




WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

**WATERSHED APPROACH
TO
WATER QUALITY MANAGEMENT**



**NEEDS ASSESSMENT
FOR THE
MID - COLUMBIA
WATERSHED**

JUNE 1997

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Washington State Department of Ecology
Water Quality Program

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MID-COLUMBIA WATERSHED**

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INTRODUCTION

This assessment contains a compilation and prioritization of all the information acquired thus far in the scoping process for the Mid-Columbia Water Quality Management Area (WQMA). On November 7, 1996, members of the Mid-Columbia watershed workgroup participated in a workshop at the Department of Ecology's Eastern Regional Office. The workgroup is comprised of Ecology regional and headquarters' staff and select representatives from the community.

Before the workshop, a Preliminary Needs Assessment was developed from information/issues identified during a series of public "scoping" workshops (held in September and October) and from information gleaned from briefing papers submitted by each workgroup member (listed in Appendix C). Specific issues from these sources were organized into Appendix A of the Preliminary Needs Assessment. A copy was then provided to each workgroup member for review and comments. The assessment also contained an overall basin characterization to provide background information on the area's climate, land use, population and water quality.

During the workshop, participants refined, consolidated and prioritized water quality issues listed in Appendix A of the Preliminary Needs Assessment. A determination of high, medium or low priority was made for each issue based on overall importance and availability of resources. The issues were placed into the following categories; monitoring, information/coordination issues, potential total maximum daily load (TMDL) projects, and Geographical Information Systems (GIS) needs. A completed version of Appendix A appears in this Needs Assessment. In addition to the issues, it outlines actions to address issues (e.g. monitoring, information, coordination etc.) and assigns responsibilities to specific groups for performing these actions (EILS, WQ, CDs etc.).

The Needs Assessment is a working document that outlines the decisions made by the workgroup concerning potential water quality problems in the Mid-Columbia WQMA and potential solutions. It is produced during year one (scoping year) of the five year management cycle. The Needs Assessment also includes tables of desired field activities (e.g. monitoring projects) and other associated activities (e.g. coordination) to occur within the WQMA during years two and three of the five year cycle. These are listed as appendix X and Y respectively.

The assessment will be used as a guide for future development and exploration of priority issues, information gathering activities, and the enhancement of community involvement in support of the watershed. Initial community input was gathered to facilitate the scoping workshop, however, there will be additional opportunities to expand community participation during the water quality management cycle. The results of this assessment will be used to develop a technical project list identifying specific sites for TMDLs and monitoring, Class II inspections of permitted facilities and tasking for improved GIS capabilities. The assessment addresses schedules for issuing/reissuing wastewater permits within the watershed. Wastewater permits regulate discharges to surface and ground water under federal and state clean water legislation. This assessment also identifies and categorizes nonpoint pollution sources and proposes potential actions to address them.

ACKNOWLEDGMENTS

Major contributors to the Mid-Columbia Watershed assessment were made by regional office staff and many others representing varied areas of expertise within Ecology and the headquarters of the Water Quality Program (WQP). Sincere appreciation is extended to all participating members and especially to other cooperating programs for their contributions and input throughout the process.

Representatives of the following organizations contributed to the watershed scoping effort by preparing briefing papers and presentations for the November 7th watershed workshop.

External Participation

- Dave Koller, Conservation Districts Water Quality Partnership
- Ron Friesz, Washington State Department of Fish and Wildlife
- Donna Postma, United States Bureau of Reclamation
-
- Chuck Rice, United States Environmental Protection Agency

(Also see Appendix E for community participation)

Ecology Participation

- Environmental Investigations and Laboratory Services (EILS) Program
- Shorelands/Water Resources Program (SHWR)
- Air Program (AIR)
- Solid Waste Services Program (SWS)
- Toxics Cleanup Program (TCP)
- Hazardous Waste and Toxics Reduction Program (HWTR)
- Water Quality Program (WQ)
 - Permit Management Unit
 - Watershed Unit

(see Appendix C)

BACKGROUND

Ecology's Water Quality and Environmental Investigations and Laboratory Services (EILS) Program combined efforts to initiate the watershed approach to water quality management for implementation beginning in July 1993. Additional detail on the approach may be found in the Technical Assistance Report, Watershed Approach to Water Quality Management, July 1993. This approach manages water pollution on a geographic basis in order to:

- Promote holistic environmental management
- Promote effective resource use through state and local teamwork
- Support decision making with integrated information sources
- Enhance public awareness and environmental awareness.

