Final Programmatic Environmental Impact Statement For The Ahtanum Creek Watershed Restoration Program

June 2005
Shorelands and Environmental Assistance Program
Ecology Publication # 05-06-016

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 West Yakima Avenue, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

Dear interested parties:

This State Environmental Policy Act (SEPA) Final Environmental Impact Statement (EIS) has been prepared to assist the Department of Ecology (Ecology), other participating agencies and entities, and the public in evaluating conceptual approaches to the development of a Watershed Restoration Program for Ahtanum Creek. The creek and its associated watershed are currently experiencing significant problems associated with habitat degradation, low stream flows, and inadequate supplies of water for irrigation. Over the past several years, Ecology and a number of tribal, federal, state, and local agencies and entities have been working together to identify the most appropriate methods for addressing those problems.

The Draft EIS for the Watershed Restoration Program was released in February 2005. Written public comments on the Draft EIS were accepted until March 24, 2005. A public open house was held on March 10, 2005 to solicit additional comments on the Draft EIS. The comments received are included as Chapter 9 of the Final EIS. Written responses are provided for each comment. Where appropriate, changes have been made to the EIS text in response to comments or to provide clarification or updates to information. These text changes are included in the Final EIS in redline/strike out mode.

The Final EIS will form the basis for subsequent development of the Ahtanum Creek Watershed Restoration Program. This EIS process has evaluated a programmatic or non-project action for Watershed Restoration. It is likely that a number of the major elements of the completed Watershed Restoration Program would trigger additional project level environmental review under SEPA.

Sincerely,

Derek I. Sandison
Central Regional Director
SEPA Responsible Official

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR THE AHTANUM CREEK WATERSHED RESTORATION PROGRAM

FACT SHEET

Brief Description of Proposal:

The Washington State Department of Ecology (Ecology) is facilitating development of a Watershed Restoration Program for the Ahtanum Creek Watershed. The Ahtanum Creek Watershed Restoration Program (ACWRP) is intended to resolve water resource problems in the watershed by providing a unified program to restore streamflows and fish habitat and to improve water supply for irrigation. The Programmatic Environmental Impact Statement (EIS) evaluates conceptual approaches to a watershed restoration program. The evaluation of the conceptual approaches will be used by Ecology in conjunction with other interested agencies and entities to develop the Ahtanum Creek Restoration Program.

Proposed or Tentative Date for Implementation:

The exact timeline for the ACWRP is not known at this time. To facilitate the analysis in this Programmatic EIS, the impacts and benefits of the project were evaluated for a period of 30 years following implementation of the restoration program. For purposes of the analysis, it was assumed that the reservoir, if it were constructed, would be operational in 2010. The 30-year time frame for analysis was chosen because that is the likely time period in which the benefits of habitat restoration would be realized (for example, it takes 30 years for trees to mature) and it was a likely time period in which on-farm conservation measures and changes in cropping would take place. The actual timeline for the project would likely vary and adjustments would be made when the project level EIS is prepared.

Proponent:

Ecology will facilitate the development of the ACWRP in conjunction with various interested agencies and entities.

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Permits, Licenses, and Approvals Potentially Required for Proposal:

In consideration of the potential variability in content of the proposed alternatives, it is not possible to present an exhaustive list of permits, licenses, and approvals that may be required for each alternative presented in this Programmatic EIS. It is possible, however, to identify a number of the most common types of permits, licenses, and approvals associated with water resources and habitat that would generally be required for the alternatives presented in this document. These permits, licenses, and approvals, listed below by the jurisdictional agency, would be required for portions of the watershed not located on the Yakama Reservation:

Federal Permits, Licenses, and Approvals

Section 404 permit – U.S. Army Corp of Engineers
Section 10 permit – U.S. Army Corp of Engineers
Endangered Species Act consultation – NOAA Fisheries
Endangered Species Act consultation – U.S. Fish and Wildlife Service
Section 106 of the National Historic Preservation Act – federal lead agency

State Permits, Licenses, and Approvals

Water use permit/certificate of water right – Department of Ecology
Reservoir permit/aquifer storage and recovery/secondary permit – Department of Ecology
Dam safety permit – Department of Ecology
National Pollutant Discharge Elimination System permit – Department of Ecology
Section 401 water quality certification – Department of Ecology
Shoreline conditional use permit, or variance – Department of Ecology
Water system plan approval – Department of Health
Hydraulic project approval – Department of Fish and Wildlife
Forest practices approval – Department of Natural Resources

Local Permits, Licenses, and Approvals

Critical areas permit or approval – Yakima County, City of Yakima or City of Union Gap
Floodplain development permit – Yakima County, City of Yakima or City of Union Gap
Shoreline substantial development permit, conditional use permit, or variance – Yakima County, City of Yakima or City of Union Gap
Clearing and grading permit – Yakima County, City of Yakima or City of Union Gap

Activities undertaken on properties located on the Yakama Reservation would require permits from the Yakama Nation, including permits from the Yakama Nation Water Code Program and Zoning Office. A list of applicable permits for activities on the Yakama Reservation would be developed when the details of the ACWRP are known.

Authors and Contributors to the Programmatic Environmental Impact Statement

Adolfson Associates, Inc. – Principal Author, Earth, Plants and Wildlife, Aesthetics, Land Use, Public Utilities
Montgomery Water Group – Surface Water, Water Rights, Public Utilities
SLR, Inc. – Earth, Groundwater
Cascadia Law Group – Water Rights
Mobrand Biometrics – Fish and Wildlife
Richard Mack, Ph.D, Central Washington University Department of Economics – Economics
Western Shores Heritage Services – Cultural

Date Final Action Is Planned or Scheduled:

It is anticipated the final selection of an alternative presented in this draft Programmatic EIS will be made by Ecology in coordination with other interested parties or entities in 2005. It is anticipated that the Watershed Restoration Program will be ongoing thereafter.

Timing of Additional Environmental Review:

This basin-wide nonproject Programmatic EIS has been prepared to generally address probable significant adverse impacts associated with proposed Ahtanum Creek Watershed Restoration Program alternatives. Individual projects associated with the restoration program will require additional environmental review. If a reservoir alternative is selected, it is anticipated that the project level EIS on reservoir construction would be prepared in 2007.

Date of Issue of the Draft EIS

February 22, 2005

Date of Issue of the Final EIS

June 23, 2005

Changes to the Draft EIS

For this Final EIS, the Draft EIS has been amended to reflect responses to comments. Changes to the text of the Draft EIS are indicated as follows: new text is bold and underlined and deleted text is shown in strikeout mode (~~deleted~~). A bar is present on either the left or right side of the page to indicate revised text. Comments received on the Draft EIS are include in Chapter 9 along with responses to those comments. Figures 1-2, 4-2, and 4-8 have been revised.

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ACKNOWLEDGEMENTS

This project was managed by the Washington Department of Ecology. Ecology worked cooperatively with members of the Ahtanum Core Group to develop the alternatives for this EIS. The Ahtanum Core Group consists of representatives of the Ahtanum Irrigation District, Yakima County Public Works Department, NOAA Fisheries, US Fish and Wildlife Service, Washington Department of Fish and Wildlife and the Yakama Nation. The Ahtanum Core Group also provided valuable guidance throughout the process and promoted open and thoughtful technical discussions during the project.

Members of the Ahtanum Core Group included:

Beth Ann Brulotte	Ahtanum Irrigation District
George D. Marshall	Ahtanum Irrigation District
Forrest H. Marshall	Ahtanum Irrigation District
Pat Monk	Ahtanum Irrigation District, consultant
David Taylor	Ahtanum Irrigation District, consultant
Derek Sandison	Department of Ecology
Ryan Anderson	Department of Ecology
Kale Gullet	NOAA Fisheries
Jeff Thomas	US Fish and Wildlife Service
John A. Easterbrooks	Washington Department of Fish and Wildlife
Stuart Crane	Yakama Nation
Dave Lind	Yakama Nation
Tom Ring	Yakama Nation
Joel Freudenthal	Yakima County Public Works Department

Abbreviations and Acronyms

AID	Ahtanum Irrigation District
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
cfs	cubic feet per second
cm/sec	centimeters per second
Ecology	Washington State Department of Ecology
EDT	Ecosystem Diagnosis and Treatment model
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
HPA	Hydraulic Project Approval
IFIM	Instream Flow Incremental Methodology
LWD	large woody debris
NEPA	National Environmental Policy Act
NOAA Fisheries	National Oceanographic and Atmospheric Administration, National Marine Fisheries Service
NRHP	National Register of Historic Places
OAHP	Office of Archaeology and Historic Preservation
PIA	Practicably Irrigable Acreage
QHA	Qualitative Habitat Analysis tool
RCW	Revised Code of Washington
RM	river mile
SEPA	State Environmental Policy Act
SMA	Shorelines Management Act
SMP	Shoreline Master Program
SSTEMP	Stream Segment Temperature Model
TWSA	Total Water Supply Available
UGA	Urban Growth Area
UGB	Urban Growth Boundary
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WIP	Wapato Irrigation Project
YTAHP	Yakima Tributary Access and Habitat Program

CHAPTER 1.0 DESCRIPTION OF PROPOSAL AND BACKGROUND

1.1 Introduction

The Ahtanum Creek Watershed is located on the east slope of the Cascade Mountains in Yakima County and on the Yakama Reservation. Ahtanum Creek is a tributary of the Yakima River and enters the river south of the city of Union Gap (see Figure 1-1)[1]. The Ahtanum Creek Watershed covers approximately 116,000 acres (approximately 181 square miles). There are two forks of Ahtanum Creek—the North and South Forks. For purposes of this Environmental Impact Statement (EIS), the watershed has been divided into three reaches (see Figure 1-2). The upper reach encompasses the North and South Forks and extends from the headwaters east to their confluence near Tampico. The middle reach extends east from Tampico to Wiley City, and the lower reach extends east from Wiley City to the confluence of the creek and the Yakima River.

