

**PLAN OF STUDY**

**for the**

**YAKIMA RIVER BASIN WETLANDS, RIPARIAN, AND FLOODPLAIN  
HABITAT PLAN**

**December 1998**



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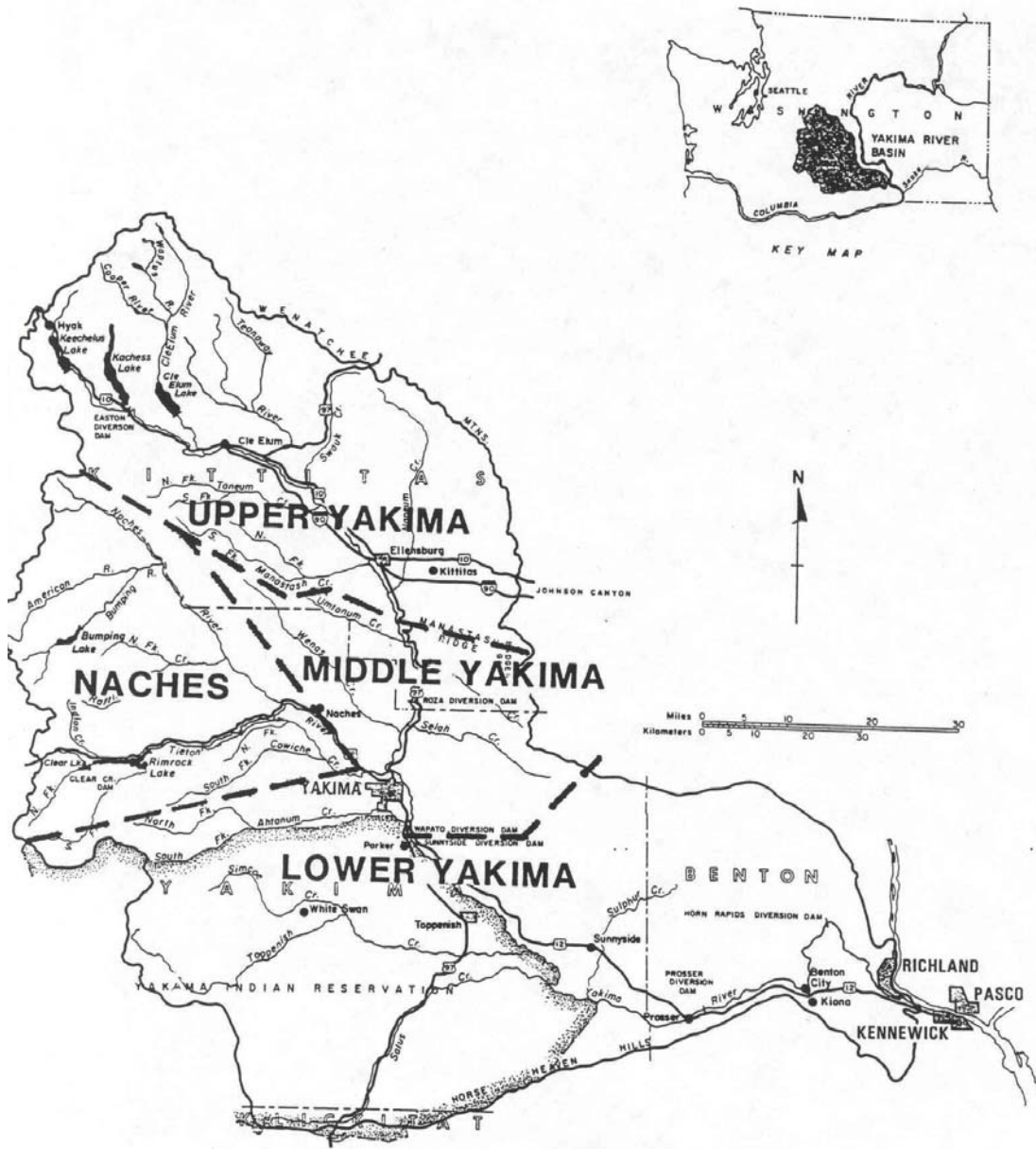


