures that optimize the use of Dworshak water for all beneficial uses including flood control, power production, recreation, commercial navigation, fish and wildlife and water quality. The plan, among other things, anlayzes the impacts of current Dworshak operations and contains eight recommendations made by the Idaho Water Resource Board regarding the future operation of the Dworshak Project. The plan requires that Dworshak be operated using an integrated rule curve that would manage operations to maximize all five of the congressionally authorized management purposes, which are flood control, hydropower, navigation, recreation, and fish and wildlife. The Nez Perce Tribe Fisheries Department is completing a Bonneville funded contract to develop an integrated rule curve for Dworshak operations.

Idaho Agricultural Pollution Abatement Plan

The fourth revision of the Idaho Agricultural Pollution Abatement Plan (Ag Plan) was certified by Governor Dirk Kempthorne in March 2003. The Ag Plan is Idaho's response to Section 208 of the federal Clean Water Act (PL 92-500) and represents the agricultural portion of the State Water Quality Management Plan. The Ag Plan is the implementing action plan for all nonpoint source agricultural sector activities in the state. The implementation strategy contains six actions items.

1. Identify waters with beneficial uses threatened or impaired by agricultural activities.
2. Prioritized waters to determine implementation effort needed.
3. Identify management strategies for implementation.
4. Define authorities, regulations, and commitments to ensure implementation occurs.
5. Implement feedback loop process.
6. Communicate evaluation results, conclusions, and recommendations.

State Transportation Improvement Program

The Idaho Department of Transportation develops project plans through the State Transportation Improvement Program (STIP) which includes a five-year project implementation phase and a one-year project development phase. Corridor planning is conducted in more urban areas of Idaho in addition to STIP, but has not been implemented as a planning methodology in the Clearwater (IDT District 2) (Idaho Department of Transportation District 2 and Boise office, personal communications, July 24, 2002). Projects planned for implementation in the Clearwater subbasin by the Idaho Department of Transportation are listed in Inventory Appendix A (on accompanying CD) included with this document.

After a few small projects on U.S. Highway 12 in early Fiscal Year 2003, the IDT has committed to refraining from work during the Lewis and Clark celebration period. Past projects on U.S. Highway 12 for which biological assessments are available include those completed on Ahsahka Bridge, Orofino Bridge, Kamiah Bridge, Kooskia Bridge, and Lawyer Creek Bridge.

Revegetation designs for projects are site specific based on local conditions such as annual precipitation, slope, soil, aspect, riparian zone, and upland zone. Grass, forbs, shrub, and tree species are prescribed emphasizing native species, although "nurse crops" which are usually not native are used for quick vegetation establishment to prevent erosion.

Local Highway Technical Assistance Council

The Idaho Legislature created the Local Highway Technical Assistance Council (LHTAC) in 1994 to assist local government road districts to secure federal road funds for qualifying projects. The Idaho Association of Counties, Idaho Association of Cities, and Association of Highway Districts appoint members to the council, which is comprised of three members from each organization. The Clearwater subbasin includes the following road districts: Clearwater County--Clearwater Road District and Clearwater County; Idaho County--County Road Department, Cottonwood, Deer Creek, Dumecq, Fenn, Ferdinand, Good Roads, Grangeville, Green Creek, Keuterville, Kidder-Harris, Union-Independent, and Winona; Latah County--North County and South County; Lewis County--Central Evergreen, Kamiah, North Highway, and Prairie; Nez Perce County has only one, which is managed by the county (Joe Haynes, Local Highway Technical Assistance Council, personal communication, July 24, 2002).

Bridge projects in a preliminary development phase include the Southeast Elk River Bridge and the Lolo Creek Bridge to be worked on by the Clearwater County and Idaho County road departments respectively.

Land Use Ordinances

The Clearwater subbasin encompasses all or most of Clearwater, Idaho, Latah, Lewis, and Nez Perce Counties. Four of the five counties in the Clearwater subbasin have adopted land use ordinances pursuant to the authority granted in Title 67, Chapter 65, of the Idaho Code and Article 12, Section 2, of the Idaho Constitution. Land use ordinances are adopted and implemented to achieve the following goals: 1) promote the health, safety, and general welfare of the people of the respective county; 2) insure that the goals and purpose of the Idaho Local Planning Act are accomplished and facilitated; 3) fulfill the statutory mandate of Idaho Code 67-6503; 4) control construction and uses of land which may do irreparable harm to existing buildings, uses of land, and the economic and social stability of the county. Idaho County does not have a land use ordinance but does have a subdivision ordinance.

Each county has a flood plain ordinance that regulates the lowest allowable elevation for construction within the flood plain. Latah County is revising the land use ordinance and if adopted as drafted will provide for setbacks from intermittent and perennial streams for winter animal feeding areas and a riparian area protection zone that will prohibit construction within 100 feet of a stream. Nez Perce County is drafting a development standards ordinance, which if adopted as drafted will require a site improvement permit if construction is to be within 100 feet of a perennial stream.

Soil and Water Conservation Districts Management Plans

Each of the five soil and water conservation districts in the Clearwater subbasin operates under a five year management plan, all of which include specific goals for natural resources (CSWCD 2001, ICSWCD 2001, LSWCD 2001, LSCD 2000, NPSWCD 2001). The SWCDs are all engaged in program delivery and project development funded through federal, state, and local sources. These organizations are important linkages between conservation program implementation and private landowners.

3.4 Other Plans

Clearwater Basin Weed Management Area (CBWMA)

The purpose of the CBWMA is to bring together those responsible for weed management within the Clearwater River subbasin to develop common management objectives, set realistic management priorities, facilitate effective treatment, and coordinate efforts along logical geographic boundaries with similar land types, use patterns, and problem species. Cooperators of the CBWMA include private landowners, county government, tribal government, university, state and federal land management agencies, and interested organizations and individuals. A coordinating committee meets periodically to develop the annual operating plan, monitor accomplishments, maintain a subbasin-wide inventory, assess effectiveness of control strategies and tactics, and make necessary adjustments (CBWMT 1999).

The latest plan was completed for 2002. Operating plans divide the Clearwater into seven areas and propose treatment for first and second priority species, describes treatment methodology, and identifies educational activities. The Clearwater treatment areas are the mainstem Clearwater,

Potlatch River, North Fork, Lolo Creek, Lochsa River, Selway River, and South Fork. The Natural Resources Conservation Service Rural Conservation and Development program coordinates the CBWMA.

Clearwater Elk Initiative

The Clearwater Elk Initiative mission is to increase the Clearwater subbasin elk herds by improving and restoring elk habitat using fire and harvest management (CEI 2002). Membership of the CEI includes major landowners, agencies, and organizations. There are three active committees: information and education, monitoring and research, and fund raising. CEI direction comes from the management team whose responsibilities include identifying priorities, approving projects, and locating funding.

3.5 Hatchery and Genetic Management Plans (HGMPs)

Artificial production facilities found within the Clearwater subbasin were primarily built as mitigation for federal dams. Specific planning documents associated with each facility (ranging from a single Master Plan to multiple associated documents addressing genetics, habitat and life history relationships) may be obtained from the relevant management agency. Key hatchery development agencies are U.S. Fish and Wildlife Service (USFWS), Northwest Power Planning Power Council (Council), Idaho Department of Fish and Game (IDFG), and the Nez Perce Tribe (NPT). Funding sources include the Bonneville Power Administration (BPA) and U. S. Army Corps of Engineers (USACE) through legislated programs such as the Council's Fish and Wildlife Program and the Lower Snake River Compensation Program (LSRCP). These agencies coordinate extensively with other governmental land and water management agencies (e.g., USACE and NOAA Fisheries). A complete list of production programs associated with the Clearwater subbasin, and detailed descriptions of each can be found in the Clearwater Subbasin Assessment (see Table 56 in that volume).

During the last decade, hatchery managers have participated in three major planning efforts directed by the Council: Subbasin Planning (1990), Integrated Hatchery Operations (1996), and the Artificial Production Review (2001). Under the Endangered Species Act additional review and planning has also been required of hatchery operations titled Hatchery Genetic Management Plans (HGMPs). The 2000 Federal Columbia River Power System Biological Opinion, RPA 169, calls for HGMPs to be completed for all production facilities in the Columbia River by autumn 2003. The Council is working to complete this task by autumn 2002 (CBFWA Draft Action Notes – Meeting June 20, 2002).

Artificial production programs, whether hatchery mitigation releases or supplementation efforts, for both anadromous and resident fish are following the HGMP process as prescribed by NOAA – Fisheries. This process is coordinated through the Council's Artificial Production Advisory Committee (Council/APAC), with the two agencies being co-stewards of the HGMP development process. The HGMPs will represent artificial production in relation to the Council's Provincial Review process and any future NOAA Fisheries Endangered Species Biological Opinions regarding artificial production programs. The focus is on federally funded programs.

Tribal, state, and federal managers are working to develop HGMPs for each facility to coordinate management within and between hatchery programs. This type of plan will assist in setting the

baseline data for these efforts and their associated research programs. This data is critical to the overall subbasin planning process as it provides guidance and relays information regarding the past, present and future of fishery populations within the subbasin, and within the overall Columbia and Snake River basins.

Sponsors doing project HGMPs are as follows:

- USFWS for Dworshak Hatchery and Kooskia Hatchery as a single managed complex.
- USFWS and IDFG for Clearwater Hatchery and its satellite facilities.
- NPT for Nez Perce Tribal Hatchery and its satellite facilities.
- NPT for Fall Chinook Acclimation Project; Big Canyon Satellite (this will also cover the Pittsburg Landing and Captain John Rapids satellites on the Snake River).
- NPT for Coho Restoration Master Plan and Experimental Production.
- NPT for Resident Fish Substitution (Trout Ponds).
- IDFG for Clearwater Hatchery and its satellite facilities
- IDFG for LSRCP resident fish mitigation

3.6 Artificial Production Review and Evaluation (APRE) Products

Congress directed the Council to conduct a review of artificial production in the Columbia Basin. A component of this review is the Artificial Production Review and Evaluation process whereby some 300 anadromous and resident fish programs involving about 130 facilities will be reviewed. The goal of APRE products is to assist subbasin planners in identifying and prioritizing changes in artificial production programs. The primary objectives of the APRE are the following.

1. Determine whether a program meets its stated purpose.
2. Evaluate whether a program is consistent with legal, policy, and scientific criteria; examine operation costs.
3. Outline the benefits and risks of the program.
4. Gather and distribute hatchery data and information to regional subbasin planning groups.

The APRE is being completed in cooperation with NOAA Fisheries and the U.S. Fish and Wildlife Service. Information will be collected by survey. The analysis of surveys will be assembled in draft reports for each province. A final set of documents with conclusions and recommendations for all programs will incorporate comments from regional managers and hatchery operators.

Preliminary draft documents are available though the Northwest Power and Conservation Council (www.nwcouncil.org/fw/apre) and are currently undergoing revision. It is estimated that final drafts will be available by January 2004.

4 Watershed Assessments, Watershed Scale Plans, Biological Assessments, and TMDLS

Four primary types of documents are addressed in this section: watershed assessments, watershed scale plans, biological assessments, and TMDLs. Watershed assessments provide information for planning and implementation. Biological assessments most often address potential impacts of proposed land use activities on sensitive species. TMDLs are required water bodies listed as impaired on the §303(d) list. The TMDL process includes a watershed assessment, and potentially a load allocation and implementation plan. Planned assessments are listed at the end of this section in Table 3 (Watershed Assessments) and Table 4 (TMDLs).

4.1 Watershed Assessments and Watershed Scale Plans

Clearwater Soil and Water Conservation District. (1986). *Bedrock Creek and the North Corridor of the Clearwater Watershed*. The plan identifies critical areas for treatment, outlines specific BMPs, and estimates costs and environmental impacts for improving water quality and fish habitat.

Clearwater Soil and Water Conservation District. (1993). *Agricultural Pollution Abatement Plan Lolo/Ford's Creek Watershed- Final Planning Report.*

Clearwater National Forest. (2000). Eldorado Creek – Ecosystem Assessment at the Watershed Scale (EAWS). Lochsa Ranger District.

Clearwater National Forest. (1999). Lower North Fork of the Clearwater Subbasin Ecosystem Analysis at the Watershed Scale: Elk Creek and Long Meadow Watersheds.
This analysis characterizes the human, aquatic, riparian, and terrestrial conditions, processes, and interactions on National Forest lands to estimate impacts of management activities and provide guidance for potential activities. It describes cumulative watershed conditions, trends, potential project areas, and potential amendments to Forest plans.

Clearwater National Forest. (1999). North Fork Big Game Habitat Restoration on a Watershed Scale (BHROWS): Watersheds within the North Fork Clearwater River Subbasin. North Fork Ranger District.

Clearwater National Forest and Nez Perce Tribe. (1998). A Watershed Analysis for the Area from Squaw to Papoose Creeks. Lochsa Ranger District, Powell Unit.
Pertains to Papoose Creek, Wendover Creek, Badger Creek, and Squaw Creek.

Clearwater National Forest. (1997). Lost Postman Planning Area – Watershed Analysis. Lochsa Ranger District. Pertains to Post Office Creek, Weir Creek, Indian Grave Creek and Lost Creek.

Clearwater National Forest. (1997). Clearwater Subbasin Ecosystem Analysis at the Watershed Scale. Orofino, ID.Pertains to Lolo Creek, Orofino Creek, and the Potlatch River watersheds

Clearwater National Forest. (1997). Potlatch River Above Bovill Ecosystem Analysis at the Watershed Scale. Palouse Ranger District.

Clearwater National Forest. (1996). North Lochsa Face Landscape and Watershed Assessment – draft. June 27, 1996. Lochsa Ranger District.
Pertains to Pete King Creek, Canyon Creek, Deadman Creek, and Fish Creek

Clearwater National Forest. (1998). *West Fork Potlatch Draft Environmental Impact Statement.*

Jones, R. M.; J. Mital and P.K. Murphy. (1997). Watershed Sensitivity: Clearwater National Forest. Clearwater National Forest. Orofino, Idaho.

Jones, R. M. and P. K. Murphy. (1997). Watershed Condition: Clearwater National Forest. This report determines watershed conditions for 278 roaded and unroaded watersheds with Forest Plan water quality objectives. Orofino, Idaho.

Latah Soil and Water Conservation District. (1987). Little Potlatch Creek Planning Phase Final Report.
This report contains the findings and recommendations of the Little Potlatch Creek Water Quality Planning Project. Information gathered during the study indicated that erosion within the watershed, especially from agricultural lands, is degrading water quality.

Lewis Soil Conservation District. (1986). Mission-Lapwai Watershed Planning Project Final Report. This report summarizes results of the watershed planning efforts made through the Idaho Agriculture Water Quality Program.

Lewis Soil Conservation District. (1988). Idaho State agricultural water quality program for Little Canyon Creek. Nezperce, ID

Maiolie, M., D. Statler, and S. Elam. (1993). Dworshak Dam Impact Assessment and Fish Investigation of Trout, Bass, and Forage Species.

Natural Resources Conservation Service. (1994). Bedrock Creek Watershed Assessment. Lewiston, Idaho.

Natural Resources Conservation Service. (2000). Lapwai Creek Watershed Assessment. Lewiston, Idaho.

Natural Resources Conservation Service (2001). Cottonwood Creek Preliminary Investigation Lewiston, Idaho

Nez Perce National Forest. (1998). South Fork Clearwater River Landscape Assessment Vol. I and II. Grangeville, Idaho.
This assessment characterizes the historic and current ecological and social conditions in the South Fork Clearwater to provide context for future forest management decisions on national forest lands.

Nez Perce National Forest. (2001). Meadow Face Ecosystem Analysis at the Watershed Scale. Clearwater Ranger District. Grangeville, Idaho.

Nez Perce National Forest. (2002). Selway and Middle Fork Landscape Assessment. Grangeville, Idaho.
This assessment characterizes the historic and current ecological and social conditions in the Selway and Middle Fork Clearwater, and provides a context for future forest management decisions on national forest lands. The assessment focuses on the diversity, distribution, and abundance of plant and animal species, watershed conditions, transportation systems, and human uses and trends.

Nez Perce Soil and Water Conservation District. (1986). Pine Creek Watershed Planning Project report. Lewiston, Idaho.
The report outlines general treatment needs and resource concerns within the watershed

Nez Perce Soil and Water Conservation District. (1998). Confined Animal Feeding Operation Inventory and Analysis. Lewiston, Idaho.
Animal feeding operations were inventoried on all watersheds in the lower Clearwater subbasin. Each watershed was ranked for the potential for water quality impacts from livestock. Parameters evaluated included access to water, livestock density, numbers of livestock, waste management practices, buffers, and soil types.

Nez Perce Soil and Water Conservation District (2002). Hatwai Creek Watershed Preliminary Investigation. Lewiston Idaho.

Nez Perce Tribe. (1998). Unified Watershed Assessment and Watershed Restoration Priorities. Clean Water Action Plan. Lapwai, Idaho.

Schriever, E. and D. Nelson. 1996. Potlatch River basin Fisheries Inventory. Latah, Clearwater and Nez Perce Counties, Idaho. Report to Latah Soil and Water Conservation District. IDFG. Lewiston, Idaho.
This report summarizes the distribution and abundance of fish species in the Potlatch River drainage. It is a companion document to the Potlatch River basin habitat surveys conducted by the NRCS and other agencies for the Latah Soil and Water Conservation District.

USDA-Natural Resources Conservation Service. (1995). Cottonwood Creek Initial Assessment – Nez Perce County, Idaho. Moscow, Idaho.
The report summarizes information obtained through literature reviews and reconnaissance level inventories. The report recommends further study.