The upper reach of the watershed is in mixed tribal, public and private ownership and is mostly managed forest lands with some residential and agricultural lands, especially near the North and South Forks confluence. The middle reach of the watershed is dominated by agriculture (primarily pasture lands) mixed with residential lands. The lower reach of the watershed becomes increasingly residential and urban as the creek approaches the Yakima River, but there are also agricultural lands located in the lower reach.

The Ahtanum Creek Watershed is located in Yakima County, and most of the watershed is in the county's unincorporated area. The lower reach of the watershed falls within the jurisdiction of the cities of Yakima and Union Gap. The southern portion of the watershed falls within the Yakama Nation Reservation, with Ahtanum Creek forming the northern boundary of the Reservation in the middle and lower reaches. There are threetwo unincorporated communities in the watershed—Wiley City, and Tampico, and Ahtanum.

Ahtanum Creek is used extensively for irrigation. The Yakama leader Kamiakin irrigated gardens along the creek and one of the state's first irrigation diversions, which is still active, is located at the St. Joseph Mission in the middle reach. Most of the irrigated lands in the watershed are located within the Ahtanum Irrigation District (AID). AID was formed in 1918 and operates under Revised Code of Washington (RCW) Title 87 (see Chapter 3, Section 3.1.3 for additional information). The total area within the AID's jurisdictional boundary is 10,320.67 acres (16.13 square miles). The According to AID, it currently assesses 10,3198,285 acres for tax purposes and serves approximately 5,470 acres with water. All surface water rights in the Ahtanum Watershed are currently being adjudicated. The Adjudication Court will confirm the number of acres that are actually irrigated by AID. Most of the AID water supply is pumped directly from the creek to Bachelor and Hatton Creeks and diverted directly from those creeks.; tThe AID has little infrastructure. Some water users in the AID also use groundwater for irrigation and stock watering.

[1] Standard maps have been used in this document; however, the Yakama Nation disagrees with the location of the reservation boundary depicted.

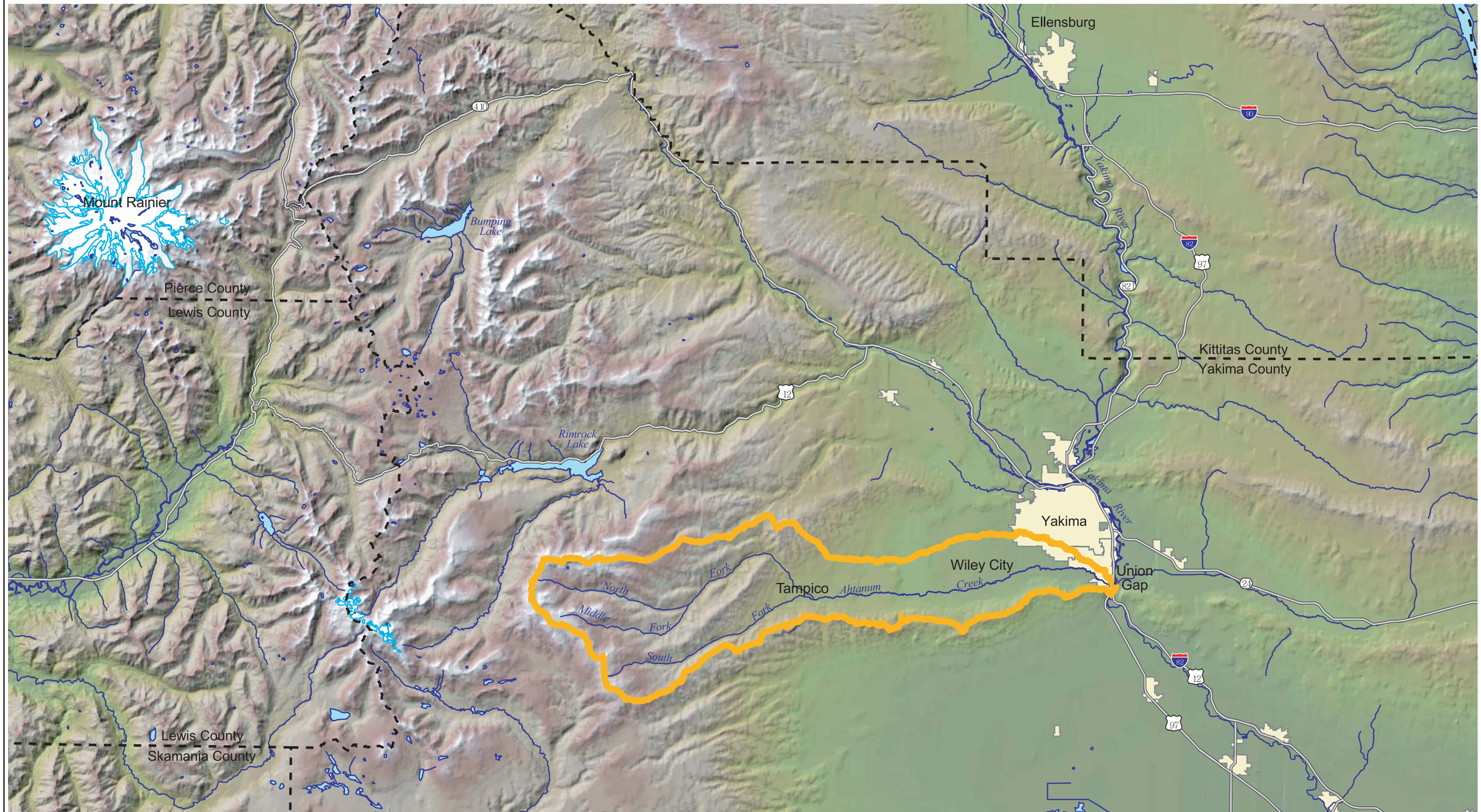
Other irrigation projects in the watershed include the Wapato Irrigation Project (WIP) and the Johncox Ditch. The WIP diverts water from Ahtanum Creek to serve Yakama Nation Reservation lands. The WIP is operated by the Bureau of Indian Affairs in coordination with the Yakama Nation (see Chapter 3, Section 3.1.3 for additional information). The Johncox Ditch is a private irrigation system that diverts water from the North Fork of Ahtanum Creek. This ditch serves the area south and west of the proposed Pine Hollow Reservoir location.

The dominant crops in the watershed under current conditions are hay and pasture. Other crops in the watershed include hops, vegetables, and fruit. Diversions from Ahtanum Creek are inadequate to meet the water demand for the crops grown in the watershed; therefore, most crops grown are of relatively low value (Golder, 2004). In areas where a more reliable water supply (such as groundwater) is available, higher value crops such as fruit and vegetables are grown. Most crops in the watershed are irrigated by sprinkler irrigation (82 percent). Only 2 percent of the crops are irrigated with efficient systems such as drip irrigation and 16 percent are irrigated with furrow and flood irrigation (Golder, 2004).

The Ahtanum Creek Watershed has historically been an important area for salmon, steelhead, and resident salmonids. Fish numbers have declined in the watershed because of degraded channel conditions, reduced stream flows, and fish passage blockages. Two fish species in the watershed are currently listed as threatened under the federal Endangered Species Act (ESA)—summer steelhead and bull trout.

1.2 Description of Proposal

The Washington State Department of Ecology (Ecology) is facilitating development of a Watershed Restoration Program for the Ahtanum Creek Watershed. Ecology managed the recently completed *Ahtanum Creek Watershed Assessment* (Golder, 2004), which evaluated current and probable future conditions in the watershed and provided the technical basis for developing strategies to protect stream flow, fish habitat, stream channels, and floodplains, while addressing needs for agriculture and other out-of-stream uses. The Ahtanum Creek Watershed Restoration Program (ACWRP) is intended to resolve water resource problems in the watershed by providing a unified program to restore stream flows and fish habitat and to improve water supply for irrigation. This Programmatic Environmental Impact Statement (EIS) evaluates conceptual approaches to a watershed restoration program. The evaluation of the conceptual approaches will be used by Ecology to develop the ACWRP.