The approach is based on a five step, five-year management cycle containing these elements:

- Year 1 Identify or "scope" issues by assessing available information and asking the local community.
- Year 2 Focus on data collection and monitoring.
- Year 3 Complete monitoring and analyze data.
- Year 4 Focus on developing and coordinating a technical report as an action plan.
- Year 5 Implement planned strategies and issue/reissue wastewater permits.

The watershed approach to water quality management grouped the 62 Water Resource Inventory Areas (WRIA's) of the state of Washington into 23 Water Quality Management Areas (WQMA's) or Watersheds. Each watershed was placed into a fiscal year (FY) group and scheduled for the above noted five step, five year rotating cycle in preparation for comprehensive management of both point source and nonpoint source dischargers.

The watershed management process and scheduling was designed to better identify water quality issues, to develop appropriate cooperative management strategies, to protect aquatic habitat and water quality, and to assure equitable distribution of waste assimilative capacity for dischargers. Benefits to the state include increased efficiency, cost effectiveness, and improved public participation and awareness.

The Water Quality Program's FY2001 (FYOI) watersheds are as follows: Kitsap, Lower Columbia, Upper and Lower Yakima, and the Mid-Columbia. Scoping for these watersheds will occur during the state fiscal year (FY) 1997 - July 1, 1996 through June 30, 1997

In June 1996, regional "leads" were appointed by the Water Quality Program manager to address the issues within the FY2001 watersheds. Watershed workgroups, containing representatives from all Ecology programs, will meet in October/November 1996 to support the "leads" in accomplishing this task.

During the initial scoping period, regional "leads" conducted a series of outreach meetings within their watersheds. These meetings captured community responses to four basic questions: what are your water quality concerns, what resources are at risk, what current programs are operating, and, what financial assistance and sense of priorities are recommended? By the end of 1996, all this information, along with management decisions as to resource allocations will be made available through a four page summary document.

An Ecology watershed workshop was held at the Eastern Regional Offices on November 7, 1996. The purposes of the workshop was to refine issues obtained from community members and Ecology staff, consolidate issues into categories, prioritize those considered critical during this management cycle, and to designate follow-on actions and responsibilities. In February 1997, a summary of this information will be presented for management approval. Actual solutions for the issues will be addressed in Year 4 and will become part of a watershed technical report. Provisions of this report will then be implemented the following year (Year 5).

WATERSHED DESCRIPTION

The Mid-Columbia watershed lies within Water Resource Inventory Area 41 (Appendix B, map). It covers an area of 1,605,000 acres; of which 1,054,000 acres are in Grant County, 506,000 acres in Adams County, about 37,000 acres in Lincoln County, and 8,000 acres in Douglas County. The major features of the area include the Columbia River bordering on the west, Rocky, Weber, and Lind Coulees, the Frenchman Hills, the Beezley Hills, the Saddle Mountains, the Columbia Basin Irrigation Project and the entire drainage of Lower Crab Creek. There are a number of Lakes in the area including: Moses Lake, Evergreen and Potholes Reservoirs, Warden Lake and the Quincy Lakes system. The climate is desert like. Annual precipitation is less than 12 inches with temperatures ranging from minus 10° to 110° degrees. The area has become a bit more humid since the development of the Columbia Basin Project.

Agriculture is the major land use in the Mid-Columbia Basin Watershed. Irrigated and dryland farming as well as rangeland make up the majority of the land use. There are a large variety of crops grown in the area including; potatoes, corn, alfalfa and beans. Other agriculturally related activities include cattle feedlots and dairies. Agriculture and its supporting industries are the dominant economic resource in the basin. Many of the agriculturally related jobs are seasonal. Other major industries include: food processing, fertilizer and chemical manufacturing and distribution, and irrigation and farming equipment sales and maintenance companies.

Moses Lake is home to a growing number of industries producing chemicals and products for use in the pulp and paper, electronics, and automobile industries. This growing industrial base is becoming a major economic resource for the area. Recreational activities such as boating, fishing, hunting, golfing, camping and watersports are also major economic resources.

Moses Lake is the largest city in the basin with a population of 12,500 followed by; Ephrata (5,715); Quincy (3,925); Warden (1,910) and Ritzville (1,715). There are smaller communities in Mattawa, Royal City, Lind, and George. Othello (population, 5,240) lies only partially within the boundaries of Water Resource Inventory Area (WRIA) 41. The population has increased greatly in the Mid-Columbia during the past few years. Most growth has occurred in rural developments outside of urban centers. However, the Growth Management Act has slowed rural growth and limited development to areas with existing services.