USDA-Natural Resources Conservation Service. (1994). Preliminary Investigation Report for the Potlatch River – Latah, Clearwater and Nez Perce Counties, Idaho. Moscow, Idaho.
This assessment identifies and assesses watershed resource problems, develops potential solutions, and evaluates their relative impacts and cost efficiency.

USDA – Natural Resources Conservation Service. (1992). Middle Potlatch Creek Initial Assessment. Moscow, Idaho.
The report summarizes information obtained through literature reviews and reconnaissance level inventories.

USDA – Natural Resources Conservation Service. (1992). Lewiston Orchards Irrigation District Initial Assessment. Lewiston, Idaho.
The report summarizes information obtained through literature reviews and reconnaissance level inventories. Further study is recommended.

USDA – Natural Resources Conservation Service. (1992). Orofino Creek Initial Assessment. Orofino, Idaho.
The report summarizes information obtained through literature reviews and reconnaissance level inventories.

USDA-Natural Resources Conservation Service. (1992). Bedrock Creek Watershed Plan – Environmental Assessment. Orofino, Idaho.
This report outlines resource problems and treatments needed for water quality and fisheries habitat improvement.

USDA – Natural Resources Conservation Service, Nez Perce and Clearwater Soil and Water Conservation Districts. (1989). Preauthorization Report for the Bedrock Creek Watershed. Lewiston, ID.
The plan contains a summary of the resource data collected during 1985. Conclusions identify a significant sediment load in the stream.

USDA – Natural Resources Conservation Service. (1988). Preauthorization Report for the Mission-Lapwai Creek Watershed. Lewiston, Idaho.
The report contains a summary of resource data collected during 1988. Conclusions indicate improvements needed for fish habitat.

Washington State University. 2001. Big Canyon Aquatic Assessment. Center for Environmental Education. For Nez Perce Tribe as part of Northwest Power Planning Council's Fish and Wildlife Program.

Washington State University. 2001. Lapwai Creek Aquatic Assessment. Center for Environmental Education. For Nez Perce Tribe as part of Northwest Power Planning Council's Fish and Wildlife Program.

Wertz, L. and J. Kinney. (1994). Beneficial use reconnaissance project: Potlatch River watershed. Water quality summary report no. 31. Idaho Department of Environmental Quality. Lewiston, Idaho.

4.2 Biological Assessments

Bransford, S. (2001). *Newsome Creek Watershed Improvement Project (Draft).* Nez Perce Tribe and Nez Perce National Forest. Grangeville, ID.
This draft biological assessment has been prepared in compliance with section 7 of the ESA and National Forest Regulations. It includes determinations for Newsome Creek threatened, endangered and sensitive plant, wildlife and fish species and the effects of activities on these species.

Bureau of Land Management. (2000). *Clearwater River, North Fork Clearwater River, and Middle Fork Clearwater River Subbasins: Biological Assessment of Ongoing and Proposed Bureau of Land Management Activities on Fall Chinook Salmon, Steelhead Trout, Bull Trout, and BLM Sensitive Species.* Cottonwood, ID:

National Marine Fisheries Service and U.S. Fish and Wildlife Service. (2000). *Unlisted Species Analysis and Section 10 findings for issuance of an ESA Section 10 Incidental Take Permit to the Plum Creek Timber Company for the Native Fish Habitat Conservation Plan.*

Natural Resources Conservation Service. (1995). *Big Canyon Creek Environmental Assessment Final Planning Report.*

Nez Perce Soil and Water Conservation District. (1988). *Pine Creek Project for the Idaho State Water Quality Program.*
The plan identifies treatment to reduce sheet/rill erosion on non-irrigated cropland.

Nez Perce Soil and Water Conservation District. (1995). *Big Canyon Creek Environmental Assessment.* Lewiston, Idaho.
The plan identifies treatment and costs for problems involving stream temperature, nutrients, sediment, low summer flows, and bacteria.

Nez Perce Soil and Water Conservation District. (2000). *Resource Conservation Plan*.
This plan identifies conservation problems and needs within the Nez Perce Soil and Water Conservation District. Resource concerns addressed include water quality and fish habitat.

Paradis, W. J.; Lentz, H. S.; Blair, S.; Lake, L. and Cochrane, A. (1999). *Clear Creek Biological Assessment*. Nez Perce National Forest.
This document assesses the effects of ongoing and proposed Forest Service activities on Snake River steelhead, bull trout, and fall chinook salmon as required under Section 7 of the ESA. It also examines impacts on westslope cutthroat trout, spring chinook salmon, and interior redband trout. It includes discussion of the biology, status, and effects of activities on Clear Creek gray wolf, bald eagle, lynx, and federally listed plants.

Paradis, W. J.; Lentz, H. S.; Blair, S.; Lake, L. and Cochrane, A. (1999a). *Middle Fork Clearwater River Face Drainages Biological Assessment*. Nez Perce National Forest.
This Section 7 biological assessment examines status and potential impacts for threatened and endangered plant and wildlife species, including westslope cutthroat trout, fall chinook salmon, spring chinook salmon, and Pacific lamprey in the Middle Fork Clearwater.

Paradis, W. J.; Lentz, H. S.; Mays, D.; Blair, S. and Lake, L. (1999b). *South Fork Clearwater River Biological Assessment*. Nez Perce National Forest.
This Section 7 biological assessment examines status and potential impacts on threatened and endangered plant and wildlife species, including westslope cutthroat trout, fall chinook salmon, spring chinook salmon, and Pacific lamprey in the South Fork Clearwater.

Schoen, D.; Jones, R. M. and Murphy, P. K. (1999). *Section 7 Watershed Biological Assessment Lochsa River Drainage Clearwater Subbasin: Determination of Effects of Ongoing Activities Based on the Matrix of Pathways and Indicators of Watershed Condition for Steelhead Trout, Fall Chinook Salmon and Bull Trout*. Clearwater National Forest.
This Section 7 assessment outlines Forest Service activities and potential impacts on stream morphology, fish habitat, and riparian condition for all Lochsa River tributaries.

Thompson, K. L. (1999). *Biological Assessment: Lower Selway 4th Code HUC. Fish, Wildlife and Plants.* Nez Perce National Forest, Moose Creek Ranger District.

USDA – Natural Resources Conservation Service. (1996). *Supplemental Watershed Protection Plan-Environmental Assessment – Bedrock Creek Watershed – Clearwater and Nez Perce Counties, Idaho*. Lewiston, Idaho.
This plan describes accelerated implementation of best management practices (BMPs) to improve water quality and fisheries habitat on non-irrigated cropland and riparian zones adjacent to Bedrock Creek. It includes discussion of hydrology, riparian zones, threatened and endangered species, erosion and sedimentation, water quality, wildlife, identified problems, and pollutant sources.

USDA – Natural Resources Conservation Service. (2000). *Supplemental Watershed Protection Plan – Environmental Assessment for the Lapwai Creek Watershed*.
The plan identifies treatment and costs for problems involving stream temperature, nutrients, sediment, low summer flows, and bacteria.

4.3 TMDLs

Bugosh, N. (1999). *Lochsa River Subbasin Assessment*. Lewiston, ID: Idaho Department of Environmental Quality.
This assessment of available habitat, fish, and temperature data for the Lochsa River concludes that water quality supports designated beneficial uses. It reports that subbasin fish and other aquatic biota are adapted to naturally high stream temperatures, and recommends delisting upper Canyon Creek and the Lochsa River from the 303(d) list of water quality impaired streams.

Dechert, T.; Baker, K. and Cardwell, J. (2000). *The Upper North Fork of the Clearwater River Subbasin Assessment and TMDL*. Lewiston: Idaho Department of Environmental Quality.

Idaho Department of Environmental Quality; Nez Perce Tribe, and Environmental Protection Agency. (2000). *Cottonwood Creek Total Maximum Daily Load (TMDL) and Implementation Plan* (Implementation plan prepared by the WAG).

Idaho Department of Environmental Quality. (1999). *Jim Ford Creek Total Maximum Daily Load (TMDL) and Implementation Plan (*Implementation Plan prepared by the WAG*).*

Idaho Department of Environmental Quality, Nez Perce Tribe, and U.S. Environmental Protection Agency. (2002). *South Fork Clearwater River Subbasin Assessment and TMDLs.*

Idaho Department of Environmental Quality. (2002) *Draft Lower North Fork Clearwater Total Maximum Daily Load and Implementation Plan (*Implementation Plan prepared by the WAG*).*

Winchester Lake Watershed Advisory Group. (1999). *Winchester Lake and Upper Lapwai Creek Total Maximum Daily Load (TMDL) and Implementation Plan (*Implementation Plan prepared by the WAG*).*

5 Planned Assessments

Table 3. Planned watershed assessments within the boundaries of the Clearwater subbasin

Assessment Area/Name	Agency	Anticipated Completion
Lower Clearwater AU		
Potlatch River Basin Study	LSWCD	2004
Lindsay Creek Initial Resource Assessment	Nez Perce SWCD	2002
Jacks Creek Initial Resource Assessment	Nez Perce SWCD	2002
Pine Creek Final Project Report	Nez Perce SWCD	2002
Lolo/Middle Fork AU		
Lolo Creek	NPT	2002-2004
Lochsa AU		
Crooked Fork Drainage-EAWS (Crooked to Colt Killed Creeks)	Clearwater National Forest/NPT	2003
South Fork AU		
Newsome Creek-EAWS	Nez Perce National Forest/NPT	2002
Red River-EAWS	Nez Perce National Forest/NPT	2003
Crooked River-EAWS	Nez Perce National Forest/NPT	2005

Table 4. TMDLs scheduled for completion by the Idaho Department of Environmental Quality

Watershed	Anticipated Completion
Upper North Fork Clearwater River	2004
Clearwater River	2006

6 Existing, Past and Planned Project Efforts

The Clearwater Subbasin Inventory Database (Inventory Appendix B on accompanying CD) is a compilation of information about ongoing projects that are related to habitat restoration and/or research, monitoring, and evaluation projects (RME). Information for each project includes: the PMU designation (see Figure 2 in Management Plan), project description, bull trout importance, Reasonable and Prudent Action (RPA) references the project addresses, objectives and/or RME addressed by project (designation from management plan), funding sources, agency participation, and duration of project. Project location information is compiled using 6th field HUCs as the building block of the spreadsheet; the spread sheet also includes the perimeter and area for each HUC. Geographic identification is also by creek name, assessment unit, drainage group (see Figure 1), ESA section 7 watersheds, and NOAA steelhead population group (see Figure 103 in Assessment). To further facilitate orientation in the subbasin, a 6th field HUC map included in Inventory Appendix C (provided on accompanying CD) has each HUC labeled with a number corresponding to the "GIS Layer No." column on the inventory spreadsheet. Projects that are implemented throughout the subbasin are clustered in a "subbasin-wide" category. Inventory Appendix A provides complimentary information, describing projects planned for implementation by the Idaho Department of Transportation over the next several years. Biological Assessments for these projects are available through the Idaho Department of Transportation for some of these projects, and in progress, pending, or not required for others (Idaho Department of Transportation District 2 and Boise office, personal communications, July 24, 2002).

6.1 Inventory Review

The inventory review reports summaries of project and RME information organized by drainage groups which are geographical and hydrologic groupings of sixth field HUCs. A drainage group may be composed of one or more PMU types; there are 41 drainages in the Clearwater. The summaries include: characteristics of grouped PMUs, limiting factors in PMUs, priority restoration issues in PMUs, the status of aquatic and terrestrial focal species, reported project and RME descriptions. These components of the inventory review are followed by a discussion section to summarize drainage group issues. A conclusion section follows the inventory review to summarize subbasin-wide issues. The following references were used to review the inventory projects: tables and textual information for PMUs within a drainage group (Figure 1; See also Assessment section 9), restoration issues and related priorities summarized by PMU (see Management Plan Tables 7, 8, and 9), terrestrial and aquatic limiting factors (see Assessment Tables 37, 38, 39 and 62), the Clearwater Subbasin Assessment, and the Inventory Appendices (provided on accompanying CD).

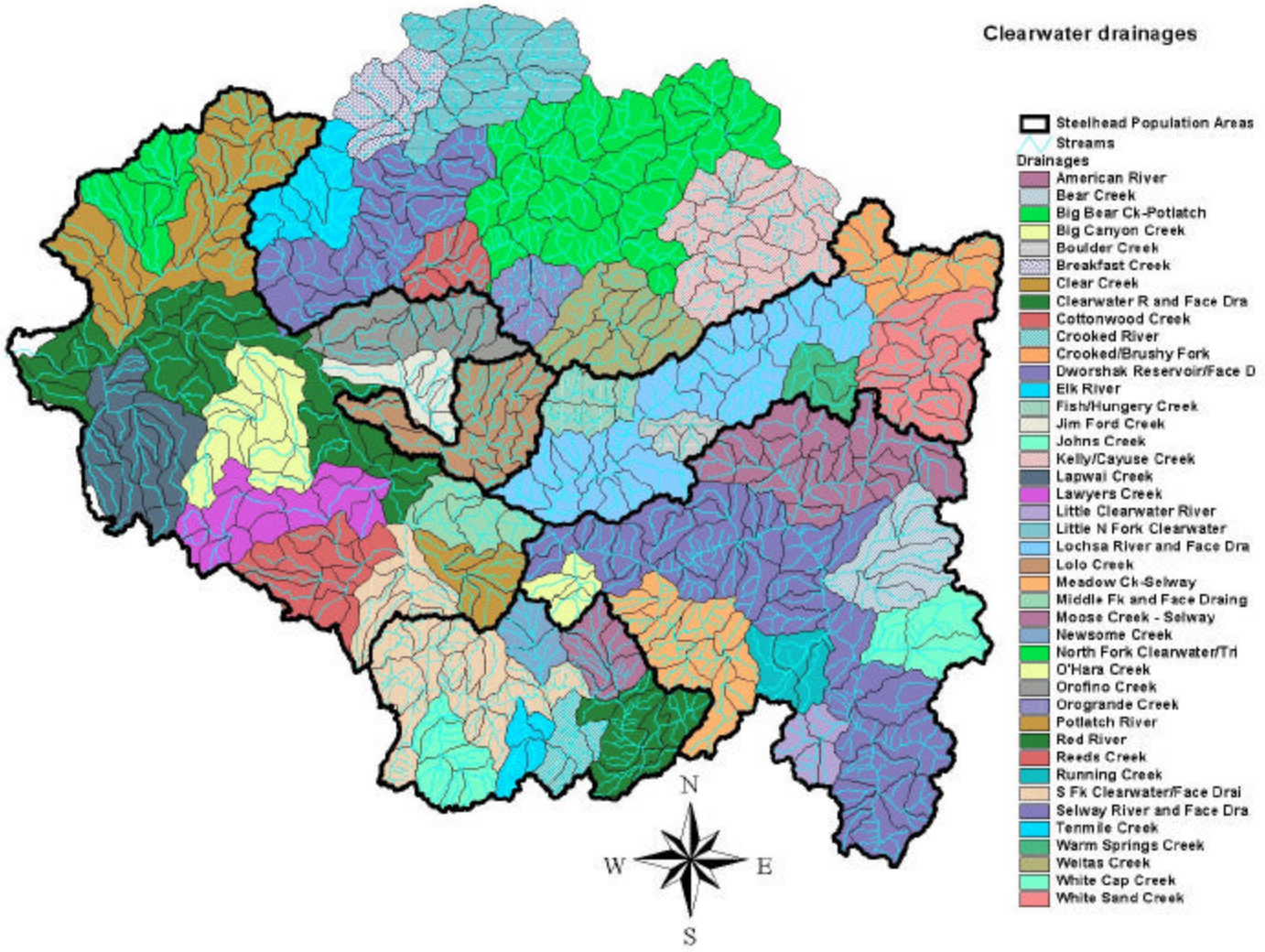

Figure 1. Drainage groups in the Clearwater subbasin used to facilitate the inventory review process.

American River (South Fork Clearwater AU)
PMU: FD-1, 2. These HUCs are highly impacted by roads, grazing, and mining. All aquatic focal species are limited by temperature, sediment, instream cover, watershed disturbances, and habitat degradation, and moderate connectivity/passage issues for bull trout and westslope cutthroat. Ponderosa pine inventory need is a high priority. Steelhead habitat quality rated fair and along with mainstem is rated lowest in South Fork Clearwater. Projects: Little and Big Creeks to Elk Creek are on the Idaho 303(d) list and were part of the general South Fork Clearwater TMDL recently completed and submitted to EPA for review. RME: Chinook, steelhead, bull trout redd surveys conducted by IDFG and the NPNF; American River is an IDFG supplementation study treatment stream. Discussion: Significant data gaps exist for population status and habitat conditions which need to be addressed so that a restoration strategy can be identified.

Bear Creek (Upper Selway AU)
PMU: Entire drainage is composed of FD-9 (6 HUCs) which are designated wilderness.
RME: NPNF conducts fish habitat surveys at least three years in ten. B-run steelhead (no hatchery influence), spring chinook, bull trout, and westslope cutthroat are present. Brook trout are considered to be widely distributed.
Discussion: Continue protection; address brook trout issue and data gap needs.