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Date last updated: 01/17/05

Map data are the property of the sources listed below.
Inaccuracies may exist, and Adolfson Associates, Inc. implies no warranties or guarantees regarding any aspect of data depiction.
SOURCE: Golder Associates, 2003

N

0 30,000
FEET

Map Projection:
Washington State Plane South
NAD83, Feet

LEGEND

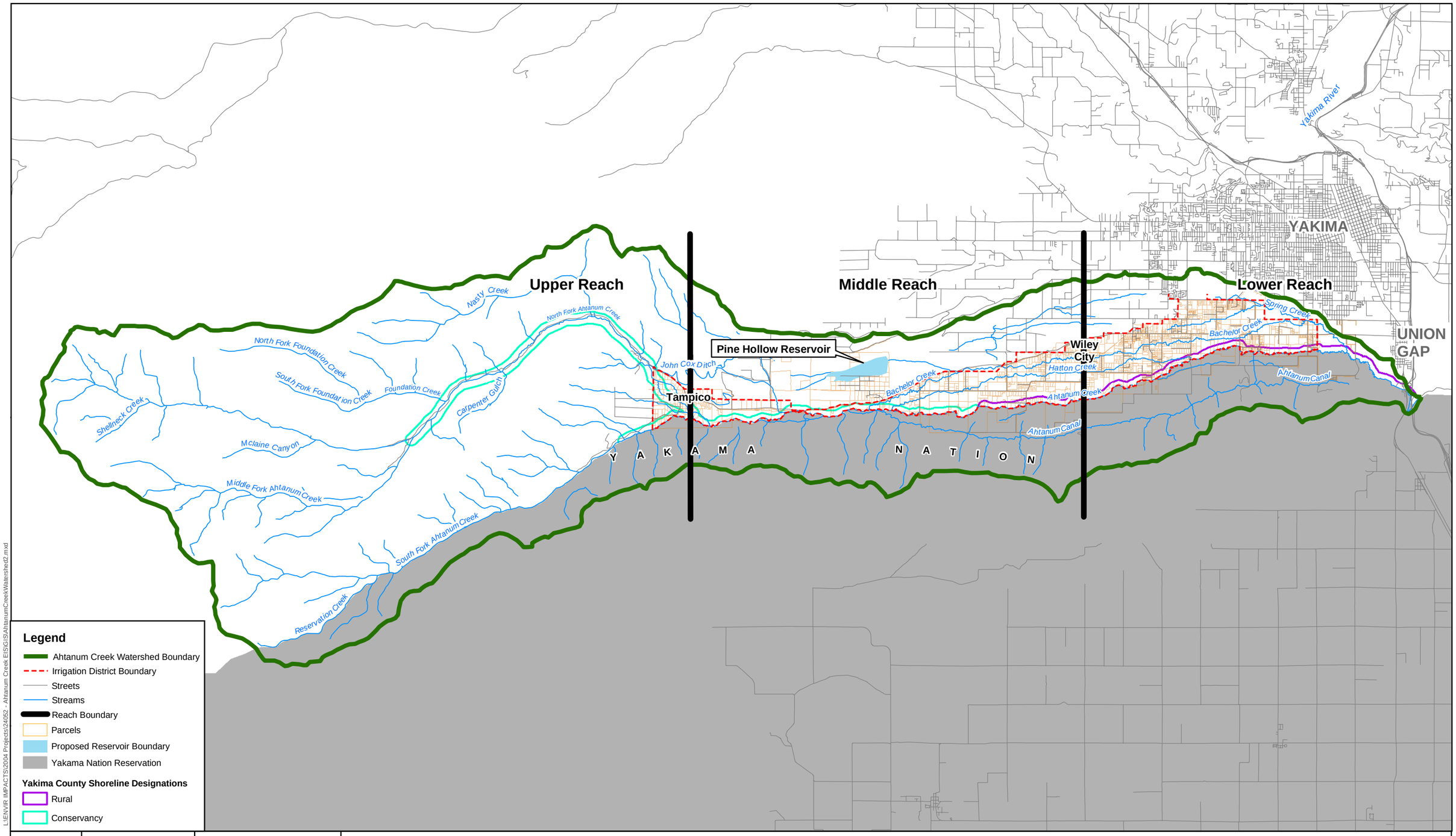
- Counties
- Roads
- Rivers and Streams
- Ahtanum Creek Watershed
- Water Bodies
- Ice / Snow

FIGURE 1-1

AHTANUM CREEK WATERSHED BASIN MAP

AHTANUM CREEK WATERSHED RESTORATION PROGRAM EIS

AHTANUM, WASHINGTON



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Map data are the property of the sources listed below. Inaccuracies may exist, and Adolfson Associates, Inc. implies no warranties or guarantees regarding any aspect of data dipiction.
SOURCE: Ahtanum EIS, 2004; USGS topographic map, 1995

0 6,250 12,500 25,000 37,500 50,000 Feet

1:150,000
1 inch equals 12,500 feet

FIGURE 1-2

AHTANUM CREEK WATERSHED REACHES

AHTANUM CREEK WATERSHED RESTORATION PROGRAM EIS

AHTANUM, WASHINGTON

1.3 Purpose and Need for the Proposal

The Ahtanum Creek Watershed is affected by a variety of water resource management problems related to unreliable water supplies, which cause problems for agriculture as well as fish habitat. Factors contributing to water resource problems in the watershed include the following:

- Insufficient stream flow to maintain channel conditions and high habitat values for fish species;
- Limitations in water supply for agricultural cropping and livestock production;
- Periodic flooding; and
- Periodic droughts (Golder, 2004).

The purpose of the ACWRP is to develop a coordinated program to address the water-related problems in the watershed.

1.4 Objectives of the Proposal

The objectives of the ACWRP are to:

- Develop water management strategies to improve water availability for agricultural and other out-of-stream uses in the Ahtanum Creek Watershed and provide a net benefit to the watershed aquatic ecosystem (such as fish, wildlife, plants, and habitat).
- Develop land use protection and restoration strategies to preserve and enhance Ahtanum Creek floodplain and habitat value, as well as the stability and longevity of the agricultural land uses and economy within the Ahtanum Creek Watershed.

1.5 Purpose of the Programmatic EIS

The purpose of this Programmatic EIS is to provide ~~the~~ a basis for assessing the effectiveness of specific projects or actions intended to meet the objectives of the ACWRP. The EIS assesses the effectiveness of such actions as the Pine Hollow Reservoir project, conservation measures, habitat restoration projects, and other actions in meeting the ACWRP goals of improving instream flows, fish habitat, irrigation water supply, water quality, stream channel integrity, groundwater recharge, and riparian habitat. The EIS meets the requirements of the State Environmental Policy Act (SEPA) to evaluate the impacts of the proposal at a programmatic level. A Programmatic EIS evaluates nonproject governmental actions such as policies, plans, or programs and is used as the basis for future project decisions.

1.6 Next Steps

Preparation of this EIS is the beginning of the process to develop a restoration program for the Ahtanum Creek Watershed. Ecology, in coordination with the Ahtanum Core Group, will use the findings of this EIS to develop the ACWRP. Elements of the ACWRP would be selected from the alternatives evaluated in this EIS. Depending on the alternative selected, additional

SEPA review may be required. Water conservation and habitat restoration projects could require state or federal permits or consultation under the ESA.

Many of the elements of the ACWRP would require additional economic, technical, cultural and environmental review. In addition, funding sources for elements of the program would have to be identified. If the funding source were federal, or if other federal actions were involved, a National Environmental Policy Act (NEPA) evaluation may be required.

The exact timeline for the ACWRP is not known at this time. To facilitate the analysis in this EIS, the impacts and benefits of the project were evaluated for a period of 30 years. For purposes of this analysis, it was assumed that the reservoir, if constructed, would be operational in 2010. The 30-year timeframe for analysis was chosen because that is the likely period in which the benefits of habitat restoration would be realized (for example, it takes approximately 30 years for many riparian trees to mature) and it was a likely time period in which on-farm conservation measures and changes in cropping would take place. The actual timeline for the project would likely vary, and adjustments would be made depending on the alternative selected for implementation.

1.7 Scoping Summary

In accordance with SEPA, a scoping period for the Draft EIS on the ACWRP was conducted from August 27, 2004, to September 16, 2004. An agency scoping meeting and a public scoping meeting were held on September 9, 2004. Public testimony was received at the public meeting. Fourteen written comments were received during the scoping period. Comments received are summarized in Table 1-1.

1.7.1 Agency Scoping Meeting

The agency scoping meeting was attended by representatives of the city of Union Gap and Ecology; members of the Ahtanum Core Group, including a representative of Yakima County; and EIS consultants. The main concerns expressed by the city of Union Gap related to the proposed Pine Hollow Reservoir and included the following issues:

- Impact of reservoir water releases on the temperature of Ahtanum Creek;
- Effect of the reservoir on domestic water supply;
- Effect of the reservoir on water quality of shallow wells near the creek;
- Effect of the reservoir and/or the associated habitat restoration program on flood control issues in Union Gap; and
- The need for reservoir flood control to be compatible with the Yakima County *Comprehensive Flood Hazard Management Plan* that is currently being developed.

1.7.2 Public Scoping Meeting

The public scoping meeting consisted of an open house with Ecology staff and EIS consultants available to answer questions from participants. Two court reporters were present to record oral comments. Although comment forms were provided for written comments, no comment forms were submitted during the open house. Two comment forms were mailed in following the open house, and those comments are included in Table 1-1.

During the open house, members of the public questioned staff and consultants about:

- Details of the alternatives;
- Location of the reservoir and who would be impacted;
- Timeline for reservoir construction;
- Details of reservoir operation; and
- Habitat restoration options.

1.7.3 Summary of Written and Oral Comments

Fourteen written comments were submitted during the comment period. Comments were received from the U.S. Bureau of Reclamation, Washington Department of Fish and Wildlife (WDFW), Yakima County Board of Commissioners, Yakima County Planning Services Division, city of Yakima City Manager, Ahtanum Irrigation District, Johncox Ditch, Director of the St. Joseph Mission, three state elected officials, and four private citizens.

Ten people provided oral testimony at the public scoping meeting. Two of these people also submitted written comments subsequent to the meeting. Oral testimony was received from a State Representative, the Mayor of Union Gap, the Director of the St. Joseph Mission, and seven private citizens.

Table 1-1 summarizes the written comments received and comments recorded at the public scoping meeting.

1.8 Summary of Alternatives

Four alternatives, including the No Action Alternative, are evaluated in this EIS. A brief description of the alternatives is provided here. A complete description of the alternatives can be found in Section 2.5.