Figure 1.-Yakima River Basin Subareas (General Locations)



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**1.0 INTRODUCTION**

**1.1 BACKGROUND**

Wetlands, especially those in riparian and floodplain areas, are of special importance to fish, wildlife, flood management, and water quality. They are some of the most productive ecosystems in nature because of the ready availability of water, nutrients, and energy in close proximity (Weller, 1986). Wetlands also provide flood conveyance, shoreline protection, flood storage, water quality enhancement, sediment control, recreation, groundwater recharge, and aesthetics (PEIS, 10/97, page 3-50). According to the National Wetlands Policy Forum:

These areas are important to both the environmental and economic health of the nation. They provide habitat indispensable to a great varied array of aquatic, avian, and terrestrial wildlife. They nurture the nation's commercial and recreational fisheries. They help reduce flood damages and abate water pollution. They support many valued recreational opportunities. They provide a number of other important functions as well.

Wetlands, riparian areas, and associated buffer areas comprise less than 5 percent of Washington's land area. Yet, this small land area is used by 80 percent of Washington's 640 terrestrial wildlife species and is important to most inland fish species including salmonids. The importance of wetlands, riparian, and floodplain areas for recovering anadromous fish runs in the Yakima River basin cannot be overstated.

Wetlands are critical ecological systems of enormous importance to fish because of several functions they perform, including peak flow attenuation, base flow maintenance, thermal moderation caused by discharging groundwater, and food web production. Water saturation is the dominant factor influencing soil type and resident plant and animal communities in wetlands (Cowardin, et al., 1979). Floodplain wetlands and side channels in complex alluvial areas provide extremely valuable rearing areas for juvenile salmonids. These complex alluvial areas are limited in location and extent occurring at intervals along the river system like beads on a string (ISG, 1996).

Wetlands are important to a wide range of wildlife species because they provide specialized habitat values not found in upland areas. These habitat values include provision of cover, water, shade, forage habitat, rearing habitat, breeding habitat, brood rearing habitat, loafing areas, winter habitat, relief from extreme summer and winter temperatures, and biodiversity (Weller, 1986).

The importance of wetlands for a healthy ecological system is recognized in Title XII of the Act of October 31, 1994, (Title XII) which authorized Phase II of the Yakima River Basin Water

Enhancement Project and the implementation of the Yakima River Basin Water Conservation Program. Some of the purposes of Title XII identified in Section 1201(1) and (3) are:

“(1) to protect, mitigate, and enhance fish and wildlife through improved water management; improved instream flows; improved water quality; protection, creation, and enhancement of wetlands; and by other appropriate means of habitat improvement (emphasis added);”

“(3) to authorize a Yakima River basin water conservation program that will improve the efficiency of water delivery and use; enhance basin water supplies; improve water quality; protect, create, and enhance wetlands; and determine the amount of basin water needs that can be met by water conservation measures (emphasis added);”

## **1.2 BASIN CONSERVATION PLAN**

A primary function of the Conservation Advisory Group (CAG), formed under Title XII, is to develop a Basin Conservation Plan providing recommendations to the Secretary of the Interior and the State of Washington on the structure and implementation of the Yakima River Basin Water Conservation Program. A draft Basin Conservation Plan was completed June 25, 1997. Following public review and comment, a final Basin Conservation Plan will be published by the Secretary of the Interior. The draft Basin Conservation Plan outlines objectives, problems and needs, and potential water conservation solutions and provides guidelines, processes, and procedures to make the Yakima River Basin Water Conservation Program functional.