Wanapum Dam is a large hydroelectric dam located on the Columbia River within WRIA 41. It is owned and operated by the Grant County Public Utility District (P.U.D.). There are also a number of low-head hydropower dams located within the canal system of the Columbia Basin Project.

The Columbia Basin Irrigation Project has greatly affected all aspects of life within the western half of the Mid-Columbia Basin. Water pumped from the Columbia River at Grand Coulee Dam flows through the main distribution system and is diverted into the West Canal and the East Low Canal. The West Canal enters this basin near the city of Ephrata, and the East Low Canal enters the basin approximately 15 miles north of the city of Moses Lake.

Almost all of the Quincy Columbia Basin Irrigation District, and most of the East Columbia Basin Irrigation District lie within the Mid-Columbia Basin. Irrigation return water, subsurface drainage and surface agricultural drains comprise the flows of waterways within this area which have created year-round reservoirs and lakes. Streams which were previously intermittent have become year-round. The flows in Lower Crab Creek have increased at least ten fold over the years, due to the Columbia Basin Project.

Water quality varies greatly within the Mid-Columbia Basin. Surface waters, especially those used for irrigation supply, storage, runoff, or waste contain a higher level of nitrates, nutrients, and pesticides than areas where little or no irrigation exists. In the Quincy Sub-area, a majority of the wells are shallow overburden wells, which creates a greater probability of surface water to ground water interaction and contamination. In the Odessa Subarea, the soils are heavier, the wells and ground water levels are deeper, and there is less of a chance of ground water contamination by surface activities.

It should be noted that the agricultural community (both irrigated ag and dryland) has, over the years, been working toward and developing farming methods which maximize the efficiency of their operations while protecting the regions surface and ground water supplies. Farming practices have been refined to reduce the amount and types of ag chemicals necessary for crop production within this geographical region.

A REVIEW OF CONCERNS EXPRESSED BY THE COMMUNITY

During the early phases of the scoping process, representatives from Ecology met with a variety of local governmental agencies and public entities within the Mid-Columbia watershed. During the meetings, participants were asked to identify: 1) water quality issues and concerns; 2) water quality related resources at risk within the basin; 3) water quality programs/projects within the basin that are

having success; and 4) where Ecology should focus resources. As expected, the responses were diverse, but had a number of common threads running through them.

Ground Water: Many of the individuals who attended the scoping meetings were concerned about the issue of nitrates in ground water. Participants in the meetings suggested such things as leaky old well casings, possible seepage from USBR canals, irrigation of agricultural lands, and seepage from municipal treatment systems as possible sources of ground water contamination. They suggested that these potential sources be looked at during the second and third years of the WQMA cycle.

Currently a plan is underway to develop a ground water management area(s) (GWMA) in the Columbia Basin to address ground water problems. Formation of GWMA's and WQMA's bring up issues with a certain amount of overlap. The WQMA scoping process will not attempt to address issues which will be specifically covered by the proposed GWMA.

Other ground water concerns include pesticides and water rights issues, as well as the protection of drinking water.

Surface Water: Surface water quality concerns voiced at the scoping meetings include erosion, nutrient transport, elevated fecal coliform levels, the disposition of wetlands and the use of wasteways. One of the concerns frequently addressed by meeting participants was erosion of agricultural land. Siltation/erosion attributed to irrigation practices accounts for soil losses of up to 35 tons/acre per year. An increase in the number of irrigation systems in some areas (Royal Slope) has increased the volume of flows in certain surface water bodies such as irrigation return ditches, wasteways and streams. The increased volume of water results in bank instability and stream meandering which can create problems for land owners.

Another problem is elevated nutrient levels and sediment accumulation in surface waterbodies and wetlands. The erosion of agricultural land results in phosphorus laden soils being transported downstream and deposited in lakes, ponds and wetlands.

Some municipalities that previously discharged to land (SWD) are now looking into the feasibility of discharging treated wastewater into wasteways. This is an issue that will take inter-agency coordination. Some have an interest in developing ways to use reclaimed wastewater and irrigation return water.