Table 1-1. Summary of Written and Oral Comments

Issue	Comments	Total Number of Comments Received
Alternatives	Irrigation conservation measures should be included in project	1
	Include possibility of purchasing and retiring water rights in lieu of constructing reservoir	1
	Consider irrigating less than 11,000 acres from the reservoir to account for conversion of land to housing and areas that are too remote from reservoir to be efficiently served	1
	Need an alternative that allows diversion from the stream after July 10	1
Reservoir Operations	Need storage to provide water after July 10	1
	Water should be kept in Hatton and Bachelor Creeks year-round for stockwater, wildlife, and groundwater recharge	1
	Need to include provision for early season frost water	1
	Other sites for storage exist on private land that could supplement the project	1
	Project should include hydropower production	1
Water Rights	Bureau of Reclamation has a water withdrawal for available water in the Yakima River Basin associated with the Yakima River Basin Watershed Enhancement Project. The reservoir project may require a release from this withdrawal	1
	Impacts to the Total Water Supply Available (TWSA) need to be considered	1
	Agreement with Yakama Nation is needed before project proceeds	3
	Ahtanum Watershed is not subject to TWSA	1
	How will reservoir water be allocated? How much to reservation land, off-reservation land, and fish?	1
Land Use	Availability of water will make subdividing easier, increasing development pressure outside the Urban Growth Area	1
	Reservoir could result in increased demand for services and infrastructure outside the Urban Growth Area	1
	Traffic and other impacts if recreational use of reservoir is allowed	3
	Impacts of dam failure	1
	Reservoir will alter Federal Emergency Management Agency (FEMA) floodplain and affect land use limits	1
	Consider effect of current land uses and zoning on conversion to non-agricultural uses as well as preservation of agricultural land	2

Table 1-1. Summary of Written and Oral Comments (continued)

Issue	Comments	Total Number of Comments Received
	Consider zoning and land use regulation changes needed to facilitate reservoir development, habitat enhancement, and stream channel stabilization	1
	Consider impacts of changing land use on agricultural use in the basin	2
	Include a map of all land in the area proposed to benefit from the reservoir that has been zoned, short-platted, or platted for subdivision	1
Groundwater	Higher groundwater levels will impact septic systems	1
	Changes in groundwater patterns could impact wells, sub-irrigated fields, wetland hydrology	1
	Analyze ability of groundwater in the basin to sustain irrigation without a reservoir	1
Wetlands and Streams	Reservoir could alter wetland and stream patterns	1
Fish and Wildlife	Reservoir could benefit fish	1
	How will each alternative benefit fish?	1
	Which alternative will have the most fish benefit for the least cost?	1
	Need guarantee that reservoir water will be available for fish when needed	1
	Impacts to wildlife habitat along Johncox Ditch	1
Cultural Resources	Impacts to the St. Joseph Mission, including from pipeline	1
	Impacts on tribal allotments	2
Water Quality	New crops may require pesticides that will pollute creeks	1
	Temperature impacts need to be evaluated	2
Flood Control	Flood control benefits of the project should be clarified	1
	Need to stabilize streambanks to prevent flooding	1
	Any financial benefits from flood control should include explanation of how this was quantified	1
Economics	High value crops may not be suited to the climate of the basin	1
	High value crops may require new equipment and other conversions that farmers cannot afford	1

Table 1-1. Summary of Written and Oral Comments (continued)

Issue	Comments	Total Number of Comments Received
	Cost of the reservoir needs to be studied including: • How much will irrigators pay for the water? • How much irrigated land is suitable for higher value cropping? • How much land can be converted to higher value crops before market is saturated? • What is the payback period for taxpayer investment?	1
	Economic assumptions used in the Golder Watershed Assessment are not valid	1
	Financial impact of removing land taken by the reservoir from tax rolls	1
Others	Upstream timber harvest has affected function of the creek and watershed	1
	General comments in support of reservoir construction	14
	Need to know which parcels would be affected by the reservoir and land owners should be informed	1
	How long before the reservoir silts in?	1
	EIS should include the "next steps" for each alternative such as additional environmental review and other studies with an estimated time frame	1
	How much of the water that is needed could be provided by conservation, better technology, and habitat improvements?	1

1.8.1 Alternative 1 – No Action

- No coordinated watershed management would occur
- Independent water conservation and habitat restoration projects would continue

1.8.2 Alternative 2 – Watershed Restoration with Storage

- Coordinated watershed management program would occur
- Pine Hollow Reservoir would provide irrigation water to the AID and the WIP
- Coordinated water conservation measures would be implemented
- Coordinated habitat restoration projects would be implemented

1.8.3 Alternative 3 – Watershed Restoration without Storage

- No water storage reservoir would be constructed
- Coordinated water conservation measures would occur
- Coordinated habitat restoration projects would be implemented

1.8.4 Alternative 4 – Watershed Restoration without a Habitat Component

- Pine Hollow Reservoir would provide irrigation water to the AID and the WIP
- Coordinated water conservation measures would occur
- No coordinated habitat restoration projects would be implemented—independent projects would continue.

1.9 Impact and Mitigation Summary

The following section summarizes the identified probable adverse environmental impacts and proposed mitigation measures associated with the proposed alternatives for the ACWRP. A brief discussion of the assumptions used in the evaluation is also included. Impacts for each alternative are described followed by a brief discussion of general mitigation measures. Refer to Chapter 5 for further discussion of the short-term impacts and mitigation measures and to Chapter 6 for the long-term impacts and mitigation measures.

1.9.1 Evaluation Assumptions

In order to evaluate the potential impacts of the ACWRP at this programmatic level, a number of assumptions had to be made. This is especially true for the modeling that was conducted to evaluate the operation of the proposed reservoir and the potential for fish recovery. The model used for reservoir operations included assumptions about the capacity of the reservoir, how it would be operated, stream flow levels that would be available to supply the reservoir, and target levels for instream flows. The model used to predict fish recovery under the different scenarios used the results of the reservoir operation model and also made assumptions about the level of

development that would occur in the basin and the types of restoration projects that would be undertaken. Because the models attempt to predict a highly variable natural setting, it is difficult to develop conclusions about future conditions with a high degree of certainty. The model results should be considered a snapshot in time of the probable future conditions.

The assumptions used in the model for reservoir operations are described in Appendix A, Section 6.2, and Appendix D. The assumptions used in the model for fish recovery are described in Section 6.5 and Appendix C.

1.9.2 Impacts

1.9.2.1 Alternative 1 – No Action

Alternative 1 would not include a coordinated program for watershed restoration, but includes a continuation of existing programs that are already planned or being implemented. The conservation and habitat restoration projects that are currently planned or could occur in the future could reduce water demand and improve habitat, but overall, the current conditions and trends in the watershed would largely continue. There would continue to be insufficient instream flows for ~~sustained~~ fish ~~habitat~~ and an unreliable water supply for irrigation. Groundwater levels could continue to decline if more irrigators use groundwater to supplement an unreliable surface water supply. ~~Minor~~ Some improvements to fish abundance and productivity are expected as a result of the habitat restoration improvements under this alternative. Although habitat would be improved in some areas, basin-wide riparian conditions would likely continue to decline because no coordinated restoration program would be undertaken. Continued pressure to develop agricultural lands for residential uses in areas with unreliable water supplies would likely continue and/or accelerate. Habitat improvements could be offset by this increased residential development.

1.9.2.2 Alternative 2 – Watershed Restoration with Storage

Alternative 2 includes the greatest potential for short-term impacts of the alternatives considered because it requires the greatest amount of construction and property acquisition. Property acquisition would be required for the reservoir and conveyance lines and could be required for road relocations and other habitat restoration projects.

With its combination of conservation measures and reservoir construction, Alternative 2 would provide the most improvement to water supply reliability. A coordinated conservation plan would reduce the demand for surface water. Lining or piping of conveyance systems would reduce the loss of water to seepage. This would change local groundwater recharge patterns, causing both positive and negative impacts. Groundwater withdrawals could be reduced due to decreased irrigation demand.

The greatest benefit to fish habitat would be associated with habitat enhancement elements. The coordinated habitat restoration projects are expected to increase the productivity and abundance of coho, Chinook, steelhead, and bull trout in the watershed. Riparian restoration projects would also improve the condition of riparian vegetation, which could lead to increased numbers of riparian wildlife.

By itself, the reservoir would provide modest improvements to fish abundance and productivity. However, the combined effect of the habitat restoration improvements and the stream flow improvements from the reservoir would contribute to a positive trend in habitat over the long term.

The reservoir would provide increased reliability for the water supply for both irrigation and instream flows. The irrigation season for AID would be extended beyond July 10, the current shut-off date. Even with implementation of the reservoir, groundwater or other supplemental irrigation sources would still be needed to meet the irrigation demand within the Ahtanum Basin. During dry years, the reservoir would likely not be able to fill and would have little capacity to meet irrigation demands or to supplement instream flows. However, if the dry year were preceded by a wetter than average year, some carry-over storage would be available during the early part of the year to augment instream flows and supply irrigation. If water is released from the reservoir to augment stream flows, there could be a negative effect on fish because the temperature of the water releases would be higher than temperatures considered safe for fish.