It is expected that the implementation of some conservation measures by participants in the Yakima River Basin Water Conservation Program may result in the loss of some wetland areas. CAG directed that these losses should be fully offset through integration of wetland mitigation plans within an entity water conservation plan, when proposed measures are expected to result in wetland losses (BCP, 6/97, page 4-40). Further, CAG adopted the following guiding principles in the Basin Conservation Plan (BCP, 6/97, page 5-8):

- Existing wetlands shall be protected from adverse impacts associated with implementation of water conservation measures to the greatest extent possible.
- Any potential loss of wetlands caused by implementation of water conservation measures shall be fully mitigated to ensure no net loss of wetlands functions and values.
- Wetlands shall be created, re-established, and enhanced in a manner which significantly addresses the problems and needs identified in section 4.6 of the Draft Basin Conservation Plan.

CAG recognized that to assure that wetland functions and values are maintained in the Yakima River basin, it is biologically preferable for wetland protection and enhancement efforts to take place within the context of a Yakima River Basin Wetlands, Riparian, and Floodplain Habitat Plan (hereafter referred to as the Habitat Plan). This, together with a series of Wetlands Enhancement Projects, could then be used to mitigate some of the wetland losses which may result because of implementation of water conservation measures in lieu of piecemeal efforts by

individual entities. The Wetlands Enhancement Projects could also be used to protect and re-establish high value wetland areas in the Yakima River basin.

### **1.2.1 Yakima River Basin Wetlands, Riparian, and Floodplain Habitat Plan**

A goal of the Yakima River Basin Water Enhancement Project is to protect, create and enhance wetlands and their associated riparian and floodplain habitats. This requires a coordinated effort on the part of the Bureau of Reclamation (Reclamation), Basin Conservation Program participants and fish and wildlife resource managers. Therefore CAG recommended the development of a Habitat Plan to help guide wetlands activities in the Yakima River Basin. This Habitat Plan would include the following:

- An inventory, rating, and functional assessment of existing wetlands.
- A comparison of historical and current conditions of wetlands and their associated riparian and floodplain habitats at a landscape scale.
- Identification of high value wetlands, riparian areas and floodplain habitats.
- Identification of constraints and opportunities to protect, create and enhance wetlands and their associated riparian and floodplain habitats in the Yakima Basin.
- A ranking of priority areas for protection, re-establishment, creation, and enhancement in each of the four subareas of the Yakima River basin identified in the Basin Conservation Plan.

### **1.2.2 Wetlands Enhancement Project**

Using the Habitat Plan as a guide, CAG recommended that a Wetlands Enhancement Project then be undertaken by Reclamation, the Washington Department of Ecology (Ecology), and the basin fish and wildlife managers in each of the four subareas to assist in protecting, creating, and enhancing high value wetlands and fish and wildlife resources. This Wetlands Enhancement Project would provide a cost effective and ecologically advantageous opportunity to enhance wetlands or to mitigate incidental losses of wetlands resulting from implementation of water conservation measures by “pooling” and directing mitigation efforts toward priority areas.

## **2.0 PLAN OF STUDY**

### **2.1 PURPOSE**

This Plan of Study (POS) addresses the development of the **Habitat Plan**. The Habitat Plan is to help guide Reclamation's water and land acquisition activities; entity water conservation planning and wetland mitigation efforts; and the protection, creation, and enhancement activities of other public and private organizations with an interest in wetlands, fish, wildlife, and special aquatic areas in the Yakima River basin (BCP, 6/97, page 5-9).

The Habitat Plan will be used to guide the subsequent development of a Wetlands Enhancement Project in each of the four subareas identified in the Basin Conservation Plan.

### **2.2 STUDY AREA**

The study area comprises the Yakima River basin. The Yakima River, a tributary to the Columbia River, drains an area of about 6,000 square miles (see figure 1) and originates high on the eastern slopes of the central Cascade Mountains east of Seattle. The Yakima River flows for about 200 miles southeast to its confluence with the Columbia River near Richland, Washington (PEIS, 10/97, page 1-1).

Major tributaries include the Kachess, Cle Elum, Teanaway, and Naches Rivers. The Naches River, the primary tributary to the Yakima, enters the mainstem of the Yakima River at the city of Yakima and has several tributaries of its own, such as the Bumping, American, and Tieton Rivers (PEIS POS, 3/96, page 15).