Recreational Uses: Concerns about the protection of recreational uses such as hunting, fishing, birding, swimming and boating within the Mid-Columbia watershed, were voiced by a number of persons who attended the scoping meetings. WA State Dept. of Fish and Wildlife is very concerned about the recent decline in the fishery of Moses Lake and Potholes Reservoir, as well as the protection/enhancement of spawning habitat in many of the water ways. Migratory bird habitat in the Moses Lake area also was addressed. Water-dependent recreation is noted as being a significant contributor to the local and state economies..

(A summary of notes from Workshops is in Appendix E)

SUMMARY OF ISSUES / NEEDS AND EXPECTED ACTIONS

SURFACE WATER 303(d) LISTED WATERBODIES

The Federal Clean Water Act (CWA), Section 303 (d), requires states to develop a list of waterbody segments that are not expected to attain water quality standards after implementation of technology-based pollution controls. These controls include enforceable best management practices for nonpoint sources. The EPA requires that these controls be completed or scheduled for completion within two years of the waterbody's listing. The 303 (d) list contains all those waterbodies that require some additional management activities.

The CWA directs that a total maximum daily load (TMDL) be established for all waters on the list. EPA defines a TMDL as the sum of all pollution loads allocated to various sources and/or reserves after a public participation process. The TMDL is established so that pollution does not exceed the loading capacity of the waterbody segment in accordance with state water quality standards.

The Mid-Columbia Watershed currently has 15 waterbodies listed on the 303 (d) List for a variety of parameters, such as dissolved oxygen, pH and temperature (see Table 1). Current TMDL activities in the basin are listed in table 2.

GROUND WATER

Ground water in the Mid-Columbia region is greatly influenced by irrigation, especially in the western portion of WRIA 41 (Grant County). The Columbia Basin Irrigation Project brings more than 2,500,000 acre-feet per year from the Columbia River, through Banks Lake to the Quincy-Pasco area. In the eastern portion of WRIA 41 (Adams County), deep ground water is the only source of irrigation water and much of the agriculture is non-irrigated.

The Mid-Columbia Watershed is broken down into the Quincy Basin Groundwater Management Sub-area and the Odessa Ground Water Management Sub-area. The Quincy Sub-area lies within the Columbia Basin Project, and includes all the lands west of the East Low Canal. The Odessa Ground Water Management Sub-area lies east of the East Low Canal.

Agricultural water uses have noticeably affected the ground water system. Extensive large-scale ground water withdrawals in the region adjacent to the east boundary of the Columbia Basin Irrigation Project have caused water-level declines. Likewise, water levels beneath surface water irrigation areas have risen. Numerous uncased wells also greatly affect the hydrologic system by allowing the rapid vertical movement of ground water.

Irrigation water withdrawal from the two most common sources (Columbia River and subsurface) has caused different, but nevertheless drastic, changes in the surface water hydrology of the region. In areas where Columbia River water is the predominant source of the irrigation supply, ground water levels have increased. The corresponding rise in the ground water levels has caused increased surface water flows in streams and drains during the irrigation season. In contrast, areas that utilize ground water withdrawal for irrigation, have experienced a decline in ground water levels and a corresponding drop in surface water flows, especially during periods of critical low flow.

Nitrate in Ground Water: Agricultural use of nitrogen fertilizer has resulted in increased concentrations of nitrate in ground water. Nitrate concentrations in shallow ground water vary greatly, but have generally increased since the 1950's. Nitrate in drinking water has become a health issue in parts of the Central Columbia Plateau. Nitrate increases have been greatest in the irrigated areas (Columbia Basin Project) where the availability of irrigation water has allowed a greater use of fertilizers. In addition to fertilizers, there is a concern about nitrate contamination of ground water from the large potato processing plants in Grant County (Bean and Runsten, 1993). This process-related nitrate contamination often occurs in the same areas where there are elevated nitrate levels attributable to fertilizers. Successfully treating wastewater from these processing plants by the usual means of land application requires extensive land areas and control of the rate of application. In some areas, nitrate is being overloaded on the land. In some cases, processing plants have no onsite storage to retain wastewater during time periods when land application and related vegetation uptake of nitrogen is not feasible.