Big Bear Creek (Lower Clearwater AU - Potlatch River)
PMU: PR-3 (3 HUCs), PR-6 (1 HUC), PR-7 (1 HUC), PR-8 (3 HUCs). This drainage is dominated by agricultural land cover. Upper drainage PR-3 forested land cover. Restoration issues and limiting factors include water temperatures, surface erosion, sedimentation, flow, habitat degradation, and watershed disturbances. Roads and grazing are also issues in the upper drainage (PR-3). A-run steelhead are present although habitat quality has been rated poor and a natural passage barrier exists 9 km from the confluence with the Potlatch River. Focal and culturally important terrestrial species include Palouse goldenweed, lomatium, and Jessica's aster, high to moderate priority exists for ponderosa pine and grasses (prairie) inventories, and wetland information is limited. Big Bear is on the Idaho 303(d) list, with its TMDL scheduled for completion in 2005.
Projects: Big Bear is part of the LSWCD's Potlatch River project (started in 2002), which works to improve A-run steelhead habitat. The project is ecosystem based, includes fish and habitat monitoring and evaluation, and involves multiple agencies and funding sources.
RME: Water quality monitoring has been conducted for two years for the project by SCC, and IDEQ conducted pre-TMDL monitoring. LSWCD project has a RME component.
Discussion: Continue project implementation and coordination through Potlatch River project.

Big Canyon Creek (Lower Clearwater AU)
PMU: PR-6 (3 HUCs), PR-7 (7 HUCs), PR-8 (4 HUCs). This drainage is dominated by agricultural land cover. PR-7, 8 designations are distinguished by having mixed agriculture and forest land covers. Surface erosion hazards are considered very high throughout and road densities are typically moderate. Limiting factors in the drainage

include temperature, flow, watershed disturbances, and habitat degradation. Restoration priorities include temperatures, surface erosion, and ponderosa pine inventory/protection/restoration needs. PR-6 designations have substantial amounts of agricultural/range land cover coupled with very high surface erosion hazard, moderate to high landslide hazard, and moderate to high road densities. Restoration priorities include temperature, sediment, ponderosa pine and grassland inventories, protection, and restoration needs. A-run steelhead are present; habitat quality has been rated 'good' in much of Big Canyon Creek and poor in Little Canyon Creek (main tributary). Focal species documented by the CDC include Palouse goldenweed, lomatium, and Jessica's aster; high to moderate priority exists for ponderosa pine and grasses (prairie) inventories; wetland information is limited. Big Canyon Creek and the upper two subwatersheds of Little Canyon Creek (major tributary to Big Canyon Creek) are on the Idaho 303(d) list.

Projects: Upland agricultural best management practice projects are being implemented in Little Canyon Creek through the LSCD with funding through SCC and the BPA. Similar implementation and funding support exists in Big Canyon Creek through the NPSWCD which also develops cost-share projects with P.L. 566 funding. The NPT has funding from BPA and is implementing passage, flow, and fisheries/habitat survey and restoration work throughout Big Canyon Creek in coordination with both of the conservation districts. The NPT Wildlife Department is awaiting final approval of a BPA contract for land acquisition in Big Canyon Creek; the original approval was for FY2002 funding. A FEMA funded project to repair riparian and channel damage at the mouth of Big Canyon Creek occurred after the 1996/7 floods.

RME: The IDL conducted the CWE on forested lands for TMDL development. USFWS with BPA funding studied residual steelhead in the Lower Clearwater and had sample sites in Big Canyon concluding that no interaction between hatchery B-run steelhead and wild A-run steelhead was occurring. The NPT operates a weir at the mouth of Big Canyon. The NPT, IASCD, NPSWCD, and BLM have collected water quality data: the BLM conducted extensive riparian/aquatic habitat surveys in the mid 1990s; the NPT began fish and habitat survey work throughout all of Big Canyon in 2003. The NPT also has a Watershed Division-wide RME program for implementation projects.

Discussion: The NPT and conservation districts efforts are closely coordinated and include cooperating agencies and private landowners. Continue implementation projects, adjust if need be after development of TMDL. All restoration issues and priorities in Big Canyon Creek can be addressed via the existing coordination infrastructure. Continue support for acquisition of lands in this drainage. Fill in data gaps including ponderosa pine, grassland, and wetland inventories.

Boulder Creek (Lochsa AU)

PMU Entire drainage composed of FD-9, which are designated wilderness. Terrestrial wildlife species documented by the CDC in FD-9 include fisher, wolverine, and Coeur d'Alene salamander.

RME: IDFG has 9 monitoring stations for a steelhead study. B-run steelhead (no hatchery influence), spring chinook, and westslope cutthroat are present. Brook trout are considered to be widely distributed.

Discussion: Continue protection, address brook trout, and address data gaps.

Breakfast Creek (Lower North Fork Clearwater AU)
PMU: MX-1 (3 HUCs), MX-2 (3 HUCs). This drainage is generally forest land cover. Priority restoration needs include temperature, instream habitat, exotic species, sedimentation, roads, landslide prone roads, grazing, and loss of ponderosa pine habitat. Limiting factors include temperature, sediment, watershed disturbances, habitat degradation and exotic species. Westslope cutthroat and brook trout are widely distributed.
Projects: The Lower North Fork Clearwater Subbasin TMDL implementation plan includes Breakfast Creek.
RME: Monitoring in preparation for TMDL.
Discussion: Significant gaps in population status and habitats exist which need to be addressed so that a restoration strategy can be identified.

Clearwater River and Face Drainages (Lower Clearwater AU)
PMU: This drainage area contains PR-1(7 HUCs), PR-2 (5 HUCs) , PR-6 (1 HUC), PR-7 (2 HUCs), and PR-8 (2 HUCs). PR-1 is primarily in agriculture, including the mainstem Clearwater below Dworshak Dam and includes the towns of Orofino and Lewiston. Fall Chinook spawn and rear in this PMU, in reaches highly influenced by Dworshak Dam operations affecting flow and temperature regimes. Water quality concerns under the 303(d) listing include total dissolved gas resulting from Dworshak operations. Relatively high surface erosion and landslide hazard combine to create substantial sediment production in PR-1. PR-2 is composed of the mainstems of the Clearwater and South Fork Clearwater Rivers between Butcher Creek and the North Fork Clearwater River respectively. Cover type is primarily forested, though agriculture/range make up at least 25 percent of the area. Fall Chinook use these PMUs for spawning and rearing, though to a lesser extent. Juvenile A-run steelhead may rear in both of these PMUs when forced to migrate from natal streams during low flow and high temperatures. All other aquatic focal species use both PMUs primarily for overwintering and migrations purposes. Limiting factors include temperature, flow, sediment, watershed disturbances, and habitat degradation. In both PR-1,2 Jessica's aster and lomatium have been documented by the CDC, and most occur on private lands. PMUs may contain high quality ponderosa pine habitats, prairie grassland remnants, and wetland habitats in need of inventory, protection, and/or restoration. The only wildlife focal species in PR-2 documented by the CDC is the fisher. PR-6 (1 HUC), PR-7 (2 HUCs), PR-8 (2 HUCs) are dominated by agricultural land cover. PR-7, 8 designations are distinguished by having mixed agriculture and forest land covers. PR-7,8 designations have surface erosion hazards considered very high throughout and road densities are typically moderate. Restoration priorities include temperatures, surface erosion, and ponderosa pine inventory/protection/restoration needs. PR-6 designations have substantial amounts of agricultural/range land cover coupled with very high surface erosion hazard, moderate to high landslide hazard, and moderate to high road densities. Restoration priorities include temperature, sediment, ponderosa pine and grassland inventories, protection, and restoration needs. Limiting factors in the drainage are temperature, flow, watershed disturbances, and habitat degradation. Restoration issues and limiting factors to aquatic/terrestrial species include temperatures, surface erosion, sedimentation, flow,

habitat degradation, and watershed disturbances. Jessica's aster, lomatium, and Palouse goldenweed have been documented by the CDC and the PMU may contain high quality ponderosa pine habitats, prairie grassland remnants, and wetland habitats in need of inventory, protection, and/or restoration.
Projects: Riparian restoration in Bedrock Creek and Hatwai Creeks have been implemented by NPSWCD and NRCS.
RME: Water quality monitoring has occurred for the TMDL in Lindsey Creek. Gas bubble monitoring on fish is occurring immediately below Dworshak. A residual steelhead study examining impacts on wild fish was conducted by USFWS. Fall Chinook releases occur in the mainstem near Cherry Lane.
Discussion: This drainage is composed of multiple small watersheds. Limited restoration and no coordinated approach to implementation has occurred in this drainage group. Significant gaps in populations and habitats exist which need to be addressed so that a restoration strategy can be identified. A high need exists for vegetation inventories, protection and restoration implementation.

Cottonwood Creek (Lower Clearwater AU Idaho County)
The drainage is dominated by agriculture and rangeland uses. Cottonwood Creek is distinguished from other areas in the subbasin by exhibiting extremely flashy flows and the earliest occurrence of peak flows in March. Inherent landslide hazard are considered high and surface erosion hazards are high to very high. Steelhead trout are present in the lower portion of Cottonwood Creek where habitat condition has been classified as poor. Limiting factors include temperature, sedimentation, base flow, watershed disturbances, and habitat degradation. Terrestrial plan focal species documented by the CDC include Palouse goldenweed and spacious monkeyflower. PR-5 may contain high quality wildlife habitats, including ponderosa pine, prairie grassland remnants, and wetland habitats in need of inventory, protection and/or restoration.
Projects: Cottonwood Creek was listed on the Idaho 303(d) list. The TMDL was completed and approved late in 2000 and implementation was initiated on uplands with SCC and CWA 319 funding.
RME: Water quality survey work was conducted in preparation for the TMDL.
Discussion: This is a large watershed with extensive impacts from agriculture. Coordination of implementation is through the ISWCD working on agricultural BMP installation funded though the CWA 319 funds and Idaho agriculture program funding in response to the TMDL and plan. Address data gaps and develop drainage restoration strategy.

Crooked River (South Fork Clearwater AU)
PMU: FD-3 (6 HUCs), FD-9 (2 HUCs). The drainage is forest covered. B-run steelhead, spring chinook, bull trout, and westslope cutthroat trout are distributed throughout, strongholds for westslope cutthroat and bull trout exist in the upper reaches (FD-9), in all other cases populations are depressed. Steelhead habitat is considered to range from fair to excellent with the majority being rated as good. Steelhead in FD-3 are commonly influenced by hatchery release, those in FD-9 are not. Habitat quality for spring Chinook is rated as fair to good. Brook trout are distributed throughout the drainage area. Restoration needs include instream habitat, exotics, and temperature. Restoration needs

in the FD-3 HUCs also include mining, roads, and riparian/wetlands. Limiting factors in this drainage include temperature, sediment, instream cover, watershed disturbances, and habitat degradation. Most impacted habitat is caused by mining activity in FD-3 areas which has resulted in channelization and loss of instream cover, habitat, and riparian function. Focal species documented by the CDC in FD-3 include fisher, wolverine, flammulated owl, and black-backed woodpecker. Focal species documented by the CDC in FD-9 include fisher, wolverine, and Coeur d'Alene salamander. FD-9 is designated wilderness.
Projects and RME: None are listed in the inventory.
Discussion: Address brook trout issue, especially in FD-9 HUCs, address data gaps.

Crooked/Brushy Fork (Lochsa AU)
PMU: FD-4 (2 HUCs), FD-5 (2 HUCs), MX-6 (6 HUCs). These HUCs have a forested land cover. B-run steelhead exist throughout the drainage, though populations are depressed. Spring Chinook spawn and rear in MX-6, but not FD-4, 5. Westslope cutthroat and bull trout are distributed throughout; little information exists regarding brook trout. Issues rated high in FD-4, 5 are roads and loss of vegetative structure; grazing is added in FD-4. In MX-6 these issues are all rated moderate. Limiting factors to fish focal species include watershed disturbances, habitat degradation, and connectivity. CDC documented terrestrial focus species are as follows: FD-4, 5 – fisher, flammulated owl, and white-headed woodpecker; MX-6 – fisher and wolverine.
Projects: The NPT initiated a watershed protection and restoration program in 2002 in cooperation with CNF (Crooked Creek to Colt Killed Creek (White Sand Creek).
RME: The NPT project includes an RME element.
Discussion: Coordination/implementation could best be coordinated through the NPT program and existing partnerships. See also White Sand Creek (Colt Killed Creek) drainage discussion.

Dworshak Reservoir/Face Drainages (Lower North Fork Clearwater AU)
PMU: MX-1 (5 HUCs), MX-2 (9 HUCs), MX-4 (2 HUCs). Predominantly forested and land use activities revolve around forest management; protected status is typically minimal. Landslide hazards range from moderate to very high in MX-1 and 2. Surface erosion hazards are variable but are commonly rated high to very high and land use impacts are thought to be substantial as indexed by relative road densities although the correlation in MX-4 for such is not as clear. Temperature issues moderate to high priority. Ponderosa pine is a high to moderate priority for inventory work, protection, and/or restoration. A small portion of this drainage area is below Dworshak Dam accessible to anadromous fish. This drainage is in general at the outer limit of bull trout natural range. West slope cutthroat trout are widespread but populations are considered depressed. Brook trout are also considered widely distributed, but the status of these populations is unknown. Terrestrial focal species documented by the CDC to occur in MX-4 include Jessica's aster and the fisher; inventory of mature stands of ponderosa pine are a high priority and moderate priority to protect and restore existing stands. Restoration needs include temperature, instream habitat, sediment, and landslide prone roads. Limiting factors include sediment, watershed disturbances, habitat degradation, and exotic species.

Projects: TMDL completed for the Lower North Fork, limited implementation to be initiated in 2004. Five stewardship projects are being conducted by the USACE in this drainage using selective cutting, burning, and thinning techniques to increase wildlife habitat and browse. The USACE and USFWS agreed that initial project mitigation for the resident fish sports fishery will amount to 100,000 pounds of fish for stocking in Dworshak Reservoir area annually, although this production level has never been met.
RME: Helicopter redd survey for Fall Chinook is conducted annually. IDL conducted CWE surveys for preparation of the TMDL. Research is being conducted to test the effectiveness of deterrents to kokanee entrainment. The USACE is conducting smallmouth bass population trend monitoring and in conjunction with IDFG, the effects of dam operations on resident fish species are being investigated. Rule curves specifically for Dworshak Dam operations are being developed. USACE is conducting extensive terrestrial species inventories within lands managed under their authority.
Discussion: Some restoration implementation will occur in this drainage as part of a larger TMDL implementation project for the Lower North Fork Clearwater River to address Clean Water Act issues. The TMDL plan was prepared through an interdisciplinary group and will be implemented in the same way. The NPT conducts the redd survey below Dworshak Dam in connection to their fall chinook program, and the tribe also is conducting the rule curves investigation. All other RME ongoing in this drainage is connected to IDFG, USACE, or both, and consequently, coordinated. Resident fisheries and terrestrial habitat issues need coordination and a restoration strategy needs to be developed. Large drainage with multiple small watersheds. Management options need to be evaluated and prioritized.

Elk River: (Lower North Fork Clearwater AU)
PMU: MX-1 (upper HUC), MX-2 (5 HUCs), MX-3 (1 central HUC). This drainage is predominantly forested and land use activities revolve around forest management; protected status is typically minimal. Landslide hazards range from moderate to very high in MX-1 and 2. Surface erosion hazards are rated high to very high and land use impacts are thought to be substantial as indexed by relative road densities. Temperature issues are moderate to high priority. Ponderosa pine is a high to moderate priority for inventory work, protection, and/or restoration. This drainage is in general at the outer limit of bull trout natural range. Strong populations of brook trout are known to occur in the Elk Creek system, are highly sought after by anglers, and are managed differently than other brook trout population by IDFG. Limiting factors/restoration needs are related to temperature, sediment, watershed disturbances, and habitat degradation. The MX-3 HUC is dominated by Potlatch Corporation ownership with high to very high road densities on lands with very low to low surface erosion and inherent landslide hazards. Clearwater phlox is the only plant focal species documented by the CDC to occur in MX-3 lands. Animal focal species documented include the fisher, wolverine, and the Coeur d'Alene salamander. Inventory of mature stands of ponderosa pine is a high to moderate priority and moderate priority to protect and restore existing stands. Various stream segments within this drainage are listed on the Idaho 303(d) list of impaired streams.
Projects: Implementation of the Lower North Fork River TMDL is scheduled to begin in 2004 that includes work in Long Meadow Creek of the Elk River drainage.

RME: The CNF maintains several water quality parameter monitoring sites within this drainage, all of which occur in Elk Creek.
Discussion: The inventory lists only three activities in the Elk Creek drainage, although it would seem that others are being conducted by private entities or Potlatch Corporation. Coordination exists recently through the TMDL process, but only for a limited amount of work in one of the HUCs. Terrestrial species habitat issues need coordination and an implantation strategy needs to be developed. The inventory shows little project or RME work being conducted in this drainage. Significant gaps in populations and habitats exist, which need to be addressed so that a restoration strategy can be developed.

Fish /Hungery Creek (Lochsa AU)
PMU: Drainage is comprised of three forest land FD-8 HUCs, which have at least 90 percent of the land area designated as roadless. B-run steelhead trout within this drainage are not influenced by hatchery production. The B-run steelhead use these tributaries of the Lochsa River for spawning and rearing, and existing populations are considered strong. Spring Chinook salmon are present below the confluence of Fish and Hungery Creeks, though populations are depressed and influenced by hatchery practices. Bull trout are present, status unknown above the confluence, while present and depressed below; westslope cutthroat populations are present and strong, and brook trout are unknown or distribution uncertain. Limiting factors to focal fish species include watershed disturbances, habitat degradation, and connectivity.
Projects: The NPT Watershed Division was awarded a contract for the North Lochsa Face, an area that includes the Fish/Hungery drainage, for fiscal year 2002 by BPA to begin coordination and implementation work. Implementation has not been initiated because CNF management decisions have been appealed and are pending final litigation.
RME: The IDFG and CNF have numerous fish population and distribution surveys in this drainage. The NPT project has a RME project.
Discussion: Continue protection of habitats through roadless area designations. Initiate the coordination efforts as soon as possible through the NPT work in cooperation with the CNF. Address exotic species.