The National Wetlands Inventory identified 43,695 acres of wetlands within the Yakima River Basin. This includes 41,513 acres mapped as polygons and approximately 2,182 acres mapped as linear wetlands (1,800 miles). These are comprised of 20,040 acres of herbaceous wetlands, 20,044 acres of woody (shrubs and/or trees) wetlands, and 3,611 acres of unvegetated wetlands. In addition, deep water habitat was also determined with lakes and reservoirs accounting for 19,458 acres and rivers accounting for 9,732 acres.<sup>1</sup>

### **2.3 AUTHORITY**

Title XII, Sec. 1201 provides that protection, creation, and enhancement of wetlands to protect, mitigate, and enhance fish and wildlife is a project purpose.

Title XII, Sec. 1203 (a) (1) provides for the establishment and administration of a Yakima River Basin Water Conservation Program, one of the purposes of which is the protection and enhancement of fish and wildlife resources, including wetlands.

Title XII, Sec. 1211 provides authorization for environmental compliance activities including the conduct, in cooperation with the State of Washington, of an inventory of wildlife and wetland

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<sup>1</sup> Final Fish and Wildlife Coordination Act Report of October 1996 prepared for the Programmatic Environmental Impact Statement, Yakima River Basin Water Enhancement Project, Washington.

resources in the Yakima River Basin and an investigation of measures, including “wetland banking,” which could be implemented to address potential impacts which could result from activities taken under this title.

Title XII, Sec. 1203(j) provides authorization for design, implementation, post-implementation monitoring and evaluation of conservation measures, and addressing environmental impacts.

## **2.4 FUNDING**

Funding for the preparation of the Habitat Plan will be provided pursuant to Sec. 1211 of Title XII authorizing an appropriation of \$2,000,000 for environmental compliance activities, including an inventory of wildlife and wetland resources.

## **2.5 MANAGEMENT**

Reclamation and Ecology, in collaboration with the basin fish and wildlife resource managers, should be involved in the development of the Habitat Plan. At a minimum, other participating entities should include:

- U.S. Fish and Wildlife Service (USFWS)
- Yakama Indian Nation (YIN)
- Washington Department of Fish and Wildlife (WDFW)
- Irrigation district representative

## 2.6 WORK SCHEDULE

The tentative work schedule is shown below. This will be further refined by the team as a part of its preparation of the plan of study.

### HABITAT PLAN Tentative Work Schedule

ACTION	WHO	TIME FRAME
Form the team	Reclamation	1 month
Complete the Plan of Study	Team <sup>1</sup>	1 month
Advise CAG of the Plan of Study progress	Team	@ regular meetings
Initiate preparation of Habitat Plan	Reclamation & Ecology	2 weeks <sup>2</sup>
Submit monthly plan development progress reports to the Team	Plan preparer	on-going
Complete a draft Habitat Plan	Plan preparer	9 months
Review draft Habitat Plan and comment	Team	1 month
Complete the final Habitat Plan	Plan preparer	2 months
Print copies of the Habitat Plan	Plan preparer	1 month
Select the Wetland Enhancement Projects, acquire sites, and evaluate the project success	Reclamation provides the lead	After the plan is completed

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<sup>1</sup> The team consists of a representative from Reclamation, Ecology, Yakama Indian Nation, WA Department of Fish & Wildlife, an irrigation district, and US Fish & Wildlife Service.

<sup>2</sup> The time frame will be extended 4 to 5 months if the plan is contracted to a private organization.

## 3.0 STUDY COMPONENTS

### 3.1 WETLAND, RIPARIAN & FLOODPLAIN HABITAT INVENTORY

The wetlands, riparian and floodplain habitat inventory is to be conducted on a “landscape scale” to identify in broad terms where these habitats exist in the Yakima River basin.