Pesticides in Ground Water: The agricultural use of pesticides, especially fungicides, has resulted in the contamination of ground water. Pesticides have been detected in about 30 percent of the wells tested. However, with the exception of EDB, banned from use in the early 80s, pesticide contamination is not currently a health risk. EDB has been detected in several areas at concentrations greater than the drinking water standard. However, it is not clear from studies to date whether contamination of ground water by pesticides is an important issue. In any case, Ecology should continue to collect pesticide data from this area as the opportunity arises in order to develop a background of data from which to compare future monitoring. Atrazine is a good example. It is the most commonly detected herbicide throughout the state, including the Mid-Columbia watershed. Presently, detected concentrations are well below health related levels. However, only continued monitoring will show whether this remains true in the future.

POINT SOURCE OVERVIEW

The Mid Columbia Watershed contains the largest number of individually permitted facilities (37) of any of the eastern region watersheds. However, only a few (7) are National Pollution Discharge Elimination System (NPDES) permitted facilities discharging to surface water. The rest are state permitted facilities (SWD) that use land treatment or land disposal or discharge to municipally owned treatment works (POTW). Several new industrial plants are in the planning or design stages. In addition, a number of municipalities are planning to construct replacement, upgraded or first time treatment facilities. Most of the industrial plants in this watershed are engaged in the food processing industry. However, plants producing products used by the electronics industry, or other specialized industries, have located in the Moses Lake area because of the availability of electrical energy. There is a detailed breakdown of permitted facilities (by permit type) within the WQMA in Tables 3 and 4.

The cities/towns of Ephrata, Quincy, Ritzville, Royal City, and Warden utilize land treatment and/or land disposal for their wastewater. All are currently in the early stages of upgrading or replacing their POTWs. Most will have completed their projects by this permitting year. Royal City currently has a SWD permit for evaporative lagoons plus some irrigation land, but is considering the option of designing a new plant which will discharge to surface water. The Town of Mattawa is in the planning stages for a project to replace failing septic tanks in their town with a sewer system and treatment plant that will discharge to the Columbia River. The Town of George is also moving ahead with

plans to construct a sewer system and a land treatment facility. Current point source grant activities within the WQMA are listed in Table 7.

Eleven (11) SWD permits are for industrial operations utilizing land treatment for their industrial wastewater. Ten (10) of these are food processing plants (potato products, fruit juices, vegetable products, etc.) or related industry (starch recovery and egg washing). Four potato processing plants are major industries which generate in excess of 2 million gallons of wastewater per day. All of these have made significant expenditures of time and money to improve, upgrade and expand their wastewater treatment systems. Wastewater produced by each of the plants is used for crop irrigation.

There are currently two proposals for new industrial plants in the Moses Lake area. One is a chemical producer and will discharge to one of the Moses Lake POTWs. The other is a food processor and will build a land treatment system. Both should be well established by this permitting year. The only other potential permit in the area is an existing industrial plant near Moses Lake that discharges to the Dunes POTW, but has never been permitted. This will be corrected as soon as discharge data for the plant is collected. Tables 5 summarizes the general permits currently issued in this watershed.

NONPOINT SOURCE OVERVIEW

Nonpoint water quality concerns in the Mid-Columbia WQMA primarily stem from agricultural practices in both the dryland and irrigated areas of the watershed. Dryland farming is the prevalent type of agricultural activity in the eastern section. Erosion caused by storm events produces sediment which directly impacts Weber, Lind and Rocky Coulees. In the Columbia Basin Project Area, the major impact of agriculture is the occurrence of nitrates in the groundwater, however, erosion due to poor irrigation practices is also a problem.

Siltation from irrigation runoff and groundwater seepage adds to surface water problems. Associated problems include the transport and deposition of nutrients and pesticides by irrigation and storm water runoff. The major impacts are on the Potholes Reservoir, Moses Lake, and Upper and Lower Crab Creek.

Other sources of pollution impacting surface and ground water include dairies and livestock operations such as cattle feedlots, failing septic systems, development of lands near surface water, some road repair/construction activities, fish hatcheries and leaking irrigation canals and wasteways.

The major concerns of the area are:

- * Impact on drinking water supplies from nitrates and pesticides in the ground water. Of special concern are shallow private wells.
- * Degradation of surface waters from siltation, nutrients and pesticides. The surface waters include Moses Lake, Potholes Reservoir, Upper and Lower Crab Creeks, irrigation ditches, Rocky Ford Creek and the coulees.
- * Significant decline of the fisheries in Moses Lake and Potholes Reservoir; although the exact reason for the decline is not known, it may be water quality related.

- * Impact on recreational activities from degraded waters and declining fisheries.
- * Impact of wasteways on waterfowl and fisheries.
- * Data gaps and lack of coordination of existing data for surface and ground water.
- * Decline of spawning habitat in creeks directly connected to the Columbia River.