Cultural impacts under Alternative 2 could include eliminating traditional cultural practices because of inundation of the reservoir footprint~~prohibiting access of tribal members to the Pine Hollow area to engage in traditional activities~~, as well as disturbance of cultural resources that could occur under all construction options. The improved reliability of the water supply might~~would be expected to~~ decrease the pressure to convert agricultural land to residential uses. New water rights would be required for storing and using water from the reservoir, and existing water rights would need to be changed to reflect changes in points of diversion and conversion from ground to surface water use. New water rights can only be issued if Ecology determines that there would be no impacts to existing water rights. The storage reservoir could be considered a source of stored water that could be claimed by the Yakama Nation to meet its practicably irrigable acreage; that is, to provide irrigation water for lands not presently irrigated on the Reservation.

The dam and reservoir operation would raise safety issues for the watershed. In the unlikely event of a dam failure, areas downstream of the reservoir would be flooded, resulting in property damage and potential loss of life. Although access is expected to be restricted, people and livestock could fall into the reservoir or from the dam.

Alternative 2 would provide the greatest economic benefit to the watershed because it would include the economic benefits associated with construction of the reservoir and the water conservation and restoration projects. The improved reliability of the water supply would support a conversion to higher value crops that could increase farm profitability, providing long-term economics benefits to agriculture.

1.9.2.3 Alternative 3 – Watershed Restoration without Storage

This alternative would have fewer short-term impacts than Alternative 2 because there would be no major construction project. Limited property acquisition could be required for conveyance lines and some habitat restoration projects. This alternative would include conservation measures and habitat restoration projects that would decrease water demand and improve habitat. Water reliability for irrigation and instream flows would not be significantly improved. The irrigation season for AID would still end on July 10. Groundwater recharge could be decreased

as a result of conservation measures, but groundwater withdrawals could be reduced due to reduced irrigation water demand. The pressure to convert agricultural lands to residential uses could be reduced and higher value crops may be grown, but these effects would be lower than under Alternative 2 with the reservoir. Overall economic benefits would be lower for this alternative than Alternative 2 because there would be no direct benefits associated with a major construction project. Construction of the conservation and habitat projects would provide some economic benefits to the area associated with modest improvements in irrigation reliability.

The coordinated habitat restoration projects would provide similar benefits to Alternative 2. Fish productivity and abundance would be increased, and riparian improvements would increase wildlife.

1.9.2.4 Alternative 4 – Watershed Restoration Program without a Habitat Restoration Component

The impacts on water reliability for this alternative would be similar to Alternative 2. The reservoir and conservation components would improve surface water reliability, the irrigation season would be extended beyond July 10, there could be a shift to higher value crops, and there would be decreased pressure to convert agricultural lands to residential uses. Groundwater recharge patterns would change, resulting in positive and negative impacts to groundwater.

This alternative does not include a coordinated habitat restoration program, which would mean that fish populations would not be significantly improved. Impacts to fish and riparian habitat would be similar to Alternative 1. Overall riparian conditions would continue to decline.

1.9.3 Mitigation

Mitigation measures to minimize short-term impacts would include construction best management practices to reduce erosion and sedimentation. Archaeological monitoring could be conducted during construction. All property and right-of-way acquisitions would be conducted in accordance with federal and Washington state law. Acquisitions would be negotiated with each landowner on a case-by-case basis.

The proposed alternatives are considered mitigation for current impacts to conditions in the watershed. The alternative components are intended to improve water supply reliability for irrigation and stream flows and to improve riparian habitat and fish populations. As part of the restoration program, joint operating agreements would be developed to facilitate cooperative management of the projects and the reservoir, if it is constructed. Mitigation for long-term impacts to cultural resources would be determined in consultation with the Office of Archaeology and Historic Preservation, ~~and stakeholders such as~~ the Yakama Nation, and other stakeholders. Any new water rights or water rights change applications would be evaluated by Ecology to determine if existing water rights would be impacted. Ecology would propose mitigation for any impacts to existing water rights.

The reservoir, if constructed, would be designed in compliance with Ecology dam safety requirements. An emergency action plan to respond to a dam failure would be developed in cooperation with local service providers. The dam would include monitoring and warning

systems. A plan would also be developed to address safety issues associated with the reservoir. Safety measures could include limited access and fencing of key areas.

1.10 Areas of Uncertainty and Controversy

There are several areas of uncertainty associated with the proposed ACWRP, in part because the exact elements of the ACWRP have not been selected. The alternatives that have been evaluated in this EIS are conceptual in nature. The EIS evaluation is intended to provide decision makers with information that can be used to develop a detailed ACWRP. At that time, additional environmental review may be conducted on selected program components. That additional review could resolve some of the uncertainties associated with the ACWRP.

Other areas of uncertainty relate to the models that were used to evaluate the operation of the reservoir and the recovery of fish. Any model results are dependent on the assumptions that were incorporated into the model. Model results represent a snapshot in time of the conditions and cannot predict with complete accuracy the complex interactions of variables in natural systems. The assumptions used in the EIS models were developed in cooperation with people who are familiar with the Ahtanum Creek Watershed. These assumptions represent a reasonable estimate or best guess of the operating conditions for the reservoir and the types of conservation and restoration projects that would be implemented.

Another area of uncertainty associated with the project is the issuance of water rights for a potential reservoir. As discussed in Chapter 3 and in Sections 4.13 and 6.13, the Yakima Basin Adjudication, the Bureau of Reclamation's withdrawal of unappropriated water in the basin, and the issue of practicably irrigable acreage for the Yakama Reservation raise questions about whether new water rights could be issued for a storage reservoir.

Before the ACWRP could be implemented, a Joint Operating Agreement would need to be developed between the key participants including the AID, the WIP, the Yakama Nation, and other key stakeholders. Funding for the project is uncertain at this time. A separate study is being conducted to identify potential funding sources for restoration projects. Results of this study will be available for review from Ecology~~included in the Final EIS~~.

A final area of controversy related to the ACWRP is the ongoing debate throughout the West about the construction and operation of reservoirs. Typically construction of a large reservoir is accompanied by controversy, with some people opposed to any reservoir construction. Property owners who would be directly affected by reservoir construction and flooding of the Pine Hollow area may oppose the project.

CHAPTER 2.0 ALTERNATIVES

2.1 Alternative Development Process

Alternatives for the ACWRP were cooperatively developed by the Ahtanum Core Group, whose members include the AID, Ecology, NOAA Fisheries, US Fish and Wildlife Service (USFWS) WDFW, Yakama Nation, and Yakima County Public Works Department. The Ahtanum Core Group developed a number of conceptual approaches to watershed restoration alternatives that are based on the findings of the *Ahtanum Creek Watershed Assessment* (Golder, 2004). The conceptual approaches include:

- Construction and use of an off-stream storage reservoir in Pine Hollow;
- Implementation of physical habitat improvement and protection efforts;
- Land use, shoreline use, and floodplain management strategies; and
- Water conservation strategies.

These conceptual approaches were refined into the alternatives presented and evaluated in this EIS. Section 2.3 describes the alternatives considered in this EIS. The EIS will be used by Ecology and other interested agencies and entities in formal development of the ACWRP.

2.2 Ahtanum Creek Watershed Area Habitat Programs, Projects and Planning Efforts

There are several ongoing projects to improve habitat in the Ahtanum Creek Watershed. There is currently no coordinated management of these projects, which are being administered and implemented by individual agencies or entities.

2.2.1 Yakima Tributary Access and Habitat Program

The Yakima Tributary Access and Habitat Program (YTAHP) is a Bonneville Power Administration- (BPA) funded program to screen unscreened irrigation diversions; provide fish passages at man-made barriers; and provide assistance and information to landowners interested in improvements to water quality, water reliability, and habitat.

The program has provided funding to screen pump intakes in the Ahtanum Creek Watershed and to replace a gravity diversion with a pump and pump screen. Additional diversion screening, removal of fish passage barriers, and on-farm irrigation improvements will be undertaken in the future as part of this program.

2.2.2 Yakima County Comprehensive Flood Hazard Management Plan

Yakima County, in cooperation with the Yakama Nation and the cities of Yakima and Union Gap, is developing a Comprehensive Flood Hazard Management Plan. This plan is being

developed in stages, with the upper Yakima River (Union Gap to Kittitas County) being done first, the Naches River Basin was recently completed and the plan for the Ahtanum Creek Basin is currently underway. The Comprehensive Flood Hazard Management Plan could include measures that would improve habitat conditions in the Ahtanum Creek Watershed including increased stream setbacks, prohibitions on development within the floodway, buyouts of frequently flooded areas, zoning changes to uses more compatible with flood areas, improvements to culverts, and bank stabilization using bioengineering.

2.2.3 Yakima Subbasin Planning

The Northwest Power and Conservation Council (originally named the Northwest Power Planning Council) was established in 1980 to provide the Pacific Northwest with greater involvement in decision making concerning power generation at federally owned dams on the Columbia River and in fish and wildlife issues. The 2000 Columbia River Basin Fish and Wildlife Program created a framework for protecting and rebuilding fish and wildlife populations. This program called for the development of more specific objectives and measures through plans for tributary subbasins, including the Yakima Subbasin. Subbasin plans are to be developed through the collaboration of tribal and state fish and wildlife managers, local governments, interest groups and stakeholders, and other state and federal land and water use managers. The plans will be used to prioritize habitat restoration project implementation and funding.