Jim Ford Creek (Lower Clearwater AU)
PMU: MX-3 (5 HUCs), MX-4 (1 HUC) Ownership highly mixed and generally dominated by Potlatch Corporation in this drainage. Land cover is typically forested and land activities revolve around forest and range management. Road densities are rated high to very high, while surface erosion hazard and inherent landslide hazards are typically very low to low. Steelhead are noted in the assessment as present but depressed in the lower HUC of Jim Ford Creek (MX-4, HUC #837), the upper reach of which coincides with a natural passage barrier. Limiting factors include temperature, flow, sediment, watershed disturbances, and habitat degradation. Stream segments in Jim Ford Creek are listed on the Idaho 303(d) list for sediment, thermal modification, habitat alternation, flow, and pathogens. Jessica's aster in lower Jim Ford Creek (MX-4) and the Clearwater phlox in MX-3 are the only plant focal species documented by the CDC. The CDC lists animal focal species present as fisher, wolverine, and Coeur d'Alene salamander. Inventory of mature stands of ponderosa pine is a high to moderate priority and moderate priority is to protect and restore existing stands.

Projects: The TMDL was completed in 1999 and subsequent implantation has occurred using the CWA 319, state agriculture program, and CRP funding sources primarily for actions on agricultural lands. One 200 acre wetland was constructed in 2001. The NPT has a resident fish mitigation project within Jim Ford Creek
RME: CWE survey by IDL on forested lands and water quality monitoring in preparation for development of the TMDL. Effectiveness monitoring is ongoing for agricultural BMPs and the constructed wetland.
Discussion: There are no restoration projects listed in the inventory to address impacts from forest management activities on private non-industrial, corporate, or Idaho State lands. Restoration activities should be encouraged for watershed effects from forest management; inventory ponderosa pine and address other data gaps, develop restoration strategy addressing lower drainage steelhead populations and upper watershed terrestrial focal species.

Johns Creek (South Fork Clearwater River AU):
PMU: FD-4 (HUCs), 9 (3HUCs). This drainage has a forested landscape. Induced disturbances in FD-4 are thought to be associated with roads and grazing. Steep channel gradients have been identified as potentially limiting fish use in some reaches. Restoration needs to address exotic species, landslide prone roads, and vegetative structure. Limiting factors include temperature, sediment, instream cover, watershed disturbances, and habitat degradation. Moderately limiting factors include exotic species and connectivity and passage problems. FD-9 HUCs are designated wilderness. The assessment reports focal fish species status as follows in this drainage: spring chinook present depressed or unknown, absent; steelhead present depressed or unknown; bull trout are present strong or depressed; westslope cutthroat are strong or status unknown, and brook trout are unknown or suspected absent.
Projects and RME: No projects are listed in the inventory.
Discussion: Continue protection status. Implement actions to address vegetative structure which has been given a high priority based on combination of high need and high opportunity to manage stand structure and composition.

Kelly/Cayuse Creek (Upper North Fork Clearwater AU):
PMU: FD-5 (3 HUCs), FD-7 (2 HUCs), FD-8 (13 HUCs). Impacts from roads and grazing occur in FD-5 (lower Kelly Creek). In FD 7, 8 significant portions are designated roadless areas. Salmon and steelhead use of this drainage are blocked by Dworshak Dam. Bull Trout status is variably present depressed, present-status unknown, and unknown. Westslope cutthroat trout status is strong and two HUCs are present depressed. Brook trout are suspected absent or are status unknown. Plant focal species documented to exist in FD-8 by the CDC is spacious monkeyflower. Animal focal species documented by the CDC in FD-7 and 8 are fisher, wolverine, northern goshawk, and Coeur d' Alene salamander.
Projects: None are listed in the inventory.
RME: Fish composition, abundance, and distribution, and aquatic and riparian habitat conditions are surveyed throughout drainage area, mostly by the CNF.
Discussion: Continue protection, ongoing RME and implement actions as indicated. Vegetative structure is a high priority issue in lower Kelly Creek based on combination of

high need and high opportunity to actively manage stand structure and composition. Address data gaps.

Lapwai Creek (Lower Clearwater AU):
PMU: PR-4 (6 HUCs), PR-7 (3 HUCs), PR-8 (4 HUCs). Land cover within PR-4 is predominantly agriculture/range, but dominated by forest cover in the headwaters of Sweetwater and Webb Creeks. PR-4 is distinguished from others by potentially substantial impacts of water withdrawals associated mostly, though not exclusively, by the Lewiston Orchards Irrigation District. PR-7,8 are also dominated by agriculture land use and considered the dominant source for sediment delivery to waterways in all designations. Stream segments throughout Lapwai Creek are listed on the Idaho 303(d) list for sediment, thermal modification, habitat alteration, flow, pesticides, and pathogens. Habitat for A-run steelhead trout is rated fair in this drainage; limiting factors include temperature, flow, sediment, watershed disturbances, and habitat degradation. Plant focal species documented by the CDC to occur in Lapwai Creek are Jessica's aster and Palouse goldenweed. In addition to water withdrawal issues and limiting factors, high priority issues include conducting inventories of prairie grasses and to protect remnants and to restore communities where feasible, and ponderosa pine.
Projects: Idaho agriculture program and various NRCS programs have been implemented throughout the drainage. The TMDL for Winchester Lake (upper watershed) was completed and the plan implementation also completed in the late 1990s. The IDFG completed Winchester Lake aeration project using CWA 319 funding in 2001. The NPT Wildlife Department is awaiting final approval of a FY2002 BPA contract for land acquisition in the Lapwai drainage. There are two BPA funded efforts in Lapwai Creek: one sponsored by the NPT and one by the NPSWCD, both of these provide different functions and are strongly coordinated. Both incorporate partnerships with cooperating agencies and private landowners.
RME: Water quality parameters are being monitored in Lapwai Creek. The NPT project funded by BPA also began intensive fish and aquatic habitat surveys in 2003and has an RME component.
Discussion: The NPT and NPSWCD projects provide a good coordination focus point for treatment of this drainage. Interagency work has begun to address water withdrawal issues. Continue to support acquisition efforts. Address data gaps.

Lawyer Creek (Lower Clearwater AU):
PMU: PR-5. Lawyer Creek is distinguished from other areas in the subbasin by exhibiting extremely flashy flows and the earliest occurrence of peak flows that occur in March. The drainage area is dominated by agricultural land cover with forest cover dominant only in two HUCs in the headwaters. Habitat condition for steelhead trout has been classified as poor, constraints to steelhead use have defined as temperature, dewatering, passage impediments, and sedimentation. Water quality concerns are widespread and stream segments are listed on the Idaho 303(d) list for temperature, habitat alteration, sediment, flow, and pathogens; some are additionally listed for pesticides, oil/grease, and synthetic organics. The CDC has documented Palouse goldenweed and spacious monkeyflower in Lawyer Creek. High priority issues to be

addressed include hydrology, surface erosion, and surveys of ponderosa pine, prairie grasslands, and riparian/wetland areas.
Projects: A FEMA funded project in lower Lawyer Creek was initiated in 2001 and an implementation plan was designed to address flood issues as well as affected aquatic habitats, and surface erosion; the implementation efforts have not yet been funded. The NPT has a resident fish substitution pond in the upper portion of this drainage area.
RME: There are no RME projects listed in the inventory.
Discussion: The data base of aquatic species and habitat condition is not well developed for this large system in the lower Clearwater River AU and should be developed. A restoration strategy and RME plan is needed for the watershed.

Little Clearwater River (Upper Selway AU)
PMU: FD-9 which are designated wilderness. B-run steelhead trout in this drainage are not influenced by hatchery production, populations are depressed. Spring chinook are commonly influenced by hatchery practices, populations are depressed in the lower drainage and present status unknown in the upper. Westslope cutthroat trout are present populations are strong. Bull trout are present populations strong in the upper drainage and status unknown in the lower. Brook trout status is unknown. Wildlife focal species documented by the CDC to occur in the FD-9 PMU are the fisher, wolverine and Coeur d' Alene salamander.
Projects and RME: There are none listed in the inventory.
Discussion: Continue protection of the Little Clearwater River drainage.

Little North Fork Clearwater (Lower North Fork AU)
PMU: MX-1 (2 HUCs), MX-2 (1 HUC), MX-5 (4 HUCs), FD-7 (1 HUC), and FD-8 (3 HUCs). Typical land cover throughout the drainage is forest and ownership is variable, except for the four northern and upper most HUCS that share a checkerboard ownership between Plum Creek Timber and the CNF. Little data seems to exist for MX-5. Wildlife focal species documented by the CDC include fisher and wolverine. Middle reaches of the drainage are designated FD-7,8 which have a range of 74-90 percent roadless designation. The wildlife focal species documented to occur in these are fisher, wolverine, Coeur d'Alene salamander; the northern goshawk also is noted in FD-7. The only plant focal species documented in FD-8 is the spacious monkeyflower. The lower reaches of the Little North Fork Clearwater River are composed of MX-1,2 which are similar except for the proportion of corporate land ownership. Both have in common high road densities, high landslide hazard ratings, and often times coincidentally high surface erosion hazards. Dworshak dam prevents salmon and steelhead access to this drainage. Westslope cutthroat trout are present populations strong in the upper most HUC and mid-drainage HUCs, although the stronghold area in this drainage is isolated from other stronghold populations in the North Fork Clearwater River. Bull trout are represented throughout the drainage as present – strong, depressed, status unknown. Brook trout are present throughout the drainage but with status is unknown.
Projects: Part of the USACE Grandad mitigation area project is in this drainage. The project addresses browse rejuvenation with prescribed burning.
RME: The IDFG is conducting a bull trout investigation in Fish Lake.

Discussion: There is little activity listed on the project inventory. Strongholds for westslope cutthroat trout and bull trout suggest management opportunity especially in the context of the unknown status for bull trout.

Lochsa River and Face Drainages (Lochsa AU)
PMU: FD-5 (3 HUCs), FD-6 (3 HUCs), FD-7(3 HUCs), FD-8 (14 HUCs), FD-9 (3 HUCs), MX-6 (2 HUCs). This drainage is composed of 28 small watersheds. The highest priority issue is continued protection of existing wilderness areas and the high quality resources within inventoried roadless areas. The most widely distributed issues of concern for fish and wildlife restoration in the drainage are water temperature, vegetative structure, and exotic species (aquatic). Restoration of impacts from high road densities is identified as a moderate or high concern in those PMUs not dominated by roadless or wilderness areas. Instream habitat degradation, sedimentation, surface erosion, grazing impacts, and landslide prone roads are less widespread (but still important) concerns. The need to address temperature concerns is widespread but of higher priority in PMUs MX-6, FD-5 and FD-6. The need to address sedimentation is greatest in PMU FD-6. Exotic species (brook trout), vegetative structure and protection/restoration of ponderosa pine communities are also priority issues. Spring chinook are largely absent from this drainage although it is used as a migration corridor. B-run steelhead populations are depressed throughout the drainage and those existing in the upper reaches (FD-7,8,9) are not influenced by hatchery production. There are strongholds of westslope cutthroat throughout the drainage and some in the upper reaches for bull trout. Brook trout have several stronghold populations mid-drainage, elsewhere they are suspected present to distribution uncertain.

Projects: The Fishing to Legendary Bear watershed project led by the NPT with BPA funding in partnership with the CNF has engaged in road obliteration and culvert replacement work since 1999. Another NPT project, also funded by the BPA has been approved but is awaiting on-the-ground work until completion of pending appeal litigation. (See Fishing/Hungery Creek project)

RME: Numerous fish population monitoring stations occur throughout the drainage for spring chinook, steelhead, and bull trout. There are three supplementation streams each led by the IDFG, NPT, or the USFWS. The NPT projects both have RME elements. IDEQ maintained several water quality sites in the drainage during development of the Lochsa TMDL.

Discussion: Restoration issues appear to be generally defined in this drainage. Aquatic and terrestrial population data bases have gaps however. The partnership between the NPT and CNF over the years suggests that they could provide the coordination needs via the existing structure by expanding into other watersheds.

Lolo Creek (Lolo/Middle Fork AU)
PMU: PR-6 (1), MX-1,3,4 (3), FD-5 (6). Landownership is highly mixed; the eastern most drainage is generally FD-5 and the western a combination of private, IDL, Potlatch Corporation, and tribal lands. Land cover is primarily forest, much of which has been intensively harvested in the eastern drainage, while the western plateau is primarily agriculture. Mines are located throughout the Lolo Creek drainage and historical mine

production is in evidence. The most widely distributed restoration issues within Lolo Creek drainage are water temperature, grazing impacts, brook trout, instream habitat, roads, ponderosa pine inventory and vegetative structure. Limiting factors include temperature, sediment, instream cover, and habitat degradation. Spring chinook, steelhead, and cutthroat trout are reported to be widely distributed with depressed populations. Bull trout exist in the mid reaches of Lolo Creek with unknown population status and in the upper mainstem populations are present depressed. Brook trout are variably distributed; distribution uncertain in the lower reaches to depressed, the upper most reach is rated as a stronghold population. The CDC has documented the following focal species within the Lolo Creek drainage: PR-6: Palouse goldenweed, lomatium, and Jessica's aster; MX-3 Clearwater phlox, fisher, wolverine, and Coeur d'Alene salamander; FD-5 fisher and wolverine.
Projects: Upland agricultural treatments have been constructed on private lands in Lolo Creek through the Idaho agricultural program and the CSWCD. Beginning in 1998 the NPT initiated a watershed treatment program that has been active in this drainage across landownership boundaries including the following project types: riparian fencing, culvert replacement, bank stabilization, and road obliteration. The NPT Wildlife Department is awaiting final approval of a BPA contract for land acquisition in the Lolo Creek drainage originally approved for 2002 funding.
RME: There are four NPT supplementation stream projects in the Lolo Creek drainage as well as numerous other NPT, IDFG, and CNF salmon and steelhead population monitoring sites. The NPT restoration project includes an RME element.
Discussion: Continue existing restoration work and look for opportunities for coordination between the CSWCD and the NPT, address data gaps and continue to support acquisition projects.

Meadow Creek-Selway (Lower Selway AU)
PMU: FD-4 (1 HUC), FD-7 (1 HUC), FD-8 (10 HUCs). The predominant PMU in this drainage is FD-8 which is at least 90 percent roadless. FD-4 in the lower reaches of this drainage is noted for having some influences from grazing. High priority issues include continue protection of roadless areas. Spring chinook commonly influenced by hatchery production are present throughout, populations noted as depressed or unknown. Steelhead populations which are not influenced by hatchery production are depressed with three HUCs of stronghold populations. The upper reaches of the system are strongholds for westslope cutthroat and the remainder of the drainage is present status unknown. Brook trout are distributed various throughout – absent, suspected absent, depressed, status unknown. Focal species documented by the CDC include spacious monkeyflower, fisher, wolverine, northern goshawk, and Coeur d'Alene salamander.
Projects: There are no projects listed in the inventory.
RME: The NPNF and IDFG conduct salmon, steelhead, and bull trout redd surveys and habitat condition surveys every 3 out of 10 years.
Discussion: Continue protection, address data gaps.

Middle Fork Clearwater/Clear (Lolo/Middle Fork AU)
PMU: FD-6 (3 HUC), FD-5 (1 HUC) MX-1 (3 HUCs), MX-4 (1 HUC), PR-6 (2 HUCs). Land cover is primarily forested in all but the PR-6 designations, where it is agricultural.

Limiting factors general to all PMU types in the drainage include sediment, watershed disturbances, habitat degradation, and temperature. Restoration needs include temperature, surface erosion, landslide prone roads, and vegetative structure. Focal fish species are distributed throughout the drainage though most populations are depressed. Brook trout are suspected to be absent in two of the upper most HUCs in the drainage and unknown elsewhere. The CDC documents Jessica's aster and the fisher in MX-4.
Projects and RME: None are listed in the Clearwater inventory.
Discussion: Data gaps should be addressed to identify the drainage condition so that a restoration strategy can be developed. The Middle Fork Clearwater River had been designated a priority subbasin by the 2000 BiOp implementation plan (2001) to address irrigation and diversion issues on private lands. The lack of irrigation and private lands in the Middle Fork Clearwater River led the action agencies to readdress the priority designation.

Moose Creek (Upper Selway AU)
PMU: Entire drainage composed of FD-9 which are designated wilderness.
Projects and RME: None are listed in the Clearwater inventory. B-run steelhead (no hatchery influence), bull trout, westslope cutthroat, and brook trout are widely distributed and strongholds for each species exist in the drainage.
Discussion: Continue protection and address brook trout issue.

Newsome Creek (South Fork AU)
PMU: FD-2 (2 HUCs) and FD-4 (1 HUCs). Land uses affecting both designations include grazing and roads; in FD-2 mining uses have also impacted the landscape. All focal species are distributed throughout the drainage though populations are depressed. The FD-4 HUC, which includes Baldy, Pilot, and Sawmill Creeks, is a stronghold for bull trout. Steelhead and chinook are influenced by hatchery releases. Limiting factors to all species are temperature, sediment, instream cover, watershed disturbances and habitat degradation. Exotic species are noted as an intermediate limiting factor. Restoration needs and issues include temperature, exotic species, roads, grazing impacts, mining (FD-2), and vegetative structure. Focal terrestrial species that the CDC has documented in this drainage include the fisher in both designations and the flammulated owl and white-headed woodpecker in FD-4.
Projects: The NPT Watershed division initiated a watershed analysis and restoration project in 2000, some road decommissioning has been completed. Streams in the lower portion of the drainage are part of the South Fork TMDL submitted to EPA for approval in early 2003.
RME: The NPT releases presmolt spring chinook in the drainage and the NPNF and IDFG conduct bull trout redd surveys. The NPT Watershed project includes a RME component.
Discussion: The NPT project will be quantifying the drainage condition and prioritizing restoration needs in conjunction with the NPNF. Future restoration work can be coordinated through the NPT project.