#### 3.1.1 Definitions

The Corps of Engineers (COE) (Federal Register, 1982), the Environmental Protection Agency (EPA) (Federal Register, 1985), the Washington State Shoreline Management Act (SMA), and the Washington State Growth Management Act (GMA), all define wetlands as follows:

“those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

In developing the National Wetland Inventory, an area was classified as wetland if it met one or more of the following three attributes:

“(1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year” (Cowardin et al. 1979).

Floodplain is defined as the area inundated by the approximation of a flood of a certain recurrence interval. The current 100-year floodplain is approximated by the Federal Emergency Management Agency (FEMA) floodplain supplemented with the knowledge of the extent of known flooding. (Note that numerous areas outside of the FEMA 100-year flood plain were inundated by recent floods of lower magnitude.) The historic or geomorphic floodplain is defined as the area that was occasionally flooded prior to the construction of levees, railroad grades, road fills, canals, drains and other impediments to overland flow and prior to the development of features such as dams and diversions that limit the magnitude and frequency of flooding. The geomorphic criteria for recognizing the historic floodplain is often the presence of terraces at the edges of the geomorphic floodplain. The discharge and recurrence interval for historic floods should be estimated for the floodplains of interest for the period prior to the construction of storage reservoirs.

Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (rivers, streams, lakes or drainage ways). Riparian areas have one or both of the following characteristics: 1) distinctly different vegetative species than adjacent areas, and 2) species similar to adjacent area but exhibiting more vigorous or robust growth forms. Riparian areas are usually transitional between wetland and upland.

### **3.1.2 Products**

- a. Report on existing wetland inventory data available for the Yakima basin and an evaluation of those data with respect to accuracy and utility.
- b. Report on methodology used to develop a wetland map for the Yakima basin, including a description of any ground truthing done to confirm existing data or techniques used to collect new inventory information. The report will also identify what portions of the basin are included in the inventory.
- c. Digitized wetland inventory map for the Yakima basin on CD-ROM if technically feasible.

### **3.1.3 Possible Data Sources**

- a. National Wetland Inventory Maps. The USFWS has put this information in GIS layers for the “Final Fish and Wildlife Coordination Act Report” of October 1996, prepared for the Programmatic Environmental Impact Statement, Yakima River Basin Water Enhancement Project, Washington.
- b. Digitized Natural Resources Conservation service (NRCS) Hydric Soils Maps or other available digitized soil maps showing hydric soils or hydric soil inclusions.
- c. WDFW “Priority Habitat and Species” Maps.
- d. Natural Heritage Data Points (rare/endemic wetland plants).
- e. Other GIS layers may exist that identify wetlands.
- f. Aerial photos.

## **3.2 WETLAND RATINGS AND ASSESSMENT OF FUNCTIONS AND VALUES**

### **3.2.1 Wetland Ratings**

The Basin Conservation Plan requires that potential impacts to wetlands from implementation of water conservation measures be identified in water conservation plans and feasibility investigations. The Plan further directs that high value wetlands be identified and protected. High value wetlands are to include wetlands rated as Class I or II under Ecology’s Washington State Wetland Classification System for Eastern Washington (October 1991, Publication #9158), floodplain wetlands, and wetlands which provide connections between areas of wildlife habitat or special aquatic sites. Impacts to other wetlands, not rated as high value, are also to be identified and avoided where possible.

A rating scheme to identify high value wetlands should be included in the Habitat Plan. A map, developed at the landscape scale, should also be included showing relative wetland values to help direct the conservation activities and the selection of Wetlands Enhancement Projects.

### **3.2.2 Assessment of Wetlands Functions and Values**

Wetlands are some of the most productive and dynamic habitats in the world. The physical, chemical, and biological interactions within wetlands are often referred to as wetland functions. These functions include surface and subsurface water storage, nutrient cycling, particulate



removal, maintenance of plant and animal communities, water filtration or purification, and groundwater recharge.