Development of the Yakima Subbasin Plan is being coordinated with the Yakima Basin Fish and Wildlife Board. The Yakima Subbasin Plan was submitted to the Northwest Power and Conservation Council in 2004. The Plan outlines objectives and strategies for protecting, enhancing, and restoring fish and wildlife populations and watershed conditions in the basin. The management plan section describes prioritized habitat restoration actions to be implemented through a comprehensive and coordinated approach throughout the basin. Specific habitat restoration strategies are recommended for the low elevation tributaries, including Ahtanum Creek Watershed, in order to improve watershed function and enhance aquatic habitat diversity and quantity. These strategies include managing stream flows to mimic more natural flow regimes; reducing net water use; reconnecting floodplain side channels; restoring riparian areas, especially in agricultural, rural residential, and urban lands; improving fish passage at culverts and other barriers; placing large wood instream channels; inventorying sediment source areas and reducing sediment loading; and relocating roads to improve riparian conditions and reduce fine and course sediment loading.

2.2.4 Yakima Habitat Improvement Project, City of Yakima

The Master Plan for the Yakima Habitat Improvement Project was developed with the goal to maintain, preserve, and restore functioning stream habitat in the Yakima urban area. Funding for the project was provided by the BPA. The Master Plan was developed in coordination with a Technical Work Group consisting of representatives of local, state, and federal agencies; local irrigation districts; and environmental groups. The Master Plan prioritizes parcels for acquisition along the Yakima River and its tributaries including Ahtanum, Bachelor, and Hatton Creeks.

Areas in the Ahtanum Creek Watershed that were identified for acquisition are located between Ahtanum and Bachelor Creek downstream of Hatton Creek.

2.2.5 Other Programs and Projects

There are several other programs and projects in the Ahtanum and Yakima Basin areas that could benefit conditions in the Ahtanum Creek Watershed. These include riparian and stream enhancements being undertaken by the Yakama Nation. ~~The Bureau of Indian Affairs is undertaking repairs to the Wapato Dam on the Yakima River that could benefit flow conditions at the mouth of Ahtanum Creek.~~ The North Yakima Conservation District is implementing projects to screen diversions, eliminate fish blockages, and restore riparian vegetation. Yakima County is in the process of updating its critical areas ordinance, which may result in improvements to stream buffer regulations. Several road projects are proposed in the area that could include mitigation measures that would improve stream conditions.

2.3 Description of Alternatives

The following alternatives are evaluated in this Draft EIS. As noted above, these alternatives represent a conceptual approach to developing the ACWRP.

2.3.1 Alternative 1 – No Action

Under Alternative 1, no coordinated watershed management program would be developed, but individual watershed management efforts would continue much as they do today. No reservoir would be constructed under this alternative and there would be no coordinated water conservation or habitat restoration programs. However, various agencies and entities, including the AID, Yakama Nation, Yakima County, WDFW, and the North Yakima Conservation District, would continue to undertake individual actions. These actions could include water conservation, fish passage and screening improvements, bank stabilization, riparian restoration, and administration of current land use codes. These actions may be coordinated to some degree under other programs or processes such as the Comprehensive Flood Hazard Management Plan or comprehensive land use plans.

2.3.2 Alternative 2 – Watershed Restoration Program with Storage

Under Alternative 2, a coordinated watershed restoration would be developed and include a storage reservoir, agricultural conservation, and habitat restoration. A 24,000-acre-foot Pine Hollow Reservoir would be constructed to supply water to Ahtanum Creek water users and the WIP. The reservoir would be filled during high flows in the winter and spring. This alternative would also include the conservation measures and habitat restoration and protection measures listed in Section 2.3.3 for Alternative 3.

Only preliminary design has been done for the Pine Hollow Dam and Reservoir, so only a general description can be provided. The dam would be an earth-filled dam, requiring 4 to 5 million cubic yards of fill for construction. The dam would be approximately 180 feet high and span approximately 2,400 feet between the two ridges of Pine Hollow. The maximum capacity

of the reservoir would be 24,000 acre-feet, with a permanent pool of approximately 2,000 acre-feet. The reservoir would be approximately 1.5 miles in length.

The actual details of reservoir construction and operation have not yet been determined. For the purposes of this EIS, this alternative includes the following conceptual operational characteristics:

- The reservoir would provide all out-of-stream water use within the reservoir service area for the entire irrigation season, including water for the WIP.
- There would be no individual creek diversions within the reservoir service area.
- Water from the reservoir would be used to augment stream flow in Ahtanum Creek when natural flows cannot meet target flows (minimum flows to be maintained in the Creek).
  - For the purpose of evaluating this alternative, minimum instream flow targets would be established as well as targets for channel maintenance flows.
  - For the purpose of evaluating the alternative, a target for fish production would be established as three returns per spawner.
- The WIP canal would be lined or piped.
- All water from the reservoir would be delivered through a piped system.
- The potential to maintain flows in Bachelor and Hatton Creeks would be evaluated, with priority given to maintaining flows in Bachelor Creek.
- Reservoir operations would include a "smart" diversion to divert reservoir water through the expanded Johncox Ditch and meet instream flow targets, fish screens, and lined or piped conveyance systems. Additional information on reservoir operations is provided in Appendix A.

2.3.3 Alternative 3 – Watershed Restoration Program without Storage

Under Alternative 3, an attempt would be made to achieve the ACWRP objectives without a major storage facility. Major elements would include irrigation conservation measures and habitat restoration and protection projects to be implemented in a coordinated manner with other planning and land use processes. These measures are summarized below.

2.3.3.1 Conservation Measures

Irrigation conservation measures could include:

- Lining and piping of conveyance systems;
- Development of conservation plans;
- Water metering;
- System automation;
- On-farm system improvements including conversion to sprinkler or drip irrigation, tail-water runoff and reuse systems, or improved system maintenance.

2.3.3.2 Habitat and Protection Measures

Habitat restoration and protection measures could include:

- Fish screening;
- Riparian restoration and enhancement;
- Increased stream and wetland buffers;
- Streambank stabilization;
- Property acquisition;
- Floodplain restoration;
- Adding channel roughness;
- Bridge and road improvements;
- Fencing riparian areas;
- Erosion control;
- Higher development standards;
- Pesticide and herbicide reduction programs;
- Public education;
- Fish passage improvements.

2.3.4 Alternative 4 – Watershed Restoration Program without a Habitat Restoration Component

Under Alternative 4, the Watershed Restoration Program would be implemented primarily through construction and management of an off-stream reservoir in Pine Hollow and irrigation conservation measures, which may or may not include on-farm conservation. No habitat restoration measures other than those identified in the No Action Alternative would be implemented. The reservoir would be operated to supply both instream and on farm water demands. Under this alternative, the reservoir operations would be the same as described in Section 2.3.2 for Alternative 2. The irrigation conservation measures described in Section 23.3 for Alternative 3 would be included.

CHAPTER 3.0 LEGAL AND REGULATORY FRAMEWORK FOR WATER AND HABITAT MANAGEMENT IN THE AHTANUM CREEK WATERSHED

3.1 Introduction

Implementation of the ACWRP could involve changes to water withdrawals and habitat affecting endangered fish species. This chapter provides background on the complex legal issues surrounding water withdrawals specifically water rights in the Yakima Basin, as well as background on key regulations relating to habitat management that could influence the implementation of the ACWRP. Additional details on water rights can be found in Appendix B.

3.2 Water Rights

The following discussion of the legal framework of water rights is provided to help readers understand what would be required to implement different components of the alternatives if these components involved new water rights or changes in existing water rights. The discussion includes an explanation of what is required to obtain a new water right, including a right for storage; the law regarding changes in water rights, including changes in the point of diversion for surface water rights and changes in the point of withdrawal for groundwater rights; new rights for delivery from storage; how trust water rights for instream flow are created; and how water rights are adjudicated.

Water users in the Ahtanum Creek Watershed have both surface water and groundwater rights. These water rights are a mixture of state-based water rights, federal tribal reserved water rights, water rights held by individual tribal allottees and their successors, and water rights held by individuals in private or through a combined entity such as an irrigation district. This mixture of water rights is determined by and subject to state and federal laws, laws specific to irrigation districts, and U.S. Bureau of Reclamation (Reclamation) policies and regulations.

3.2.1 State-Based Water Rights

3.2.1.1 Acquisition of Water Right

Since enactment of the state's surface water and groundwater codes in 1917 and 1945, the only way to obtain authorization to appropriate surface or groundwater is to apply for a permit from the Department of Ecology. When surface water diversion works or a groundwater well have been completed and the water has been applied to beneficial use, Ecology issues a certificate for the quantity of water put to actual beneficial use.

One exception to the requirement to obtain a permit from Ecology is the legislatively created exemption for the withdrawal of groundwater. Under the exemption, a well can be constructed and water withdrawn from an aquifer without a permit if the water will be used for (1) stock watering; (2) lawn or non-commercial garden watering in an area not exceeding .5 acre; (3)

single or group domestic uses not exceeding 5,000 gallons a day; or (4) an industrial purpose not exceeding 5,000 gallons a day (RCW 90.44.050). This section of the RCW is commonly referred to as the "groundwater exemption," and wells developed meeting the use requirements listed above are known as "exempt wells." There are numerous exempt wells in the Ahtanum Creek Watershed. Because these wells are exempt from Ecology's permit requirements, it is difficult to know how much groundwater is being used in the watershed.

Water rights are regulated based on priority date. During water shortages, a senior water right holder is entitled to use their full water right before the next junior right can be exercised. The priority date for any water right is generally the date of the original water right application. Any change in water rights in the Ahtanum Creek Watershed would need to be evaluated to ensure that it would not impair existing water rights.