North Fork Clearwater/Tributaries (Lower and Upper North Fork AUs)
PMU: FD-5 (4 HUCs), FD-6 (5 HUCs), FD-7 (4 HUCs), FD-8 (7 HUCs), MX-2 (1 HUC), MX-3 (3 HUCs). Land cover in all HUCs is forest. The westernmost 4 HUCs are in the Lower North Fork AU, all others are in the Upper North Fork AU. The westernmost portion of the drainage is of mixed ownership, dominated by Potlatch Corporation; the remaining includes all of the FD designations. MX- 2,3 are distinguished by the combination of mixed ownership and high road densities. Limiting factors in the mixed ownership pattern (western 17% of drainage) include temperature, sediment, watershed disturbances, habitat degradation, and exotics (two of the four HUCs are brook trout strongholds). Restoration needs include temperature, instream habitat, exotic species, sediment, roads, vegetative structure, and ponderosa pine inventory/protection/restoration. Focal terrestrial species documented by the CDC existing in the MX-3 HUCS include Clearwater phlox, fisher, wolverine, and the Coeur d'Alene salamander. A band of FD-5, 6, 7 HUCs are bordered north and south by FD-8. FD-5 designations cover Lake Creek, Hidden Creek to Deception Gulch, and upper Long Creek; in these, induced disturbances are related primarily to roads though they also have a low potential for natural disturbance impacts. High restoration needs include roads and vegetative structure. FD-6 designations include Lost Pete Creek, Quartz Creek, and Larson Creek; FD-6 PMUs have high restoration needs including temperature, sedimentation, roads, ponderosa pine inventory/protection/restoration. FD-7 designations include Isabella Creek, Collins Creek, lower Long Creek, and Cold Springs Creek, which have 74-90 percent land area designated as inventoried roadless, although noted high restoration needs include landslide prone roads. The remaining HUC designations are FD-8 that includes at least 90 percent of the lands designated as inventoried roadless. Exotic species is the priority restoration need identified. The drainage includes fourteen HUCs identified as strongholds for westslope cutthroat trout. Bull trout are widely distributed and listed as population depressed or present status unknown. Terrestrial animal species documented to exist in these FD PMUs by the CDC include fisher, wolverine, flammulated owl, northern goshawk, Coeur d'Alene salamander, and white-headed woodpecker.
Projects: A portion of this drainage is being surveyed under the USACE terrestrial species inventory.
RME: The CNF has bull trout radio tagging and tracking stations in Bostonian Creek, Niagra Gulch, Placer Creek, Vanderbilt Creek, Long Creek, Quartz Creek; other fish species survey work is conducted in Fish Creek, Isabella Creek, Quartz Creek, and Beaver Creek; and two water quality automatic sampling stations in Quartz Creek and Cold Springs Creek. There is one USGS hydrology station located in Lost Pete Creek.
Discussion: Many small watersheds in this drainage. Condition of watersheds should be quantified and stratified to develop a restoration strategy, address data gaps.

O'Hara Creek (Lower Selway AU)
PMU: FD-4,5,6,7. This drainage is composed of four HUCs, each with a different PMU designation. The lower drainage is FD-6 which is noted for a combination of mixed ownerships, high road densities, high inherent landslide hazard ratings, and variable but often times coincidentally high surface erosion hazard. The middle drainage is FD-5,7 a combination of low potential for natural disturbance impacts (FD-5) or 74-90 percent of

area being designated roadless (FD-7). The upper drainage is FD-4, very similar to FD-5 except that grazing impacts are noted. All focal fish species are distributed in the drainage though populations are depressed. The two uppermost HUCs are brook trout strongholds.
Projects and RME: There are none listed in the Clearwater inventory.
Discussion: This is a relatively small drainage with numerous data gaps. Overall drainage condition should be quantified, a strategy for restoration should be developed and data gaps addressed.

Orofino Creek (Lower Clearwater AU)
PMU: MX-1 (1 HUC), MX-3 (9 HUCs), MX-4 (2 HUCs). The predominant HUC is MX-3 with dominant or subdominant ownership by Potlatch Corporation and noted to have high to very high road densities on lands with both surface erosion and inherent landslide hazards that are rated very low to low. MX-1, 4 comprising the lower reaches of Orofino Creek and Whiskey Creek (primary tributary) where Potlatch Corporation has limited land ownership and road densities are generally high. Steelhead are known present population depressed in the lower reach of Orofino Creek below the natural passage barrier; steelhead are presumed present status unknown in Whiskey Creek. Westslope cutthroat trout are present but status is unknown and brook trout are present distribution unknown in the mainstem of Orofino Creek. Westslope cutthroat are presumed to be absent from Whiskey Creek. Limiting factors include temperature, flow, sediment, and watershed disturbances. Restoration needs in Orofino Creek are listed as high medium-high for temperature, high to medium for ponderosa pine protection/restoration inventory. CDC documents Jessica's aster and fisher in MX-4 and Clearwater phlox, fisher, wolverine, and Coeur d'Alene salamander are documented to exist in MX-3.
Projects: County sponsored flood mitigation/stream restoration project in the lower 4.5 miles of Orofino Creek mainstem to restore habitat and provide flood mitigation. This project is guided by a 30 member, local stakeholder group and managed by CEDA.
RME: None are listed in the Clearwater inventory.
Discussion: Restoration needs should be prioritized in this drainage. Most of the drainage is not accessible to salmon or steelhead; the entire drainage is outside bull trout range. Develop restoration strategy and address data gaps.

Orogrande (Upper North Fork AU)
PMU: MX-4 (1 HUC), FD-5 (1 HUC), FD-6 (1 HUC). All categories are forested lands. The upper drainage is a stronghold for westslope cutthroat; brook trout are distributed throughout the lower drainage. The CDC documents existing focal species in FD-5 as fisher, flammulated owl, and white-headed woodpecker; in MX-4 Jessica's aster and the fisher are documented. Limiting factors rated as moderately substantial include sediment, watershed disturbance, habitat degradation, and exotic species. Restoration needs include temperatures, sedimentation, roads, and vegetative structure.
Projects: None are listed.
RME: IDFG has three population monitoring stations in the drainage.
Discussion: Restoration needs should be prioritized focusing on westslope cutthroat trout limiting factors and brook trout distribution. Drainage is a tributary to the North

Fork in the only area in the North Fork noted as a bull trout migration corridor. Cutthroat habitat restoration may address nonpoint pollution contributions to migration corridor.

Potlatch River (Lower Clearwater AU)

PMU: PR-3 (13 HUCs), PR-6 (6 HUCs), PR-7 (4 HUCs), PR-8 (4 HUCs). The Potlatch River is the largest tributary to the lower Clearwater River. The Big Bear Creek drainage is entirely within the Potlatch River drainage and was discussed earlier in this section. The Potlatch will be discussed including Big Bear Creek. The upper Potlatch system is comprised of all the PR-3 HUCs which contain the largest contiguous area of forested land cover in the Lower Clearwater AU. Ownership is highly mixed and includes substantial percentages of federal, state, corporate, and other private holdings. Restoration priorities include temperature, sediment, roads, and grazing. The middle reaches of the Potlatch system are dominated by PR-7, 8 designations which have mixed agriculture and forest land cover. Surface erosion hazards are considered very high throughout and road densities are typically moderate. Restoration priorities include temperatures, surface erosion, and ponderosa pine inventory/protection/restoration needs. The lower Potlatch River system is dominated by PR-6 designation including the lower mainstem Potlatch River. These HUCs have substantial amounts of agricultural/range land cover coupled with very high surface erosion hazard, moderate to high landslide hazard, and moderate to high road densities. Restoration priorities include temperature, sediment, ponderosa pine and prairie inventory/protection/restoration needs. Limiting factors to fish throughout the entire Potlatch River system are temperature, base flow, sediment, watershed disturbances, and habitat degradation. A-run steelhead are widely distributed throughout the Potlatch. Westslope cutthroat are absent except for the upper most reaches of the East Fork Potlatch River, elsewhere presumed absent. Brook trout are widely distributed in the upper mainstem Potlatch River (West Fork and East Fork), with the upper West Fork noted as a stronghold.

Projects: The LSWCD began the Potlatch Project in 2002 with initial funding though BPA. The project will coordinate restoration and RME projects throughout the entire Potlatch using technical advisory assistance from a multi-agency team. Fish and habitat survey work was initiated in 2002, planning and watershed prioritizing is occurring concurrently. An ongoing monitoring and evaluation component is to become part of the plan. The Idaho agricultural program was implemented and completed in the Little Potlatch Creek in the 1990s.

RME: The SCC has been monitoring temperature and flow since 2000 in eight subwatersheds identified as steelhead streams by IDFG (1999). IDEQ collected pre-TMDL development water quality data. The TMDL is scheduled for completion in 2005. The CNF maintains a gaging station at Boulder Creek. The LSWCD has an RME component.

Discussion: The Potlatch project through the LSWCD has started coordination with the developing TMDL process and has a functioning multi-agency technical advisory committee; continue restoration, RME, and strategic planning.

Red River (South Fork AU)

PMU: FD-2 (2 HUCs), FD-3 (3 HUCs), FD-5 (2 HUCs). All of the PMU types in this drainage are forest covered. The two lowermost HUCs in this drainage are FD-2, which

are highly impacted by activities such as mining, grazing, and roads. The FD-3 designations are also noted for mining impacts. FD-5 designated disturbance impacts are connected to roads. Restoration needs are related to roads, mining, and vegetative structure; instream habitat and exotic species are listed as moderate issues. All focal fish species are distributed throughout the drainage with populations noted as present depressed. Limiting factors are temperature, sediment, instream cover, watershed disturbances, and habitat degradation.
Projects: Dawson Creek is part of a TMDL submitted to EPA for approval in 2003; NPNF has a stream gaging station in the mid-mainstem; the IDFG operates a chinook weir and acclimation pond near Siegel and Moose Butte Creeks and a supplementation stream; the ISWCD has sponsored the Red River Wildlife Management Area (RRWMA) project since 1993 to reconstruct Red River through a meadow system, and includes an extensive RME component, project funded by BPA; The NPT Watershed Division initiated a drainage wide ecosystem evaluation and project needs priority project in 2002, funded by BPA in conjunction with the NPNF.
RME: Both BPA projects have extensive RME components.
Discussion: Continue assessment, planning and implementation through existing infrastructure, address data gaps.

Reeds Creek (Lower North Fork AU)
PMU: MX-2 (2 HUCs). PMU noted for high road density, high landslide hazard rating, and often times high surface erosion hazards; corporate ownership is >25 percent, land cover is forest. Westslope cutthroat and brook trout are both present distribution uncertain. Sediment is the greatest limiting factor noted in the assessment. Priority restoration needs are temperature, sediment, landslide prone roads, and ponderosa pine inventory work.
Projects: Part of the Lower North Fork TMDL implementation plan will be conducted in this drainage.
RME: There are no projects listed.
Discussion: Survey relative management entities to determine drainage resource needs and priorities.

Running Creek (Upper Selway AU)
PMU: FD-8 (1 HUC), FD-9 (2 HUCs). The FD-8 designations are 90 percent protected and FD-9 are designated wilderness. B-run steelhead trout in this drainage are not influenced by hatchery production, populations are depressed. Spring chinook are commonly influenced by hatchery practices, populations are depressed and unknown in the lower drainage and absent in the upper. Westslope cutthroat trout are present, populations are strong. Bull trout are present but population status is unknown. Brook trout status is strong in the upper drainage, unknown or suspected absent elsewhere. Wildlife focal species documented by the CDC to occur in the FD-9 PMU are the fisher, wolverine and Coeur d'Alene salamander.
Projects: There are none listed.
RME: Fish habitat and channel condition annual monitoring (or at least 3 years in 10) by the NPNF.
Discussion: Continue protection, address brook trout.

South Fork Clearwater/Face Drainages (South Fork and Lower Clearwater AUs)
PMU: PR-2 (2 HUCs), PR-5 (3 HUCs), FD-1 (6 HUCs), FD-4 (6 HUCs), FD-5 (2 HUCs). The lower portion of this drainage group is composed of the PR HUCs. PR-2 – is the mainstem South Fork Clearwater River. Cover type is primarily forested though agriculture and range make up at least 25 percent. Fall chinook use these PMUs for spawning and rearing, though to a lesser extent. Juvenile A-run steelhead may rear in these PMUs when forced to migrate from natal streams during low flow and temperatures. All other aquatic focal species use the PMU primarily for overwintering and migrations purposes. Limiting factors include temperature, flow, sediment, watershed disturbances, and habitat degradation. Focal species documented by the CDC include fisher, Jessica's aster and lomatium. PR-5 exhibits extremely flashy flows with early occurrence of peak flows that occur in March. The PMU is dominated by agricultural land cover. The CDC has documented focal species Palouse goldenweed and spacious monkeyflower in PR-5. High priority issues to be addressed include hydrology, and surface erosion. Both PMUs may contain high quality ponderosa pine habitats, prairie grassland remnants, and wetland habitats in need of inventory, protection, and/or restoration. FD-1, 4, 5 are impacted by multiple land use activities including grazing, road density, and in FD-1 mining. Chinook are distributed throughout the drainage but absent in several small streams in the mid-reaches. Steelhead are present but depressed; westslope cutthroat population status varies and includes two stronghold HUCs; bull trout are present in three non-contiguous HUCs, brook trout populations are generally present distribution uncertain to unknown, although Silver Creek is noted as a stronghold. Limiting factors include temperature, sediment, instream cover, watershed disturbances, and habitat degradation. Restoration needs are listed as roads, grazing, mining, vegetative structure, ponderosa survey, protection, and restoration.
Projects: The McComas Meadows and Mill Creek watershed projects sponsored by the NPT are both within this drainage. There are a number of stream segments that were part of the TMDL developed for the South Fork that is presently awaiting approval. An implementation plan to address pollutants should follow.
RME: IDFG and NPNF conduct chinook, steelhead, and bull trout redd surveys in Mill Creek. Both the Mill Creek and McComas Meadow projects are part of the NPT Watershed RME program.
Discussion: There is a wide variety of issues within this drainage group and restoration strategies might be best addressed by working at a smaller scale. Continue watershed programs and use existing partnership between the NPT and NPNF for coordination of restoration efforts.

Selway River and Face Drainages (Upper and Lower Selway AU)
PMU: FD-9 (27 HUCs), FD-8 (3 HUCs), FD-7 (3 HUCs), FD-6 (6 HUCs). All HUCs are forest lands. There are 16 HUCs in the Upper Selway AU and 11 HUCs in the Lower Selway AU of this drainage that are designated FD-9, three HUCs in the Lower Selway AU are FD-8. FD-8 and 9 are similar in that they are characterized by being at least 90 percent protected as inventoried roadless (FD-8) and wilderness (FD-9). The lower drainage is comprised of the FD-6, and 7 designations. FD-6 HUCs characteristically have high road densities, high inherent landslide hazard ratings, and variable but often

times coincidentally high surface erosion hazards. FD-7 HUCs are classified as being between 74-90 percent designated as inventoried roadless area. B-run steelhead trout in this PMU are not influenced by hatchery production except in the very lowest watersheds and mainstem and population status is depressed. Spring chinook are commonly influenced by hatchery practices and while populations are widely distributed they are absent from 7 HUCs. Steep channel gradients and passage impediments have been documented as constraints to spring chinook and probably account for their absence from most of these areas. Bull trout populations are widespread but absent or unknown in 9 HUCs. Westslope cutthroat populations are present throughout the upper drainage and are considered strong in most areas. The lower portions of this drainage are mostly used as a migration corridor and in some watersheds populations are depressed. Brook trout status is unknown in the upper portion of the drainage and in the lower depressed or suspected absent (mainstem). One stronghold population of brook trout exists in the headwaters of Saddle Creek (Lower Selway AU). Focal species documented by the CDC in FD-9 include fisher, wolverine, and Coeur d'Alene salamander. Wildlife focal species documented by the CDC in FD-7 also include northern goshawk. Exotic species and vegetative structure are restoration issues in the drainage and roads are listed for FD-6 HUCs.

Projects: A water diversion in Goat Creek is listed as a migration impediment. Goat Creek is in the very uppermost headwaters of the Upper Selway AU. Fall chinook are released by the NPT in the mainstem Selway River above Gedney Creek.

RME: There are none listed.

Discussion: This is a large drainage area of many small watersheds. The FD-9 and 8 HUCs are significantly protected. Watersheds in the lower drainage might present opportunity for restoration, but an evaluation needs to be conducted to establish a strategy for these actions.

Tenmile Creek (South Fork AU)

PMU: FD-9 (2 HUCs), FD-3 (2 HUCs). The FD-9 designations are in the upper reaches of the watershed and are at least 90 percent protected (wilderness). FD-3 HUCs are differentiated from others in federally dominated ownership based on the relative influence of mining activity as a potential disturbance regime in Crooked River and Tenmile Creek. Spring chinook and B-run steelhead trout (not affected by hatchery practices) utilize all the HUCs in the drainage for spawning and early rearing, all populations are depressed or distribution is uncertain. Westslope cutthroat trout populations are strong in two of the HUCs and depressed in the other two. Bull trout populations are strong in the upper reaches of Tenmile Creek, depressed in the lowest and unknown in the eastern two. Brook trout are suspected absent in upper Tenmile Creek and depressed in the lowest reaches. Focal species documented by the CDC in FD-9 include fisher, wolverine, and Coeur d'Alene salamander, in the FD-3 HUCs documented focal species include fisher, wolverine, flammulated owl, and black-backed woodpecker. High priority restoration issues in this drainage include exotic species and in FD-2 instream habitat, riparian/wetland, vegetative structure. Rated moderate restoration issues are temperatures, roads, and mining impacts. Limiting factors to fish species are temperature, sediment, instream cover, watershed disturbances, and habitat degradation.