AVAILABILITY OF WATER RESOURCES

Over the years, Ecology's Water Resources program has collected water level measurements from a network of wells (typically irrigation wells) scattered throughout the Columbia Basin. Irrigation is the primary use for both ground and surface water rights throughout the Mid-Columbia watershed. Ecology has issued 116 surface water rights and 1322 ground water rights within the watershed. There are 100 outstanding water right applications and changes on file for the watershed. Additionally, there are 185 surface water and 2685 ground water claims on file with the department (filed under the Claims Registration Act, Chapter 90.14 RCW). Streamflow data collected by the U.S.G.S. (both historical and currently active gages) is available for seven (7) gage sites within the watershed.

Areas of cross program considerations would include: 1) where water is the suggested medium of use or needed in a treatment process, water must be available to be appropriated; and 2) any permitting that may require that certain quantities of water are available (maintain streamflows) to ensure appropriate dilution rates.

Currently the Water Resources program faces many varied problems. These include: possible rewrite of the state water code; the salmon issue and related main stem Columbia River/Snake River moratorium; lack of definition of a hydraulic continuity policy; limited water rights application processing budget; and a severely limited ability to regulate water use as interpreted by the courts (Sinking Creek State Supreme Court decision).

EXISTING AMBIENT MONITORING DATA

Ecology's Ambient Monitoring Section (AMS) has collected data on three stations on Lower Crab Creek and one station on Upper Crab Creek. However, recent data (last 10 years) exists for only two stations; Crab Creek near Beverly (near the mouth of Lower Crab Creek) and Crab Creek near Moses Lake (near the mouth of Upper Crab Creek). Crab Creek near Beverly is the only AMS station in the Basin with sufficient data for a statistical trend assessment. Samples were usually collected monthly. Water quality constituents measured included temperature, pH, conductivity, dissolved oxygen, turbidity, total suspended sediments, fecal coliform bacteria, and five nutrients. Macroinvertebrates have also been sampled in the basin. In addition to stream stations, AMS has monitored several lakes in WRIA 41 for conventional water quality, toxics contamination and invasive aquatic plants.

SHORELANDS

Local governments implementing Shoreline Master Programs (SMPs) within the area include Grant, Adams, Lincoln counties, and the city of Moses Lake. Shorelines of statewide significance include lower Crab Creek, Lind Coulee, the Columbia River, Moses Lake and Potholes Reservoir. Rocky Ford Creek is a spring fed creek, notable as a high quality trout fishery. There are scores of other lakes which are shorelines of the state within the WRIA.

Grant County is experiencing a rapid rate of land segregation and population increase. Much of the residential development is occurring on its lakefronts, with attendant threats to water quality from erosion and nutrient loading, and impacts to wildlife and fisheries habitats. This is prominent on Moses Lake but also on many smaller lakes to the north.

The most widespread and common impacts to shoreline resources are associated with agriculture in the region, particularly grazing impacts on riparian corridors, but also associated wetlands and their plant communities. Ongoing agricultural activities and irrigation facilities are largely exempt from the shoreline substantial development permit process. Most of the shorelines in the region are designated in the Rural shoreline environment, with much of the balance Conservancy. The most notable exceptions are the Urban and Suburban environments of the Moses Lake area.

WETLANDS

The wetlands found in the Columbia basin are important to the economy of the area (hunting, fishing, water quality) and a key component to the new ecology of the area. The Columbia basin project impacted thousands of acres of natural sage brush, replacing that ecosystem with irrigated agriculture.

A result of that conversion was the creation of numerous emergent wetland systems due to the rise in the ground water table. The result of these wetlands forming in the landscape has been an evolution of wetlands within a new ecosystem. The role wetlands play in ground water recharge combined with their ability to absorb excess nutrients and toxins is an important function that may have possible negative side effects. Ecology wetlands staff are currently researching the significance of the presence of salinity trace elements in irrigation return flows and whether or not they pose a problem.

WASTE MANAGEMENT IMPACTS

The Hazardous Waste and Toxics Reduction Program's (HWTRP) main water quality concerns are ensuring hazardous waste is managed to prevent contamination of ground and surface water and ensuring that hazardous waste generators who are discharging treated hazardous waste do so in a manner that meets the requirements of the Water Quality Program and does not just transfer the waste from one media to another. Many of the industries within the WQMA that are categorized as either large or medium quantity hazardous waste generators also have NPDES or SWD Permits. Given the large number of farms in the watershed, many of which categorize as small quantity generators, a potential exists for adverse effects on water quality if small quantities of hazardous waste from those operations are improperly managed.