3.2.1.2 Changes and Transfers

Changes and transfers of water rights are governed by statute, regulations, policy, and case law. A complete discussion of this area of law is beyond the scope of this EIS. In general, changes in place of use, purpose of use, and/or points of diversion or withdrawal of a water right, or transfers of water rights to others require approval by Ecology under RCW 90.03.380 or 90.44.100. As discussed in Section 3.2.4, Ecology does not regulate changes or transfers that occur entirely within an irrigation district or joint board of control. In the Yakima Basin, because of the ongoing water rights adjudication (see Section 3.2.1.5), the Court approves temporary changes in water rights based on input from Ecology. Ecology continues to make decisions on permanent changes. A water right approved for change or transfer retains its original priority date.

In making a decision on a water rights change application, Ecology must make a tentative determination of the validity and extent of the water right, whether all or part of the right has been lost due to nonuse, and whether the change would impair any other water right—either senior or junior in priority to the right being changed. In contrast to an application for a new water right, Ecology is not required to consider potential impairment of pending applications for water rights when Ecology makes a decision on a change application. Existing rights are impaired if there would be a detrimental impact on the quantity or quality of the right or direct interference with the ability to exercise the right. As part of this determination, Ecology must quantify the consumptive use of the right (consumptive use is water lost to the environment through evaporation or transpiration). If the requested change would increase the amount of water used, the right would be unlawfully enlarged. For example, Ecology may approve a "change in the place of use, point of diversion, and/or purpose of use of a water right to enable irrigation of additional acreage or the addition of new uses . . . of such change results in no increase in the annual consumptive quantity of water used under the water rights" (RCW 90.03.380(1)). Annual consumptive quantity is defined as "the estimated or actual annual amount of water diverted pursuant to the water right, reduced by the estimated annual amount of return flows, averaged over the two years of greatest use within the most recent five-year period of continuous beneficial use of the water right" (RCW 90.03.380(1)).

To speed up the decisions on change requests, the state legislature created county Water Conservancy Boards to make initial decisions on such applications (Chapter 90.80 RCW). The Yakima County Water Conservancy Board would likely review any change requests associated with the Ahtanum Creek Watershed Restoration Program. Change requests could also be filed with Ecology. The Water Conservancy Board applies the same standards as Ecology and sends its record of decision to Ecology. Ecology may affirm, reverse, or modify the action of the Water Conservancy Board.

3.2.1.3 Relinquishment

When a water right is perfected, it must continue to be used or it will be considered lost through abandonment or relinquishment (commonly referred to as the "use it or lose it" provision). Relinquishment occurs when all or a portion of a water right is not used for five successive years, unless there is a sufficient cause for the nonuse (RCW 90.14.160-180).

The legislature has defined sufficient cause to include, but not be limited to, the following circumstances: drought or other unavailability of water, operation of legal proceedings that prevent the use of water, and federal or state leases/option to buy land or water rights that preclude or reduce the use of the right by the owner of the water right (RCW 90.14.140(1)). The water code includes several sufficient causes for nonuse that apply specifically to irrigation water rights, including temporary reductions due to varying weather conditions, temporary reliance on return flow instead of withdrawal from the primary source when the return flows are measured or reliably estimated; and reductions in water use due to crop rotation (RCW 90.14.140(1)).

Ecology may acquire trust water rights, including storage rights, on a permanent or temporary basis "by purchase, lease, gift, or other appropriate means other than condemnation" (RCW 90.38.020(1)(a)). If Ecology acquires such a right for instream flow purposes, it must be administered in compliance with that condition (RCW 90.38.020(1)(a)). Trust water rights retain the same priority date as the water right from which they originated. Trust water rights cannot be authorized unless Ecology determines that no existing water rights would be impaired (RCW 90.38.040(5)(a)).

3.2.1.4 Trust Water Rights

In the Yakima Basin, a trust water right means both a water right that is no longer required to be diverted for a beneficial use because of water conservation measures that improve an existing system and any other water right acquired by Ecology for management in the Yakima River Basin trust water rights program (RCW 90.38.010(3)). Ecology may acquire trust water rights, including storage rights, on a permanent or temporary basis "by purchase, lease, gift, or other appropriate means other than condemnation" (RCW 90.38.020(1)(a)). Trust water rights may be used for instream flows, irrigation or other beneficial uses.

The trust water rights statute authorizes Ecology to enter into contracts with water users to assist in financing water conservation projects with state and/or federal funding (RCW 90.38.030). In exchange for funding, the water users convey the trust water rights to Ecology. A trust water right created by a conservation project is "that portion of an existing water right, constituting net

water savings, that is no longer required to be diverted for beneficial use due to the installation of a water conservation project that improves an existing system" (RCW 90.38.010(3)). The statute defines net water savings as "the amount of water that through hydrological analysis is determined to be conserved and usable for other purposes without impairing existing water rights, reducing the ability to deliver water, or reducing the supply of water that otherwise would have been available to other water users" (RCW 90.38.010(2)). Each of the alternatives considered in this EIS, including the No Action Alternative, include water conservation measures, which may result in the creation of trust water rights.

If Ecology acquires a water right for instream flow purposes it must be administered for those purposes (RCW 90.38.020(1)(a)). Trust water rights retain the same priority date as the water right from which they originated. Trust water rights are not subject to relinquishment for nonuse under RCW 90.14.140 through 90.14.910 (RCW 90.14.140(2); 90.38.040(6)).

3.2.1.5 Statutory Adjudication of Water Rights

A water rights adjudication is a court proceeding to establish the title (quiet title) to water rights by determining the validity and extent of existing water rights in a specified area (RCW 90.03.110 to 90.03.240). New water rights are not granted as part of the adjudication process. The proceedings take place in county superior courts. The surface water rights in the entire Yakima Basin are being adjudicated in Yakima County Superior Court. The decisions made in the adjudication will determine the extent, validity, and relative priority of all surface water rights in the Yakima Basin, including those in the Ahtanum Creek Watershed.

At the end of the adjudication, the court issues a decree confirming water rights and describing the nature of those rights. Ecology subsequently issues a water right certificate that incorporates the court's findings (RCW 90.03.240). Water rights subject to an adjudication that are not confirmed by the court are lost or extinguished. Additional information on the Yakima Adjudication is located in Appendix B.

3.2.2 New State-Based Water Rights

Ecology must make four findings regarding a new water right application to issue a permit: (1) the proposed use of water must be for a beneficial purpose; (2) there must be water available for appropriation; (3) the proposed use must not impair existing water rights; and (4) the proposed use must be in the public interest (RCW 90.03.290).

Beneficial uses include such things as stock watering; industrial, commercial, agricultural and domestic use; irrigation; and fish and wildlife maintenance (RCW 90.54.020(1)). Water must be available for appropriation from both a legal and a technical perspective. Technically, there must be water physically available from the source to meet the requested quantity of water. Legally, water is available only if it can be appropriated without impairing existing water rights, either by reducing the quantity available to satisfy those rights or by reducing the quality of the water available. For purposes of the impairment analysis, water rights include rights to withdraw groundwater or divert surface water, applications for new water rights, and instream flows set by

administrative rule. Ecology can only issue a permit if the use of water would be in the public interest and would not be a detriment to public welfare.

In 1979, Reclamation filed for withdrawal from appropriation all unappropriated surface water in the Yakima River Watershed under Chapter 90.40 RCW. The filing was made when Congress authorized the Yakima River Basin Water Enhancement Project. The withdrawal needs to be extended every five years or less by the Department of Ecology. The Reclamation withdrawal has received extensions and is still current. Therefore any new surface water use in the Yakima River Basin, such as the storage right for the Pine Hollow Reservoir, would need to be agreed to by Reclamation. The new surface water user would need to demonstrate to Reclamation and Yakima Project water users that the new use would not adversely impact their water rights and not affect the Yakima River Basin Water Enhancement Project.

Construction and operation of new storage facilities would require obtaining a reservoir permit from Ecology (RCW 90.03.370). Applications for reservoir permits are subject to the permitting requirements in RCW 90.03.250 through 90.03.320. Generally, parties that propose to put the stored water to a beneficial use must also file an application for a secondary permit. However, a secondary permit is not required where a water right permit or certificate for the source of the stored water authorizes the beneficial use (RCW 90.03.370(1)(c)). Thus, a secondary permit would not be required for water users in the Ahtanum Creek Watershed who currently have water rights to Ahtanum Creek that are confirmed in the Yakima Adjudication. If water users wish to have additional quantities of water from storage over and above their adjudicated amount, they would be required to file for a secondary permit.

3.2.3 Tribal Water Rights

Federal tribal reserved water rights are primarily based on the *Winters* Doctrine (*Winters v. United States*, 207 U.S. 564 (1908)). The two main principles of this doctrine are that: (1) when the United States creates reservations, it implicitly includes a reservation of water in an amount necessary to fulfill the purposes of the reservation; and (2) the priority date of the water right is the date the reservation was created. Courts have generally held that tribal reservations created in the nineteenth century were primarily intended to give the tribes an agricultural base. Creation of a tribal reservation may also imply the use of water for long-established aboriginal uses such as fishing and hunting. The priority date for water for such aboriginal uses is time immemorial.

Federal tribal reserved water rights are not subject to relinquishment or abandonment for nonuse. The reserved rights are for potential future use as well as historic use. The future water right for agriculture is defined by the practicably irrigable acres (PIA) standard—those areas susceptible to sustained irrigation at a reasonable cost. The number of acres included within PIA is the number currently under irrigation plus those susceptible to irrigation but not yet developed.

Federal reserved water rights may be adjudicated in state court under the McCarran Amendment, (43 U.S.C. sect. 666(a)). Yakama Nation water rights are being adjudicated as part of the Yakima Basin Adjudication. The Yakama Nation's water rights are briefly described in Appendix B (page B-11).