Projects and RME: There are none listed in the inventory.

Discussion: This is a relatively small drainage and many of the restoration issues are similar to those in the nearby Crooked River. A restoration strategy needs to be developed.

Warm Springs Creek (Lochsa AU)
PMU: This drainage is comprised of three FD-9 HUCs which are at least 90 percent protected as wilderness. Spring chinook and B-run steelhead populations are depressed in the lowest HUC of the drainage and absent in the upper two (barrier?). Steelhead are not influenced by hatchery practices. Bull trout are depressed in one HUC, distribution unknown in another, and absent in the third. Westslope cutthroat trout populations are strong throughout the drainage. Brook trout presence is unknown. Focal species documented by the CDC in FD-9 include fisher, wolverine, and Coeur d'Alene salamander.
Projects: None are listed.
RME: The CNF monitors spawning gravels and both CNF and IDFG have fish population monitoring stations.
Discussion: Continue protection.

Weitas Creek (Upper North Fork AU)
PMU: FD-8 (4 HUCs), FD-7 (6 HUCs). The drainage is forest covered. Migration of salmon and steelhead is blocked from this area by Dworshak Dam. FD-8 HUCs are 90 percent inventoried roadless and FD-7 are between 74 and 90 percent so designated. Westslope cutthroat trout populations are strong in all but two HUCs where they are depressed. Bull trout population status ranges from unknown to depressed and brook trout are suspected absent or unknown. Focal species documented by the CDC in FD-8 include spacious monkeyflower, fisher, wolverine, and Coeur d'Alene salamander. Focal species in FD-7 include fisher, wolverine, northern goshawk, and Coeur d'Alene salamander. Limiting factors rated moderate for westslope cutthroat and bull trout are temperature, sediment, and watershed disturbances.
Projects: None are listed.
RME: The CNF and/or IDFG have fish population and habitat monitoring stations throughout the drainage including those in the following: Yocum Creek, Jam Creek, Liz Creek, Windy Creek, and Johnny Creek.
Discussion: Prioritize and implement actions in this drainage based on gathered information.

White Cap Creek (Upper Selway AU)
PMU: This drainage is comprised of three FD-9 HUCs which are at least 90 percent protected as wilderness. Spring chinook population status is depressed, status unknown, and absent. Steelhead trout populations, not influenced by hatchery practices, are depressed in two HUCs and status unknown in the third. Bull trout population status is depressed in two HUCs and strong in the third. Westslope cutthroat trout populations are strong throughout. The status of brook trout is unknown in the drainage. Projects: None are listed.
RME: This is a supplementation stream (control) for IDFG.
Discussion: Continue protection.

White Sand Creek (Upper Lochsa AU)
PMU: MX-6 (2 HUCs), FD-8 (4 HUCs), FD-9 (6 HUCs). The entire drainage is forested. MX-6 HUCs are distinguished by mixed ownership at least 25 percent of which is Plum Creek Timber. FD-8 and 9 are at least 90 percent protected through inventoried roadless or wilderness (respectively). Spring chinook, B-run steelhead, and bull trout populations are absent in 5 HUCs (barrier?), chinook are also absent in the 2 MX-6 HUCs, and depressed in the others. Westslope cutthroat populations are strong in the entire drainage. Brook trout populations are generally strong in the HUCs that chinook, steelhead, and bull trout are absent. Limiting factors to fish species in this drainage are moderate to less substantial and include, temperature, sediment, instream cover, watershed disturbances, and habitat degradation. High priority restoration issues in MX-6 HUCs include sediment, roads, ponderosa pine, and vegetative structure; instream habitat and temperature are moderate issues. Priority issues in FD-8, 9 are exotic species and to a lesser extent vegetative structure.
Projects: The NPT initiated a watershed protection and restoration program in 2002.
RME: The IDFG has two supplementation streams (treatment parr) one in White Cap Creek and one in Big Flat Creek. The CNF has fish population and spawning gravel monitoring in Walton Creek. The NPT project includes an RME element.
Discussion: Coordination/implementation could best be coordinated through the NPT program and existing partnership with the CNF. The NPT project area is the Crooked/Brushy Fork and White Cap Creek drainages. Address brook trout issue and data gaps.

6.2 Conclusions

The inventory does not include artificial production activities in the Clearwater because Artificial Production Review and Evaluations (APRE) and Hatchery Genetic Management Plans (HGMP) were in draft form and being edited when the Clearwater Subbasin Plan was being completed. To address these and other related issues Component Problem 3 Objective C Strategy 1 calls for the organization of a subbasin hatchery production committee of fisheries managers to enhance communication and coordination.

Conclusions are presented by the following themes: protection, enhancement and restoration, research/monitoring/evaluation, and data gaps.

Protection

Lands within PMUs FD-8 and FD-9 are almost entirely protected, having at least 90 percent of their land area designated as inventoried roadless area (FD-8) or wilderness area (FD-9). In total these PMUs comprise approximately 47 percent of the entire subbasin. Areas within the FD-9 classification include the entire Upper Selway AU, the northeast corner of the Lower Selway AU (one third of the AU), the upper reaches of Johns Creek and Tenmile Creek (South Fork AU), and nearly one third of the Lochsa AU. Areas within the FD-8 classification edge the boundaries of the FD-9 lands of the Upper Selway AU, Lower Selway AU, the Lochsa AU, and headwaters in streams of the Upper North Fork AU. Lands within PMU FD-7 have between 74 and 90 percent of the

land area designated as inventoried roadless. Areas within the FD-7 classification in general edge the boundaries of the FD-8 lands. Protection management should be pursued in these PMUs. An attempt to stratify restoration needs in some manner within the FD-8 and FD-9 PMUs would provide a way to approach the enhancement phase to these areas. An existing watershed project area (NPT Crooked Fork Creek to Colt Killed) includes the upper reaches, which are all FD-9 PMUs, of White Sand Creek. So for that drainage this process is already underway. FD-7 classifications, while under some protection, have restoration needs identified to a greater degree than the other two protection PMUs.

There are a number of HUCs in these protected PMU classifications that are subjected to special circumstances which might influence future planning and management decision-making. These areas may face potential impacts from land use activities. Typical potential impacts include mining, roads or grazing within protected areas. See section 9.4 of the Subbasin Assessment for a more complete discussion on this topic.

Enhancement and Restoration

Ecosystem – watershed based restoration projects exist throughout the Clearwater subbasin and are generally sponsored by a soil conservation district or the NPT Watershed Division. Each project uses a multi-agency interdisciplinary team and private landowners where appropriate to guide implementation. All of these projects were developed using existing plans, reports, or agency prioritizations, and have restoration strategies. All projects address Environmental Objectives O, P, Q, S, U, EE, JJ, and LL; some strategies in Objectives Z, AA, BB, DD, FF. All watershed projects include a monitoring and evaluation component for aquatic populations and environmental conditions. The NPT Watershed Division project areas are coordinated with NPT Fisheries Production Division priority areas. All of the following projects should continue.

- Lower Clearwater AU: Big Canyon Creek, Little Canyon Creek, Lapwai Creek, Lolo Creek, Potlatch River
- Lochsa: Fishing to Legendary Bear Creeks, Crooked Fork Creek to Colt Killed, North Lochsa Face watersheds
- South Fork AU: Red River, McComas Meadows (Meadow Creek), Newsome Creek, Mill Creek

Watershed scale restoration projects are absent in other drainages of the subbasin, although there may be some restoration ongoing through existing programs and funding sources.

- Lower Clearwater AU: Orofino Creek, Jim Ford Creek, Lawyer Creek, Cottonwood Creek (Idaho County), face drainages
- Lower and Upper North Fork AUs: All drainages
- Lolo/Middle Fork AU: Middle Fork
- Lochsa AU: Boulder Creek, Warm Springs Creek, several mid-Lochsa face drainages

- South Fork AU: Johns Creek, Tenmile Creek, American River, face drainages (except McComas Meadows and Mill Creek)
- Upper and Lower Selway AU: All drainages

Dworshak Dam prevents anadromous fish accessing drainages in the Upper and Lower North Fork AUs. Natural barriers have not been inventoried throughout the Clearwater, however known barriers exist in the lower reaches of Orofino Creek, Jim Ford Creek, and Cottonwood Creek (Idaho County). Steelhead populations are present depressed below each. All of the existing watershed projects will conduct passage barrier inventories.

Research, Monitoring, and Evaluation

Research and monitoring work in the Clearwater subbasin are managed by agencies' priorities, respective authorities, and responsibilities. It is not apparent from the inventory if monitoring methodologies for like-purpose surveys are standard or similar between agencies. Annually a temperature monitoring coordination meeting is held and other monitoring activities are described. The USFWS conducted a study from 1995-2003 to characterize and quantify residual steelhead to investigate affects on wild fish (A-run steelhead). Analysis indicated very little piscivory had occurred in residual steelhead and there was no evidence of hybridization. The NPR Watershed division initiated a monitoring and evaluation protocol in 2002 for all of the watershed projects they are implementing. All watershed projects implement or are associated with a monitoring and evaluation component. The USFWS, IDFG, and NPT are cooperators in the Idaho Supplementation Studies initiated to address critical uncertainties associated with hatchery supplementation of chinook salmon and steelhead populations in the Clearwater, for a more complete description of these studies and project locations see Chapter 7 of this volume. The existing monitoring and evaluation components associated with watershed projects should be evaluated relative to the subbasin plan and modified accordingly. Other existing or expanded RME activities should also be evaluated relative to the subbasin plan and modified accordingly.

Data Gaps

Data gaps are implementation actions or the absence of data not implemented or collected for whatever reason. They might also be absent from the inventory for any number of other reasons. For example, the scale of a project is too small and seems irrelevant to report, accidental omission, related to the survey technique used to compile the inventory, available funding, or management priorities. The Clearwater subbasin inventory should be undated annually and an effort should be made to compile all ongoing project type information and data when available. Population data for aquatic and terrestrial species varies widely throughout the subbasin as a function of agencies priorities and responsibilities, access to area (private land) for data collection, availability of data from private lands such as corporate forest lands, or funding. The paucity of data for terrestrial species is particularly noticeable. Common needs included riparian, wetland, and ponderosa inventory work. A-run steelhead data is nearly absent from the subbasin, however all of the watershed projects in the Lower Clearwater AU have fish and habitat survey components. Aquatic life history data and habitat condition gaps are highly variable and absent from many areas. Noxious weed data and implementation actions are also sparse in the Clearwater subbasin inventory.

7 Research Monitoring, and Evaluation Activities

7.1 BPA Funded M&E

Idaho County Soil and Water Conservation District

Implementation and effectiveness monitoring of the Lower Red River Meadow Restoration Project (BPA 199303501) has been ongoing since 1997. The program evaluates revegetation success, construction-related turbidity impacts, stream channel response, floodplain hydroperiod, ground and surface water elevations, riparian/greenline community composition, summer water temperatures, fish habitat area and diversity, spawning substrate quality, fish populations and densities, chinook redd counts, wildlife habitat values, and bird species numbers and diversity.

Idaho Department of Fish and Game

7.1.2.1 Idaho Natural Production Monitoring and Evaluation Program

The Idaho Natural Production Monitoring and Evaluation program (BPA number 199107300) is a long-term project designed to monitor trends in juvenile spring and summer chinook salmon and steelhead trout populations in the Salmon, Clearwater, and lower Snake River drainages (Hall-Griswold and Petrosky 1996). The monitoring approach consists of three integrated levels including parr density monitoring, parr standing stock evaluations, and estimation of survival rates between major freshwater life stages of chinook salmon and steelhead trout. Annual general monitoring of anadromous fish densities is being used to follow population trends and define seeding levels over a broad geographic area, but generally with a small number of sections per stream. Intensive studies estimate spawning escapements, standing stocks of parr and outmigrant yields for a limited number of streams. A comprehensive database has been developed that includes resident and anadromous fish species and amphibians observed while monitoring. It is the most requested data by other agencies and consultants. Data from the Idaho Supplementation Studies project and regional data is being added to provide a more complete picture of anadromous and resident fish population status in Idaho.

7.1.2.2 Idaho Natural Production Monitoring and Evaluation project

The Idaho Natural Production Monitoring and Evaluation project (Project No. 199107300) funded the Spring/Summer Chinook Salmon Population Viability Assessment initiated in 1999. Population viability analyses use biologically-based models combined with statistical time-series driven methodologies to quantify the extinction risks to a population. Risk of extinction was assessed for 14 core subpopulations of Snake River spring/summer chinook originating in the Selway River and the South Fork, Middle Fork, and mainstem Salmon River of Idaho. Model development and populations viability analyses are still ongoing. The models will be used to estimate population persistence for the specific stocks and to help prioritize potential population conservation intervention actions. The results developed to date are preliminary. Only point estimates of parameter values and point estimates of extinction probabilities have been developed. Confidence intervals, from which inferences on persistence can be made, will follow. In general, extinction-time distributions varied over the populations under study. Models predicted relatively high probabilities of

extinction for the populations in the Selway drainage (Bear Creek and mainstem Selway River), the Middle Fork Salmon River (Camas Creek, Loon Creek, Marsh Creek, and Sulphur Creek), and the mainstem Salmon River (Valley Creek and Yankee Fork Salmon River). A relatively high probability of persistence through the next 100 years was predicted for populations of the South Fork Salmon River (Johnson Creek, Secesh River, and mainstem South Fork Salmon River) and the Middle Fork Salmon River (Big Creek and Bear Valley Creek).

7.1.2.3 Idaho Supplementation Studies

In 1991, the Idaho Supplementation Studies (ISS, BPA project # 198909800) project was implemented to address critical uncertainties associated with hatchery supplementation of chinook salmon populations in Idaho. The project encompasses most anadromous production waters in the Clearwater Salmon River subbasins and was designed to address questions identified in the Supplementation Technical Work Group Five-Year Workplan (Supplementation Technical Work Group 1988). Cooperators include the Idaho Cooperative Fish and Wildlife Research Unit, Idaho Department of Fish and Game, Nez Perce Tribe, Shoshone-Bannock Tribes, and United States Fish and Wildlife Service. Two goals of the project were identified: 1) assess the use of hatchery chinook salmon to increase natural populations in the Salmon and Clearwater river drainages, and 2) evaluate the genetic and ecological impacts of hatchery chinook salmon on naturally reproducing chinook salmon populations. Four objectives to achieve these goals were developed: 1) monitor and evaluate the effects of supplementation on presmolt and smolt numbers and spawning escapements of naturally produced fish; 2) monitor and evaluate changes in natural productivity and genetic composition of target and adjacent populations following supplementation; 3) determine which supplementation strategies (brood stock and release stage) provide the quickest and highest response in natural production without adverse effects on productivity; and 4) develop supplementation recommendations. The complete study design is found in Bowles and Leitzinger (1991). Smolt trapping, parr and smolt PIT-tagging, snorkeling and intensive redd and carcass surveys are used to monitor population parameters in control and treatment streams. Resident fish abundance, distribution and movements are documented, adding to our knowledge of these species. Amphibians are noted as well. Small-scale studies addressing specific hypotheses of the mechanisms of supplementation effects (e.g., competition, dispersal, and behavior) have been completed (Peery and Bjornn 1993, 1994, 1996). Baseline genetic data have also been collected (Marshall 1992, 1994).

7.1.2.4 Steelhead Supplementation Studies

The Steelhead Supplementation Study (SSS, BPA project # 190005500) was initiated in 1992 to help determine the utility of supplementation as a potential recovery tool for steelhead, primarily in areas where the native stock was extirpated or reduced to very low abundance. This project has estimated smolt production from hatchery adult outplants, monitored wild steelhead escapement in Fish Creek, estimated smolt production in Fish Creek, and PIT-tagged juvenile steelhead to obtain migration characteristics, growth rates, and smolt-to-adult survival. Additionally, the project estimated age of adult and juvenile steelhead, monitored juvenile abundance in tributaries of the Selway and Lochsa rivers, and monitored stream temperature in 40 streams. Distribution and abundance of resident fish species are documented as well.

In 2000 the project collected fin samples from wild juvenile steelhead in 70 streams and from the five hatchery stocks raised in Idaho in 2000. These data will be used to determine the evolutionary significance and genetic population structure of Idaho's steelhead assemblage in relationship to the recent listing of steelhead under the Endangered Species Act, and to judge their genetic relationship with other coastal and interior steelhead trout and hatchery populations.

7.1.2.5 Dworshak Dam Impacts Monitoring and Evaluation

Dworshak Dam Impact Assessment and Fishery Investigation Project (BPA project number 8709900) examines the effects of the operation of Dworshak Dam on resident fishes in Dworshak Reservoir. Past research concentrated on assessing reservoir limnology, conducting creel surveys, monitoring the kokanee population through annual mid-water trawling and/or hydroacoustic surveys, conducting annual kokanee spawning escapement estimates, and monitoring entrainment.

Current research is focused on improving kokanee densities in the reservoir by reducing entrainment. Reducing entrainment losses of kokanee may also benefit other species by: lessening entrainment of other sportfish, providing more prey (small kokanee) for bull trout, and allow nutrients (in the form of kokanee spawners) to move upstream into the tributaries.