Similarly, the characteristics of wetlands that are beneficial to society are called wetland values. Perhaps these can best be thought of as the importance of a wetland function to an individual or group. Some examples of wetland values include reduced damage from flooding, water quality improvement, and fish and wildlife habitat enhancement.

It is important to maintain and restore wetland functions and values because wetlands contribute to the overall health of the environment. The motivations for assessing functions have been primarily the need to predict the effects of wetland alteration and to set appropriate requirements for mitigation. More recently, assessment of functions has been used to rank or categorize wetlands, which might ensure that wetlands with highly valued functions receive greater protection than wetlands in general.

In this analysis, function is important for both mitigation and ranking. Units of Credit need to be assigned to wetland functions and values in this analysis. The credits will be used to determine appropriate and effective mitigation measures in the Wetlands Enhancement Project areas. The establishment of credit units will allow mitigation actions to be “value for value” and not “acre for acre.”

Assessment of wetland functions and values should be compatible with hydrogeomorphic methodology (HGM). Ecology is currently developing HGM for use in eastern Washington.

For this study, the best known available science should be used to determine the definition of functions listed below and the value of each. The physical location of a wetland affects its value. Also, the situation and the desired results will influence the importance and value placed on the different functions. As wetlands mature, it is necessary to keep in mind the functions of the wetlands can and do change.

As the study progresses, a determination may be made that the following list of functions and values is not all inclusive. If so, the list should be expanded.

- Fish and Wildlife Habitat
- Water Quality
- Flood Control
- Water Storage and Aquifer Recharge
- Biodiversity
- Recreation

### **3.2.3 Products**

- a. Develop criteria to rate wetlands and riparian areas on a landscape scale. The criteria should attempt to differentiate between Ecology’s Category I and II wetlands versus Category III and IV wetlands, identify wetland/riparian areas that have an important connectivity function, and identify wetland/riparian areas on the floodplain of the Yakima River and its major tributaries. Use a rapid assessment technique to develop the criteria, survey literature and knowledgeable individuals for practical means of using

remote sensing or sampling. If the developed criteria cannot be used in conjunction with existing data sets, identify additional data needs and data collection methodologies.

b. Limited/focused collection of additional data, if necessary.

c. Rate wetlands/riparian areas using developed criteria and develop map overlay(s) showing wetland ratings.

d. Develop aquatic system map overlays depicting the following information, which are used as indicators of aquatic ecosystem functions and values, at a landscape scale;

1. Stream channel morphology (e.g. sinuosity, gradient, multiple v. single channel, confined v. unconfined) and/or stream channel morphological classification (Rosgen [1996] or similar system).

2. Hydrology - upwelling areas, gaining reaches, losing reaches, springbrooks.

3. Anadromous fish use - spawning areas, rearing areas, migration corridors.

4. Active bank-full channel width.

5. Current 10-year and 100-year floodplain and historic (geomorphic) floodplain.

### **3.2.4 Possible Data Sources**

a. National Wetland Inventory Maps and classification procedures.

b. Aerial photography of the Yakima River corridor and its major tributaries.

c. YIN limiting factor analysis.

d. Ecology's Washington State Wetland Classification System for Eastern Washington.

e. FEMA Floodplain and Floodway Maps.

f. WDFW Priority Habitat and Species Maps

g. U.S. Geological Survey (USGS) 1:24,000 topographic maps.

h. Geographically referenced fish use information (spawning & rearing - note information from YIN redd counts, and WDFW Species Interaction Study, etc.).

i. County floodplain maps and parcel maps

j. Fish distribution information and data - spawning, rearing, redd counts and associated rearing areas. Assorted data sets from YIN, WDFW, Reclamation and Central Washington University (CWU).

k. USGS studies, including Water-Supply Paper 1595

l. COE Yakima Valley Regional Water Management Study

### **3.3 HISTORIC AND CURRENT FLOODPLAIN, RIPARIAN AND WETLAND HABITAT CONDITIONS AT A LARGE LANDSCAPE SCALE**

Comparing the historic conditions with the current conditions may help natural resource managers make more informed land use decisions in the future. Areas that were historically wetlands tend to be good areas for wetlands re-creation/restoration. Areas that were historically floodplain wetland complexes often still retain hyporheic connections and can be restored to

highly productive condition cost effectively. Their position in a geomorphic floodplain is highly favorable to restoration and of critical importance to salmonids. It may be feasible to restore important wetlands to the historic condition.