3.2.4 Irrigation District Laws

Irrigation districts are public entities formed according to state law. The primary purpose of an irrigation district is to divert and convey water to the water users for irrigation of the lands within the district. An irrigation district may be formed for several purposes, including the construction or purchase of new irrigation works, construction or repair of diversions structures, and contracting with the federal or state government for irrigation purposes (RCW 87.03.010).

Under Washington law, individual water users within the irrigation district are the owners of the water rights. An irrigation district is a trustee for the water users within the district and is obligated to deliver water to the water users based on their water rights and subject to the bylaws and regulations of the district. Special provisions apply to transfers of water rights within and between irrigation districts. A change in place of use by one or more water users within an irrigation district does not require Ecology's approval if the water use continues within the irrigation district; the only approval required is from the board of directors of the irrigation district. Additional information on the transfer of water rights within and by irrigation districts is included in Appendix B.

The only irrigation district in the Ahtanum Creek Watershed is the AID, which is an unusual district because it does not own any canals, diversions, or distribution works. The AID uses Ahtanum, Bachelor, and Hatton Creeks as the conveyance works to deliver water to the individual users who divert directly from the creek. In addition, the WIP, an irrigation project operated by the Bureau of Indian Affairs in consultation with the Yakama Nation, is located on the south side of Ahtanum Creek within the boundaries of the Yakama Reservation. The WIP diverts water from Ahtanum Creek and delivers it to reservation landowners in the northern portion of the WIP (Ahtanum Unit) via the Ahtanum Main Canal and Lower Canal. ~~Water users pay assessments to the WIP, and t~~The WIP delivers water to tribal and non-tribal fee owners and properties held in trust for the benefit of the Yakama Nation.

3.2.5 Bureau of Reclamation Laws and Policies

Reclamation operates the Yakima Irrigation Project (Yakima Project) for irrigation water supply, instream flows for fish, and flood control. The Yakima Project~~which~~ supplies water to most of the water users who divert surface water from the Yakima, Naches, and Tieton Rivers. The Yakima Project provides water to about 361,000 irrigated acres in the Yakima Project and represents about 70 percent of the total surface water diversions for major irrigation entities in the Yakima River Basin. The Yakima Project includes five major reservoirs with a total capacity of 1,065,400 acre-feet. A sixth reservoir, Clear Lake, has a capacity of 5,300 acre-feet and is used primarily for recreational purposes. The water supply for the Yakima Project is derived from natural runoff, storage, and return flow from irrigated areas.

Reclamation prepares forecasts of the expected Total Water Supply Available (TWSA) for the Yakima Project. TWSA represents the combined quantity of unregulated flow, return flow, and stored water available for use. TWSA is computed at Sunnyside Dam. The forecast is used to determine the adequacy of water supply to meet entitlements. Since 1995 the forecast of TWSA has also been used to determine the magnitude of target flows over Sunnyside and Prosser Diversion Dams pursuant to the Yakima River Basin Water Enhancement Project (Title XII,

Public Law 103-434). Instream flow needs (target flows) are met from TWSA prior to determining if proration is necessary. Proration is the process Reclamation employs in water-short years to allocate the TWSA.

The volume of TWSA can vary substantially depending on snowfall conditions in the Cascade Mountains. The average TWSA, covering a period since 1940, is over 3,000,000 acre-feet. During drought periods such as in 1977, 1993 and 1994, TWSA was just over 2,000,000 acre-feet. In most years, unregulated flow (flow in excess of that needed for filling reservoirs or derived from tributaries without storage reservoirs) can meet irrigation demands up to early July. At that time, the Yakima Project goes on "storage control" and most irrigation demands are then met from reservoir releases. During drought periods that date is earlier, usually during May.

3.3 Habitat Management

There are several federal and state regulations and policies related to the protection of habitat. This section describes those regulations and policies that are relevant to habitat protection in the Ahtanum Creek Watershed.

3.3.1 Federal Endangered Species Act

The ESA was enacted in 1973 to conserve endangered and threatened species and the critical habitat on which these species depend. In the Ahtanum Creek Watershed, Two fish species and one bird are listed as threatened species: Middle Columbia River steelhead, bull trout, and bald eagle.

The ESA is administered by NOAA Fisheries and the USFWS. Terrestrial and freshwater species are the responsibility of the USFWS, while marine and anadromous species such as salmon are the responsibility of NOAA Fisheries. The ESA defines an endangered species as one in danger of extinction throughout all or a significant portion of its range, and a threatened species is defined as any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The ESA includes protective regulations for listed endangered or threatened species.

The primary protective regulations of the ESA are included in Sections 7 and 9 of the Act. Section 7 of the ESA addresses the impacts of federal actions on listed species and states that no federal agency may take an action that would jeopardize a listed species. This section of the ESA requires that any agency undertaking an action that might affect a listed species is required to consult with the USFWS or NOAA Fisheries. This "consultation" requirement extends to non-federal actions that receive federal funding or require a federal permit. The consultation is achieved through a Biological Assessment (BA), which determines the potential effect of the action on listed species. The BA is submitted to the Services for concurrence. If it is determined that an action has the potential to have an adverse effect on a species, the Services must prepare a Biological Opinion in which the agency recommends reasonable and prudent alternatives for project modifications to avoid jeopardy to the species.

Section 9 of the Act prohibits any person from "taking" a listed species. To "take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a species. The Services have defined harm to include significant damage to habitat, and the U. S. Supreme Court has upheld this interpretation.

Because there are listed species in the Ahtanum Creek Watershed, projects proposed for the ACWRP would need to be in compliance with the ESA. If any of the proposed projects have federal funding or require a federal permit, the project would be required to undergo consultation with the federal services as described above.

3.3.2 Salmon Recovery Act

In response to the proposed listing of salmonids species under the ESA, the state legislature enacted the Salmon Recovery Act (Chapter 77.85 RCW) in 1998. The Salmon Recovery Act provides state leadership in conducting planning and undertaking actions that would lead to recovery of listed species. The Act created the Governor's Salmon Recovery Office to manage the statewide salmon recovery strategy. The Act establishes a process for independent science review to ensure that sound science is used in salmon recovery planning. The Salmon Recovery Funding Board is responsible for making grants and loans for salmon habitat projects. The Board establishes criteria for allocation of funds and the review of projects.

Habitat recovery projects in the Ahtanum Creek Watershed may be eligible for funding under the Salmon Recovery Act. Funding requests should be coordinated through Yakima Basin Fish and Wildlife Recovery Board, a regional recovery organization that has been established to coordinate regional recovery planning.

3.3.3 Shoreline Management Act

The Washington State Shoreline Management Act (SMA) (Chapter 90.58 RCW) regulates development along "shorelines of the state" throughout Washington's cities and counties. The SMA does not apply to tribal reservation lands. The state dedicates stream shorelines as Shorelines of the State if water flow is greater than 20 cubic feet second (cfs) mean annual flow. The SMA requires local governments to implement three basic policies when regulating Shorelines of the State: accommodation of reasonable and appropriate uses, protection of shoreline environmental resources, and protection of the public's right to access and use shorelines (RCW 90.58.020). Preferred uses include single-family residences, ports, shoreline recreational uses, developments that provide public access opportunities, and other uses consistent with control of pollution and prevention of damage to the natural environment. Environmental protection actions refer to preserving shoreline natural resources that include vegetation, wildlife, and the water of the state and its aquatic life against adverse effects. The SMA also requires that jurisdictions include a public access element in their shoreline master programs, thus ensuring that public access is available to publicly owned areas. Portions of the shoreline of Ahtanum Creek are Shorelines of the State.

3.3.4 Hydraulic Project Approvals

Any person or agency proposing construction that would affect the flow or bed of waters of the state must obtain a Hydraulic Project Approval (HPA) from WDFW (Chapter 77.55 RCW). The HPA can impose conditions on the applicant to insure that the project will protect fish and their habitat. Examples of projects that require an HPA include streambank protection and stabilization, construction of bridges, channel changes, culvert installation, dredging, and installation or maintenance of water diversion structures. Construction of the Pine Hollow Reservoir and some of the habitat conservation projects would require an HPA. The required mitigation measures for the projects would be included in the HPA.

3.3.5 Growth Management Act

The state's Growth Management Act (Chapter 36.70A RCW) establishes goals for land use planning for cities and counties and includes a number of mandatory planning requirements. One of these requirements is that counties and cities must designate natural resource lands and critical areas within their jurisdictions. These critical areas include wetlands and fish and wildlife habitat conservation areas, including streams. Counties and cities must establish development regulations to protect critical areas. The jurisdictions must consider best available science in developing the regulations. The regulations for protecting critical areas typically include prohibitions on altering wetlands or stream channels and buffer areas to protect streams from development. Yakima County expects to adopt its revised critical areas regulations by the end of 2005. The enforcement of critical areas regulations on new development along Ahtanum Creek could help improve riparian conditions.

3.3.6 Watershed Planning Act

The Watershed Planning Act (Chapter 90.82 RCW) establishes a comprehensive and cooperative method for assessment of the current status of water resources within the state's watersheds. Under the Act, watershed plans are developed by Planning Units that are comprised of local government and interest group representatives. The watershed plans create frameworks for addressing water resource issues. The watershed plan for the Yakima River Basin was adopted in 2003. The plan identifies Ahtanum Creek as a medium priority for restoration efforts. Habitat problems identified for Ahtanum Creek include degraded riparian habitat, inadequate flows, and erosion problems.