7.1.2.6 Evaluation of Pacific Lamprey in the Clearwater River Drainage, Idaho

An evaluation of Pacific lamprey life history, distribution and status in the Clearwater drainage was initiated in 2000 under BPA project # 2000-028-00. Objectives of the project are to 1) Determine life history characteristics of Pacific lamprey ammocoetes and macrothalmia in the Clearwater River drainage, 2) Determine habitat requirements of Pacific lamprey in the Clearwater drainage and 3) Determine distribution of Pacific lamprey in the South Fork Clearwater River drainage. The project started in the South Fork Clearwater River drainage because lamprey ammocoetes have been incidentally caught in the Idaho Supplementation Studies smolt trap in Red River since 1993. Randomly selected transects in 1 km sections were electrofished using shockers designed specifically for sampling ammocoetes. Transects were located in Red River. Spot sampling also occurred in the mainstem South Fork, American River and Newsome Creek. Ammocoetes were located in sand/fine gravel substrate located behind large boulders in Red River and the South Fork mainstem. Elastomer tags were used to mark ammocoetes for identification if recaptured. Prior to this project, ammocoetes were sent to the USGS lab at Cook, WA for positive identification, transformation, aging and subsequent genetic sampling as part of a Columbia Basin lamprey project. Ammocoetes were also provided for genetic analysis to researchers at the CRITFC. Future sampling will increase the number of sites both within drainages already sampled and in new tributaries within the South Fork Clearwater drainage.

7.1.2.7 Production impacts of Various Hatchery Stocks and Evaluate Selway Steelhead as Alternate Broodstock for South Fork Clearwater River

This combined study was initiated in 1993 by the Idaho Department of Fish and Game and the National Biological Survey (NBS). The NBS portion was funded by BPA Project

9005200. The purposes of the study were twofold. First, the study was designed to compare growth, survival and reproductive success of fish from established hatchery stocks and from wild stocks, both reared in natural streams and in hatcheries. Dworshak (North Fork Clearwater) B-run and wild Selway B-run fish were collected in Brood Years 1993, 1994 and 1995, and their progeny raised and released as unfed fry, one and two year old smolts into Crooked River (South Fork AU). The smolts were differentially marked, a portion PIT-tagged, and all monitored through juvenile migration and adult return. Returning adults were identified to broodstock when possible, radiotagged and spawning activity documented. The study is ongoing with the last of the adults expected to return in 2002. A final report will then be written. The second purpose was to evaluate whether Selway fish would be a more suitable broodstock for the South Fork Clearwater River. Since the removal of Harpster Dam in the 1970's, restoration of steelhead trout in the South Fork Clearwater River has been slow, even with extensive outplants of Dworshak broodstock steelhead, both juveniles and adults. Selway River steelhead were chosen for the donor stock because of the similarities to the South Fork Clearwater River drainage and the presence of the Selway fish tunnel which facilitated capture. Progeny of naturally spawning research and wild/natural fish returning to Crooked River are being sampled for genetics, marked with a PIT-tag, and their downstream migration and return as adults followed. Genetic samples are currently backlogged without funding to analyze.

7.1.2.8 Red River Wildlife Management Area

The 314 acre Little Ponderosa Ranch near Red River, Idaho, was purchased in September 1993 and renamed the Red River Wildlife Management Area (RRWMA). Funds to purchase the area came from BPA mitigation funds (Project 9303500), the Rocky Mountain Elk Foundation and Trout Unlimited, sponsored by the Bureau of Land Management (BLM) for a "Bring Back the Natives" grant through the National Fish and Wildlife Foundation. The management goals for the area are 1) Manage the area to maintain and/or enhance quality wildlife, fisheries, scenic values, and overall biodiversity through ecosystem-based management, 2) Provide a setting for natural resource-oriented educational, research and study opportunities through cooperative efforts with federal, state, and private groups or individuals, 3) Provide a meeting facility for natural resource-oriented agencies and organizations, and the local community, and 4) Promote continued use of the RRWMA for recreational purposes consistent with wildlife, fisheries, and educational goals. The Red River Wildlife Management Area Plan (IDFG 1999a) outlines specific objectives and strategies for the RRWMA. A plan was also developed in 1996 to outline opportunities for potential educational programs at the RRWMA.

The RRWMA was the site of phases 1-4 of the Red River Restoration Project (BPA Project 199303501). Monitoring and evaluation activities for that project are ongoing. Grants obtained through BLM have enabled the construction of a watchable wildlife platform, interpretive signs, nature trail, and other educational endeavors. The RRWMA is one of four sites used by the National Science Foundation (NSF) and University of Idaho (UI) for a stream restoration summer course. Participants are at risk\low income students (two from local communities, two from California) that show academic promise and community involvement. A combined grant from BPA, NSF and Communities Creating Connections funded two remote cameras, one from the ranch house and one in

Red River. The cameras are linked to a computer in the ranch house, and live images can be viewed from the Internet. Local schools and the UI also regularly use the RRWMA as an outdoor classroom. To date all operating costs associated with other wildlife surveys and habitat improvements, as well as facilities upkeep, has come from facility user fees and grants. Since these monies are limited, there is a need for funding to develop and maintain the facilities, conduct monitoring surveys and fully realize the educational plan.

Lewis Soil Conservation District

BPA Project No. 199901400. BMP effectiveness monitoring on practices that have been installed on upland agricultural lands. Visual and photo point inspection. Water quality monitoring in coordination with Idaho Association of Soil Conservation Districts and the Nez Perce Tribe which are nonBPA funded projects.

National Oceanic and Atmospheric Association Fisheries

NOAA Fisheries has directed a genetic monitoring and evaluation project since 1989 (BPA project number 8909600). The program examines the effects of genetic mixing of hatchery and wild salmon and steelhead at the Dworshak hatchery in quantifiable terms through genetic analysis of released and returning fish populations.

Nez Perce Soil and Water Conservation District

BPA Project No. 199901500. BMP effectiveness monitoring on practices that have been installed on upland agricultural lands. Visual and photo point inspections. Water quality monitoring in coordination with Idaho Association of Soil Conservation Districts and the Nez Perce Tribe's Water Resources Department, which are non BPA funded projects.

Nez Perce Tribe

7.1.2.9 NPT Ongoing Fisheries Research Projects

- Nez Perce Tribal Hatchery M&E Monitoring and Evaluation (8335003)
- Idaho Salmon Supplementation Studies (8909802)
- Evaluate Potential Means of Rebuilding Sturgeon Populations in the Snake River Between Lower Granite and Hells Canyon Dams (9700900)
- Listed Stock Gamete Preservation Project (9703800)
- Assessing Summer and Fall Chinook Salmon Restoration (9403400)
- Fall Chinook Yearling Monitoring and Evaluation (9801004)

7.1.2.10 New Fisheries Research Projects

- Adult Steelhead Abundance Monitoring and Quantification of Smolt-to-Adult Survival through Use of PIT Tag Technology in Big Canyon Creek.

7.1.2.11 Monitoring and Evaluation - Fish

Monitoring and evaluation programs evaluate the performance and status of Hatchery M&E, natural fish (abundance and distribution), genetic structure, life history diversity, ecological interactions, habitat capacity, effectiveness of management actions (reintroduction/supplementation), and sustainability of harvest. These are currently being addressed through five major research projects: Idaho's Salmon Supplementation Studies, Nez Perce Tribal Hatchery M&E, Steelhead Supplementation Studies in Idaho

Rivers, Fall Chinook Salmon Reintroduction Feasibility Study, and Hatchery M&E programs.

Approaches to monitoring population status and the benefits and impacts from supplementation actions for spring and fall chinook salmon have been developed by Bowles and Leigtzinger 1991, Steward 1996, and Hesse and Cramer 2000, and Byrne 1992.

Treatment and control streams have been established as part of ongoing programs conducted by the Nez Perce Tribe, Idaho Department of Fish and Game and U.S. Fish and Wildlife Service for spring chinook, fall chinook and B-run steelhead. Treatment and control streams within the Clearwater subbasin and the responsible cooperator are

Nez Perce Tribal Hatchery
- Lolo Creek, M&E treatment, NPT: ongoing
- Meadow Creek (Selway), M&E treatment, NPT: ongoing
- Yoosa Creek, M&E treatment, NPT: ongoing
- Eldorado Creek, M&E control, NPT: ongoing
- Newsome Creek, M&E treatment, NPT: ongoing
- Clearwater River, M&E treatment for fall chinook salmon, NPT: ongoing
- Selway River, M&E treatment for early fall chinook salmon, NPT: proposed
- Lower Lochsa River, M&E control for early fall chinook salmon, NPT: proposed
- South Fork Clearwater River, M&E treatment for early fall chinook salmon, NPT: proposed

Idaho Supplementation Studies
- Crooked River, M&E treatment, IDFG: ongoing
- American River, M&E control, IDFG: ongoing
- Red River, M&E treatment, IDFG: ongoing
- Clear Creek, M&E treatment, USFWS: ongoing
- White Cap Creek, M&E control, IDFG: ongoing
- Pete King Creek, M&E treatment, USFWS: ongoing
- Fishing (Squaw) Creek, M&E treatment, NPT: ongoing
- Bear (Papoose) Creek, M&E treatment, NPT: ongoing
- Colt Killed Creek, M&E treatment, IDFG: ongoing
- Big Flat Creek, M&E treatment, IDFG: ongoing
- Crooked Fork Creek, M&E control, IDFG: ongoing
- Brushy Fork Creek, M&E control, IDFG: ongoing

Steelhead Supplementation Studies
- Fish Creek, M&E, control, IDFG: ongoing
- Clear Creek, M&E, control, IDFG/USFWS: ongoing
- Red River, M&E, treatment, IDFG: ongoing
- Gedney Creek, M&E, control, IDFG: ongoing

Hatchery Monitoring and Evaluation

- Crooked River, M&E, treatment, IDFG: ongoing
- Red River, M&E, treatment, IDFG: ongoing
- Walton Creek, M&E, treatment, IDFG: ongoing

The Nez Perce Fisheries/Watershed Program has an existing M&E strategy for ongoing projects, and is finalizing development of a more comprehensive watershed-scale M&E plan. The plan currently being developed will be incorporated into each watershed where restoration projects are ongoing or proposed, and will establish baseline and trend data related to ecosystem function in these areas.

In addition, each on-the-ground project has an M&E plan that determines if the project is successful in meeting its objective(s), how it contributed to the overall health of the ecosystem, and is used as a feedback loop into future project development. On-the-ground project M&E has been developed for the following ongoing BPA projects:

- Protect and Restore Bear to Fishing Creek Watersheds (199607709)
- Protect and Restore Big Canyon Creek Watershed (199901600)
- Protect and Restore Lapwai Creek (199901700)
- Protect and Restore Lolo Creek Watershed (199607702)
- Protect and Restore Mill Creek Watershed (200003600)
- Protect and Restore North Lochsa Face Analysis Area Watersheds (200003400)
- Restore McComas Meadows/Meadow Creek Watershed (199607705)
- Rehabilitate Newsome Creek Watershed (00004494)

7.2 NonBPA Funded M&E

Clearwater National Forest

The Clearwater National Forest develops annual monitoring and evaluation plans (Murphy et al. 2000). The primary goal of monitoring is to determine if land management activities are meeting Forest Plan standards and objectives (Murphy et al. 2000).

The CNF divides monitoring strategy into two major areas, including on-site and instream monitoring. On-site monitoring includes baseline, implementation, BMP effectiveness and PACFISH and INFISH compliance. Instream monitoring addresses the relationship between land disturbance activities and water quality and fisheries habitat. It includes baseline, effectiveness, and validation monitoring (Murphy et al. 2000).

Clearwater Soil and Water Conservation District

Water quality monitoring in Water Quality Program for agriculture projects, Lolo Creek and Jim Ford Creek watersheds.

Idaho Association of Soil Conservation Districts

Water quality monitoring throughout subbasin on agricultural lands located in watersheds with streams on the 1998 Section 303(d) TMDL list, in cooperation with conservation

districts. Streams include Big Canyon, Cottonwood (Idaho County), Lindsay, Little Canyon, and upper Lapwai creeks.

Idaho Department of Fish and Game

The IDFG has monitored chinook salmon returns through redd count surveys within the Clearwater subbasin since 1966, and intermittently for steelhead trout since 1990. Redd counts through aerial and ground surveys provide baseline and population trend information, as well as some potential for future predictions of population trends based on spawner-recruit theory.

An extensive monitoring and evaluation program documents hatchery practices and evaluates the success of hatchery programs at meeting LSRCP mitigation objectives and IDFG management objectives, and monitored and evaluated the success of supplementation programs. The IDFG-LSRCP hatchery monitoring and evaluation program identifies hatchery rearing and release strategies that will allow the LSRCP program to meet its mitigation requirements and improve the survival of hatchery fish while avoiding negative impacts to natural (including listed) populations. Continuous coordination between the Hatchery Evaluation Study and IDFG's BPA-funded supplementation research project is required because these programs overlap in several areas including juvenile outplanting, broodstock collection, and spawning (mating) strategies.

7.2.2.1 Selway Falls Fish Tunnel Rehabilitation

The Selway River anadromous fish passage tunnel was constructed in the 1960s and has provided an alternative route for movement above Selway Falls, particularly during periods of drought or extremely high flows originating in the Selway River drainage. Species of particular concern include steelhead trout, chinook salmon, bull trout, and Pacific lamprey. The infrastructure of the passage tunnel has deteriorated over the past 40 years and no longer provides optimum passage conditions. The interior baffles no longer function to slow water movement and the upper headgate facility does not operate effectively to control flows through the tunnel.

Based on radio telemetry in 1999, Idaho Department of Fish and Game personnel found that less than 60% of steelhead trout, staging at the entrance to the tunnel, eventually migrated above the falls. The fish that did not move above the falls apparently did not enter tributaries below the falls for spawning purposes either.

In 1999 the Idaho Department of Fish and Game contracted with Nicholls Engineering, Spokane, WA., to determine the extent of the deterioration and develop estimates for renovating the facility. The lack of optimum passage conditions could delay or deter some portion of the fish runs to move above the falls. Reconstruction would result in better passage conditions above Selway Falls into pristine anadromous and resident fish habitat, which at this time is underseeded. Better passage conditions can translate into more fish utilizing the excellent spawning and rearing habitat available. The overwhelming bulk of the habitat above Selway Falls lies within the Selway-Bitterroot Wilderness area.

7.2.2.2 Bull Trout Investigations in the North Fork Clearwater River Drainage

The completion of Dworshak Dam in 1971 eliminated anadromous fish runs, and the impacts on resident fish species in the drainage are not clear. It is assumed that the construction of Dworshak Dam significantly reduced the distribution, abundance and population viability of native resident fish populations above the dam, but information to support this assumption does not exist. Dworshak Dam has possibly isolated and fragmented the Clearwater River bull trout populations(s). The impact(s) of severing the migratory corridor between the North Fork Clearwater River (NFCR) and mainstem Clearwater River could be critical in sustaining a viable bull trout population upstream of Dworshak Dam. While direct assessment of the change in bull trout population dynamics is not feasible, assessment of current viability in the North Fork is possible. This study, which began in 2000, attempts document and assess bull trout populations in the NFCR drainage, and to assess the bull trout population in Fish Lake, and its relationship to the rest of the North Fork. This study is a cooperative project between IDFG and the Clearwater National Forest. Objectives of the study include 1) determine migration patterns of bull trout within the NFCR, 2) determine spatial and temporal distribution of bull trout within Dworshak Reservoir and the North Fork Clearwater drainage, 3) identify bull trout spawning sites within the NFCR and 4) obtain basic life history information on bull trout within Dworshak Reservoir and the NFCR. In 2000, 59 bull trout were captured in Dworshak Reservoir, and 21 of those were implanted with radio transmitters. Within this group, 44% migrated into Black Canyon, 25% migrated into Kelly Creek drainage, 6% migrated into Weitas Creek, and 25% remained in the North Fork Clearwater River downstream of Skull Creek. Redd surveys were conducted in six drainages, with the majority of redds found in Lake Creek, the outlet of Fish Lake. Research continues in 2001.

7.2.2.3 Dworshak Terrestrial Resources Inventory Project

In early 2000, IDFG entered in a contract with the USACE to perform surveys along the Dworshak Project and adjacent lands. The objectives of this study are to compile fungi, plant, and wildlife species lists, locate special status species, and identify important habitats of special status species and target species (raptors, deer and elk). Data from this study will be used to develop resource objectives for the USACE's Dworshak Master Plan Update and Supplemental Environmental Impact Statement. Preliminary findings from 2000 include

- >200 fungi species, sixteen of which are classified as "Survey and Manage Species" by the US Forest Service. 81 lichen species, 11 ranked "rare" by McCune (1994).103 bryophyte species, 5 ranked "rare" by Christy and Harpel (1997).440 vascular plant species, 13 with Federal special status.
- 6 amphibian species, 3 with Idaho State and Federal special status.
- 4 reptile species, 1 with Federal special status.
- 100 bird species, 1 with Idaho State and Federal special status.
- 22 mammal species, 2 with Idaho State and/or federal special status.

Surveys will continue through 2001, and results will be incorporated into a final report prepared by IDFG and the USACE in 2002. Additionally, IDFG will identify

management concerns and provide recommendations for managing Dworshak Project lands. Management topics currently identified include

- potential impacts of prescribed burning on rare plant species,
- protection of rare plant populations,
- impacts of water level fluctuations on amphibians, waterfowl, and vegetation and creation of wetland pools in the reservoir's draw-down zone,
- impacts of stray cattle and introduced bullfrogs on the integrity of existing wetlands and Columbia spotted frogs populations,
- construction of a bat gates at adits/caves known to host bats,
- protection of active bald eagle and goshawk nests,
- review and adjust elk and deer mitigation management objectives to reflect changing needs and landscape level opportunities.