### **3.3.1 Products**

- a. Develop a map/overlay of current and historic active floodplain along the Yakima and Naches Rivers.
- b. Select an existing stream channel/floodplain classification system or develop biological/geomorphological criteria to classify stream channels/floodplains.
- c. Develop a map/overlay of the current and historic stream channel/floodplain classification using the criteria previously developed or selected.
- d. Develop a map/overlay of dikes/levees, railroad grades, road fills and other floodplain impairments. Include brief annotation as to character of each element with respect to its impact on flood flows/floodplain.
- e. Develop a map/overlay reconstructing the location and extent of historic wetland channel complexes and riparian lands along selected reaches, identified in item 3.4.2.c, of the Yakima River and its major tributaries.
- d. Report comparing the current versus historic conditions of wetlands and floodplains (2-5-year and 100-year). The analysis will identify the changes which have occurred and discuss the impacts of those changes on fish and wildlife. It will also identify the constraints and opportunities that the basin's natural resource managers face, relative to those changes, in trying to ensure perpetuation of native fish and wildlife.

### **3.3.2 Possible Data Sources**

- a. FEMA Floodplain and Floodway Maps - current and historic.
- b. Geological maps showing alluvial floodplain deposits or current floodplain, and bedrock outcrops which limit ground and surface water flow.
- c. Public Land Survey data regarding streams, wetlands and riparian areas.
- d. Old survey information, railroad information, historical society photographs and historic aerial photography.
- e. Washington Department of Transportation (WDOT), COE, Reclamation or other aerial photography or floodplain maps for both the historic and current conditions. Some 1927 and 1937 photography of parts of the Yakima River corridor is available.
- f. Digitized NRCS soils information which identifies some soil series as "drained phases."
- g. Recent aerial photography and site-specific knowledge about the recent flooding (1990, 1995, 1996).

## **3.4 IDENTIFICATION AND PRIORITIZATION OF WETLAND ENHANCEMENT PROJECTS**

For purposes of this study and the Basin Conservation Plan, the Yakima River basin is segregated into four subareas based on the hydrologic characteristics of return flows from the diversion and application of water to the land. The Habitat Plan should identify and rank potential project sites in each of the sub-areas. The 4 identified sub-areas are:

### **3.4.1 Description of Subareas** (see figure 1)

#### Upper Yakima Subarea

The Upper Yakima Subarea extends 74.1 river miles from Keechelus Dam near the headwaters of the Yakima River to the Yakima River gauge in the Yakima River Canyon just upstream of the mouth of Umtanum Creek (RM139.8).

About three-fourths of the Yakima Project storage capacity is situated in this subarea: Keechelus Dam and Keechelus Lake (157,800 acre-feet) on the upper Yakima River; Kachess Dam and Kachess Lake (239,000 acre-feet) on the Kachess River; and Cle Elum Dam and Lake Cle Elum (436,900 acre-feet) on the Cle Elum River. Other major tributaries such as Cabin Creek, the Teanaway River, Swauk Creek, Taneum Creek, and Wilson Creek are unregulated and add significant flows, particularly during spring runoff when inflow to the reservoirs is being stored (BCP, 6/97, page 4-10).

#### Naches Subarea

The Naches Subarea consists of the Naches River, the major tributary of the Yakima River. The Naches River drains about 1,100 square miles and discharges from the west into the Yakima River at river mile 116.3 where the Yakima River exits from Selah Gap northeast of the city of Yakima.

About one-fourth of the Yakima Project storage capacity is located in the Naches Subarea: Bumping Dam and Bumping Lake (33,700 acre-feet) on the Bumping River; Tieton Dam and Rimrock Lake (198,000 acre-feet) on the Tieton River; and Clear Creek Dam and Clear Lake (5,300 acre-feet) on Clear Creek, a tributary to the Tieton River.

#### Middle Yakima Subarea

The Middle Yakima Subarea covers 36.6 river miles from the gauging station on the Yakima River just upstream of the mouth of Umtanum Creek to the Sunnyside Diversion Dam. The major tributary to the Yakima River in the Middle Yakima Subarea is the Naches River. Other tributaries are Umtanum Creek, Wenas Creek, Wide Hollow Creek, and Ahtanum Creek, all entering the Yakima River from the west.

The Middle Yakima subarea is divided into the Moxee Valley portion, where return flows from lands irrigated by Yakima River diversions enter the river upstream from Sunnyside Diversion Dam; and the Residual portion, where diversions are from the Yakima River but the major portions of the return flows enter the river downstream from Sunnyside Diversion Dam.

#### Lower Yakima Subarea

The Lower Yakima Subarea extends for 103.8 river miles from Sunnyside Diversion Dam to the confluence of the Yakima and Columbia Rivers. The largest tributaries to the Yakima River in the Lower Yakima Subarea are Marion Drain, Toppenish Creek, and Satus Creek, all entering

from the west from the Yakama Indian Reservation, and Sulphur Creek and Spring/Snipes Creeks which flow in from the east.

### **3.4.2 Products**

- a. A course scale “landscape plan” for wetland, riparian and floodplain habitat identifying wetland/floodplain core areas and connective linkages to adjacent areas.
- b. Prioritization criteria for each sub-area that will define high priority areas for Wetlands Enhancement Projects. Included in those criteria will be an assessment of the feasibility of restoring/enhancing wetlands in areas where existing wetland/floodplain impairments exist.
- c. A map identifying and prioritizing high priority areas for wetland/floodplain reestablishment and enhancement for each subarea.
- d. A “GAP analysis” map showing current high value wetland/floodplain habitat, key habitat for fish and wildlife and “best opportunities” for re-establishment/enhancement. An overlay of the existing “protection from development” status [e.g., 1) protected public ownership, 2) area protected from incompatible development, and 3) area subject to development].

### **3.4.3 Possible Data Sources**

The products developed for the inventory, rating, functional assessment and historic assessment parts of the Habitat Plan will serve as the data sources for this item. Other potential data sources include:

- Land ownership data showing public land versus private lands
- Parcel size/ownership data

## **4.0 OTHER WETLAND ENHANCEMENT PROJECT ISSUES**

### **4.1 WETLAND MITIGATION BANKING IN WETLANDS ENHANCEMENT PROJECT**

Title XII provides for Reclamation, in cooperation with the State of Washington, to investigate “wetland banking” as a means to address impacts to wetlands that occur through implementation of approved activities. The BCP also indicates that Reclamation should develop an accounting system to track wetland losses and mitigation to ensure that there is no net loss of wetland values or functions. The accounting system is to be consistent with Federal guidelines for the establishment, use and operation of “wetland mitigation banks.”

In developing potential wetland mitigation banking program for the Yakima basin input from stakeholders who may not be involved in development of the Habitat Plan will likely be necessary. In particular, the views of the irrigation entities that would possibly use the mitigation bank when implementing approved conservation activities should be solicited as well as the views of other entities that may use the bank to mitigate for their activities. As such, it may not be possible to include final guidelines for implementation of a wetland mitigation bank to address wetland mitigation under Title XII as part of the Habitat Plan. It may be possible, however, to develop draft guidelines for review.

#### **4.1.1 Products**

- a. Draft guidelines for a Title XII/Yakima basin wetland mitigation bank.

#### **4.1.2 Possible Data Sources**

- a. 1995 Federal guidelines for establishment of wetland mitigation banks.
- b. Draft Washington State Wetland Function Assessment Project report.
- c. Existing wetland bank guidelines.