Idaho Department of Environmental Quality

The Beneficial Use Reconnaissance Project (BURP), and the Water Body Assessment Guidance (WBAG) program monitor and assess the physical, chemical, and biological integrity of water bodies in Idaho. Waters identified as potentially impaired undergo a more rigorous water quality subbasin assessment that incorporates all available information and focuses on the cause and extent of impairments for development of a Total Maximum Daily Load (TMDL) if necessary.

BURP relies heavily on macroinvertebrate sampling, habitat evaluation and measurement, bacterial sampling, and fish sampling. The BURP protocol closely follows USEPA's *Rapid Bioassessment Protocols for Use in Streams and Rivers*. BURP data also documents existing uses, which must then be designated and protected under Idaho's water quality standards. It is the goal of the state to remonitor water bodies on a rolling five year schedule.

The WBAG was designed to use BURP data to answer questions about stream integrity, water quality, and beneficial use support status. It originally consisted of multi-metric indexes for macroinvertebrates and habitat, qualitative and quantitative fisheries assessments, and evaluation of criteria exceedances. Assessments of BURP data collected from 1994 through 1996 were conducted to generate the 1998 list of impaired waters required under section 303(d) of the CWA. Revisions to the assessment methodology are currently underway that would allow the use of more types of data, revise the macroinvertebrate and habitat indexes, add a multimetric fish index, revise the salmonid spawning beneficial use assessment, and add an interpretation of criteria exceedances in the assessments. The revised water body assessment methodology is expected to be completed in 2001 for use in the next 303(d) and 305(b) reporting cycles, and in ongoing TMDL subbasin assessments.

The Idaho Department of Environmental Quality also manages databases related to a coordinated temperature monitoring program within the Clearwater subbasin, which began in 2000. Approximately 300-400 locations in the Clearwater subbasin are monitored by one of nine different agencies including Idaho Department of Environmental Quality, Idaho Department of Fish and Game, Nez Perce Tribe,

Clearwater and Nez Perce National Forests, National Biological Survey, U.S. Geologic Survey, Bureau of Land Management, and the Soil Conservation Commission (Dan Stewart, Idaho Department of Environmental Quality, personal communication, April 6, 2001). The program will ensure consistent data collection and handling and minimize duplication of effort.

Idaho Soil Conservation Commission

Water quality monitoring in the Potlatch River based on priority watersheds identified in Schriever and Nelson. 1999. *Potlatch River Basin Fisheries Inventory.*

Nez Perce National Forest

The Nez Perce National Forest annual monitoring plans for soil, air, water and fisheries on an annual basis. Annual monitoring plans attempt to meet the requirements of both the Forest Plan and Idaho State water quality standards.

Monitoring activities within the NPNF plan are categorized as baseline, trend, implementation, effectiveness or validation, with many projects including elements of multiple categories. Baseline monitoring includes information which characterize existing conditions and may also serve as indicators of long-term trends. Implementation monitoring determines if plans have been constructed or put into effect as designed. Effectiveness monitoring determines whether and to what degree implemented practices were effective at accomplishing their objectives. Validation monitoring is used to test assumptions in the Forest Plan or predictive models (Howard 2000).

Nez Perce Soil and Water Conservation District

Water quality monitoring in Big Canyon Creek and Hatwai Creek.

U.S. Bureau of Land Management

The Bureau of Land Management, Cottonwood Field Office, annually monitors baseline conditions, long-term trends, BMP/mitigation implementation, and BMP/mitigation effectiveness. Fisheries and water quality objectives have been identified in the BLM Management Framework Plan. Annual monitoring has also been identified in Section 7 consultation (Endangered Species Act) for listed fish for various proposed and ongoing BLM projects/activities. The primary goal of monitoring is to address the relationship of land use activities effects on fish, aquatic habitats, riparian habitats, and water quality.

Monitoring efforts are conducted to determine if land management activities are meeting Management Framework Plan standards and objectives, compliance with Section 7 consultation (ESA), PACFISH compliance, and meeting state water quality/Clean Water Act requirements (e.g., management effects/303(d) streams).

8 References

Belt, G., O'Laughlin, J., Merrill, T. 1992. *Design of forest Riparian Buffer Strips for the Protection of Water Quality: Analysis of Scientific Literature.*

Bonneville Power Administration, U.S. Bureau of Reclamation and U.S. Army Corps of Engineers. 2001. Endangered Species Act Implementation Plan for the Federal Columbia River Power System.

Bowles, E. C. and E. Leitzinger. (1991). Salmon supplementation studies in Idaho rivers: experimental design. Idaho Department of Fish and Game, prepared for U.S. Department of Energy, Bonneville Power Administration, Contract DE-BI79-89BP01466, Project 89-098. 167 pp.

Christy, J. A. and J. S. Harpel. (1997). Rare bryophytes of the interior Columbia River basin and northern Great Basin, U.S.A. Journal Hattori Botanical Laboratory 82:61-75

Cichosz, T.A., and eight others. 2001. *Draft Clearwater Subbasin Summary*. Prepared for the Northwest Power Planning Council.

Clearwater River Basin Weed Management Team. 1999. A Strategy for Vegetation Management.

Clearwater Elk Initiative. 2002. Web site, http://www.fs.fed.us/r//Clearwater/cei.htm

Clearwater Soil and Water Conservation District. (2001). Five-year resource conservation plan. Orofino, ID.

Columbia River Inter-Tribal Fish Commission. 1996. *Wy-Kan-Ush-Mi Wa-Kish-Wit: Spirit of the Salmon. Vol. II: Subbasin Plans*.

Hall-Griswold, J. A. and Petrosky, C. E. (1996). *Idaho Habitat/Natural Production Monitoring Part I.* Idaho Department of Fish and Game.

Idaho County Soil and Water Conservation District. (2001). Annual work plan and five year resource conservation plan. Grangeville, ID.

Idaho Department of Fish and Game. 1990. A Vision for the Future. Idaho Department of Fish and Game Policy Plan 1990-2005. Boise, Idaho. 33 pp.

Idaho Department of Fish and Game. 1991a. Nongame Species Management Plan, 1991-1995. Boise, Idaho. 163 pp.

Idaho Department of Fish and Game. 1991b. Upland Game Plan 1991-1995. Idaho Department of Fish and Game. Boise, ID.

Idaho Department of Fish and Game. 1991c. Waterfowl Plan 1991-1995. Idaho Department of Fish and Game. Boise, ID.

Idaho Department of Fish and Game. 1991d. Moose, Sheep and Goat Plan 1991-1995. Idaho Department of Fish and Game. Boise, ID.

Idaho Department of Fish and Game. 1991e. Mountain Lion Plan 1991-1995. Idaho Department of Fish and Game. Boise, ID.

Idaho Department of Fish and Game. 1991f. Furbearers Species Management Plan, 1991-1995. Boise, Idaho. 67 pp.

Idaho Department of Fish and Game. 1998. Black Bear Management Plan, 2000-2010. Idaho Department of Fish and Game. Boise, ID.

Idaho Department of Fish and Game. 1999a. White-tailed Deer, Mule Deer and Elk Management Plan. Idaho Department of Fish and Game. Boise, ID.

Idaho Department of Fish and Game. 1999b. Red River Wildlife Management Plan. Idaho Department of Fish and Game, Lewiston, ID.
Idaho Department of Fish and Game. 2001a. Idaho Department of Fish and Game Strategic Plan.
Idaho Department of Fish and Game. 2001b. IDFG Fisheries Management Plan 2001-2006. Idaho Department of Fish and Game, Boise, Idaho.
Idaho Department of Lands. 1996. Rules Pertaining to the Idaho Forest Practices Act Title 38, Chapter 13, Idaho Code.
Idaho Water Resources Board. 2003. *Comprehensive State Water Plan – Part B, Draft South Fork Clearwater River Basin.*
Idaho Water Resources Board 1996. *Idaho Comprehensive State Water Plan: North Fork Clearwater Basin*.
Interior Columbia Basin Ecosystem Management Project. 2002. web site: http://www.icbemp.gov
Latah Soil and Water Conservation District. (2001). Strategic five-year plan. Moscow, ID.
Lewis Soil Conservation District. (2000). Five-year plan and annual report. Nezperce, ID.
Marshall, A.R. (1992). Genetic analysis of 1991 Idaho chinook salmon baseline collections. Attachment B in Leitzinger, E. J., K. Plaster, and E. Bowles. 1993. Idaho supplementation studies annual report 1991-1992. Fisheries Research Section, Idaho Department of Fish and Game annual report to U.S. Department of Energy-Bonneville Power Administration, Portland, Oregon.
Marshall, A.R. (1994). Genetic analysis of 1993-94 Idaho chinook salmon baseline collections, and a multi-year comparative analysis. Appendix A in Nemeth, D., K. Plaster, K. Apperson, J. Brostrom, T. Curet, and E. Brown. (1996). Idaho supplementation studies annual report 1994. Idaho Department of Fish and Game annual report to U.S. Department of Energy-Bonneville Power Administration, Portland, Oregon.
McCune, B. (1994). Lichen species groups in the Columbia Basin-ecosystem functions and indicator values. Unpublished report, East-side Ecosystem Management Project, Washington, USA. McElhany, P.; Rucklelshaus, M. H.; Wainwright, T. C; Ford, M. J. and Bjorkstedt, E. P. (2000). *Variable Salmonid Populations and the Recovery of Evolutionarily Significant Units.* Seattle: National Marine Fisheries Service: Northwest Fisheries Science Center: Southwest Fisheries Science Center.
Murphy, P. K.; Jones, R. M. and Mital, J. (2000). *Clearwater National Forest Watershed and Fisheries Monitoring Plan*. Clearwater National Forest.
Nez Perce Soil and Water Conservation District. (2000). Resource conservation plan. Lewiston, ID.
Nez Perce Tribe. 1998. Unified Watershed Assessment and Plan.
Northwest Power Planning Council. (2001). Technical Guide for Subbasin Planners. Council document 2001-20.
Paradis, W. J.; Lentz, H. S.; Mays, D.; Blair, S. and Lake, L. 1998. *South Fork Clearwater River Biological Assessment*. Nez Perce National Forest.
Peery, C. A., and T. C. Bjornn. (1993). Ecological effects of hatchery reared chinook salmon on naturally produced chinook salmon, 1992 annual report. Attachment A in Leitzinger, E. J., K. Plaster, and E. Bowles. (1993). Idaho supplementation studies annual report 1991-1992. Fisheries Research Section, Idaho Department of Fish and

Game annual report to U.S. Department of Energy-Bonneville Power Administration, Portland, Oregon.

Peery, C. A., and T. C. Bjornn. (1994). Ecological effects of hatchery reared chinook salmon on naturally produced chinook salmon, 1993, 1993 annual report. Appendix I in Leitzinger, E. J., K. Plaster, P. Hassemer, and P. Sankovich. (1996). Idaho supplementation studies annual progress report 1993. Idaho Department of Fish and Game annual report to U.S. Department of Energy-Bonneville Power Administration, Portland, Oregon.

Peery, C. A., and T. C. Bjornn. (1996). Small-scale Investigations into chinook salmon supplementation strategies and techniques: 1992-1994-emigration of chinook salmon fry from the upper Salmon River, 1991. Technical Report 96-3, Idaho Cooperative Fish and Wildlife Research Unit, Moscow, Idaho.

Supplementation Technical Work Group. 1988. Supplementation research-proposed five-year work plan. Northwest Power Planning Council, Portland, Oregon.

U.S. Army Corps of Engineers, Idaho Department of Lands, Idaho Department of Water Resources. 2000. Joint Application for Permits: Applicants Information.

U.S. Fish and Wildlife Service. (2001). Lower Snake River Compensation Plan Program Summary for the Independent Science Review Panel, April 2001. Compiled by the USFWS, LSRCP, Boise, ID

U.S. Forest Service. (1987a). *Clearwater National Forest Plan*. Orofino, ID.

U.S. Forest Service. (1987b). *Nez Perce National Forest Plan*. Grangeville, ID.

9 Appendices

Appendix A. List of planned projects to be conducted by Idaho Transportation Department.

Highway	Fiscal Year	Location	Project Type
STC4745	2003	Rubens Rd; Junction US95 to Lewis Co line	Rehabilitation & resurface
STC4747	2003	Mile post 18.8-19.1, Peck	Bicycle/pedestrian path
STC4781	2004	Mile post 0.3-3.1, Clearwater Co	Pavement overlays
Local	2003	Elk River	Resurface
SH 3	2003	Mile post 4.9-9.3, Little Potlatch Cr. bridge to Juliaetta	Rehabilitation and resurfacing
SH 7	2005	Mile post 36.8-48.9, Gilbert Grade	Rehabilitation & resurface
SH 8	2003	Mile post 4.1-14	Latah Trail, Moscow-Troy
SH 8	2005	Mile post 43.7-53.5, Ruby Creek to Elk River	Resurface
SH 8	2006	Troy to Deary	Rehabilitation & resurface
SH 11	2002	Mile post 24.1-26.8, Timberline HS to Pierce Pass	Minor widening and resurface
SH 11	2002	Greer grade curves	Widening
SH 11	2002	Mile post 28.7-30, French Mtn Rd	Bicycle/Pedestrian path
SH 11	2003	Mile post 18-19 Weippe	Bicycle/Pedestrian path
SH 11	2004	Clearwater Bridge-Greer	Miscellaneous Improvement
SH 11	2005	Mile post 35.3 – 42.3, Grangemont Rd to Headquarters	Rehabilitation and resurface
SH 13	2003	Mile post 113	Guardrail update
SH 13	2005	Mile post 1.1-6.6 Grangeville to top of Harpster grade	rehabilitation & resurface
SH 14	2003	Mile post 17.9-18.7, Weippe	Bicycle/pedestrian path
U.S. 12	2002	Lochsa at Lolo Pass adjacent to Crooked Fork	Construction of passing lane
U.S. 12	2002	Spalding Bridge	Bridge deck rehabilitation
U.S. 12	2003	Memorial Bridge - Lewiston	Bridge deck rehabilitation
U.S. 12	2003	Mile post 26.6, Nez Perce Co.	Construction of passing lane
U.S. 12	2003	Mile post 30.6, Nez Perce Co.	Construction of passing lane
U.S. 12	2003	Mile post 53, Lewis Co.	Construction of passing lane
U.S. 12	2003	Mile post 66.8-79, Kamiah	Major widening
U.S. 12	2003	Mile post 75.2-113.8, Junction SH13B to MP113.8 Idaho Co.	Metal guard rail
U.S. 12	2004	Mile post 126	Guardrail update
U.S. 12	2004	73.7-73.8, Kooskia	Port of Entry improvement
U.S. 12	2004	43.3-44.4, Jct SH7, Orofino	Minor widening & resurface
US 12	2004	Mile post 2.2-2.6, Clearwtaer Mem Bridge to Rose Garden	Reconstruction & realignment
U.S. 12	2006	Orofino city limits to Orofino Bridge	Surface overlay
U.S. 95	2003	Mile post 306, Nez Perce Co.	Rockfall Stabilization
U.S. 95	2003	Mile post 316-316.1, Nez Perce Co.	Flatten Slopes
U.S. 95	2004	Mile post 312-319, Lewiston hill	Rehabilitation & resurface
U.S. 95	2005	Craigmont to Culdesac	Overlay and CRABS*
U.S. 95	2005	Chain-up area to White Bird Pass summit	Construction of climbing lane
U.S. 95	2006	Culdesac Canyon adjacent to Lapwai Creek	Connection of all short passing lanes into one
U.S. 95	2006	Mile post 300.3-304.7, Lapwai to Spalding	Rehabilitation & resurface
U.S. 95	2006	Craigmont to Culdesac	rehabilitation and resurface

Appendix A (Continued)

Highway	Fiscal Year	Location	Project Type
U.S. 95	2006	Mile post 253-280, Camas Prairie RA, Idaho Co	Rest area being studied
U.S. 95	2007	Lapwai to Spalding	Overlay
U.S. 95	PD**	Lapwai to Spalding	Construction of passing lane
U.S. 95	PD**	Lawyer Creek bridge to Craigmont	Overlay
U.S. 95	PD**	Grangeville to concrete surface	Overlay and CRABS
U.S. 95	PD**	Chain-up area to Grangeville	Resurfacing
U.S. 95	PD**	Spalding Mile post 301-302	Widening and resurfacing
SH 11	PD**	26.8-29.5, top of Pierce Pass to Pierce	minor widening and resurface
U.S. 12	PD**	Mile post 40.3-44, Orofino	Riverside lighting
US 12	PD**	Mile post 107-107.1, Idaho Co	Rest Area
offsystem	PD**	Watson St bridge, Culdesac	Bridge replacement
STC4713	PD**	Lolo Cr Bridge	Bridge replacement
	PD**	SE Elk river Bridge, Clearwater Co.	Bridge replacement
FH 67	PD**	16-19.8, Grangemont Rd; Hot Den to Rainey Cr	Rehabilitation and resurface
offsystem	PD**	Pine Cr bridge at River Rd	Bridge replacement

*CRABS: cement, recycle, asphalt based stabilization

**PD: Preliminary development

Appendix B. Clearwater Subbasin Inventory Database.

This information is included on the accompanying CD as an Excel spreadsheet file titled 'Inventory Appendix B-Inventory Database'.

Appendix C. 6th field HUC map used in development of the Clearwater Subbasin Inventory Database.

The 6th field HUC map used in development of the Clearwater Subbasin Inventory Database is included on the accompanying CD and titled 'Inventory Appendix C_HUC Map'. This map is provided as a tool to facilitate use of the Inventory Database only, and is not consistent with HUC layer(s) used elsewhere in the Clearwater Subbasin Assessment or Management Plan.