The Solid Waste Financial Assistance Program (SWFAP) has one active landfill and one closed landfill within the WQMA. The Ephrata landfill is a mixed municipal solid waste landfill. It is unlined and has approximately 10 monitoring wells at various depths. Sampling data is available dating back to the mid 1980s. Recent sampling has detected high levels of Volatile Organic

Compounds (VOC). The I-90 landfill located west of Moses Lake adjacent to and south of Interstate 90, closed in the mid 1980's. Four monitoring wells were constructed in 1992, and four ground water samples were taken from each (data is available through the Eastern Region SWFAP).

AIR POLLUTION IMPACTS

Air-related activities/programs within the WQMA include registration and operating permits, temporary source permits, asbestos abatement notification, agricultural permits, and open burning programs. The two major sources of air pollution are wind blown dust and smoke mostly from agricultural activities.

Some air pollution prevention and control strategies consume water and/or result in a wastewater discharge. For example, dust control is often accomplished by applying water to roads or construction sites. Wet scrubbers, such as those used on asphalt plants, discharge a cleaner air stream by scrubbing contaminants out of the air and discharging them as water pollutants. Likewise, there are water pollution control strategies which result in air contamination. For example, the remediation of petroleum-contaminated ground water is often accomplished via air stripping, a simple media transfer of the contaminants from water to air. Wastewater treatment plants emit air contaminants from anaerobic digesters and storage lagoons that result in strong odors. Efforts to improve cross program coordination to incorporate odor control is needed to prevent future complaints and adverse public impacts.

The Air Quality Program currently regulates cattle feedlots, rock crushers, and asphalt and concrete batch plants through the registration program. These facilities also are required (by water quality regulations) to have NPDES, SWD or General Permits for their wastewater/stormwater discharges. Potato processors in the Mid-Columbia watershed are required to have NPDES and SWD Permits as well as Title V Air Operating Permits and Notice of Construction. An estimated 145 commercial/ industrial sources are located in the Mid-Columbia WQMA.

Emerging air quality issues include the "coming out" of agricultural lands previously held from production under the Conservation Reserve Program (CRP). The National Resource Conservation Service (NRCS) reports that a large number of acres within the WQMA are due to go back into production in the near future. This land will then be tilled and added to acreage currently exposed to potential wind erosion.

TOXICS CLEANUP ACTIVITIES

The Toxics Cleanup Program (TCP) has responsibility over a wide variety of sites in the Mid Columbia watershed. Most sites represent a potential threat to ground water and/or surface water quality. Ground water contamination has been confirmed at several facilities within the basin.

ONGOING ACTIVITIES WITHIN THE WQMA

There are currently numerous projects/programs within the Mid-Columbia watershed addressing nonpoint source issues. Some are very localized but many are broad in scope. One major project in the early stages of planning is the formation of at least one Ground Water Management Area (GWMA) for the project area. The county commissioners from Grant, Adams, Lincoln and Franklin counties are in the process of submitting a request to Ecology to designate the area as a GWMA. (More than one GWMA may be proposed.) The conservation districts and irrigation districts, plus many other local agencies and groups would participate in the GWMA process. Participating state agencies include Ecology, Agriculture and Health. EPA will also be a partner in the process. All of the interested agencies have signed a memorandum of understanding to better facilitate the development of the GWMA. A Centennial Clean Water Fund (CCWF) grant from Ecology to Grant County will help support the Mid-Columbia Watershed Planning Council's efforts in the process.

Six Conservation Districts are located or partially located within the Mid-Columbia Watershed: Adams, Lincoln County, Moses Lake, Othello, Upper Grant, and Warden. These conservation districts and the Natural Resources Conservation Service (NRCS) have considerable knowledge and experience with agricultural best management practices (BMP's) for irrigation and dryland farmland activities, soil erosion, and rangeland. The Upper Grant, Moses Lake, Warden and Othello CDs have joined together form the Columbia Basin Alliance of Conservation Districts. The Alliance was created to maximize the resources of the individual CDs. Adams and Lincoln CDs are also considering the benefits of joining the Alliance. The existence of the Alliance is beneficial for Ecology from the standpoint that it maximizes the interaction with the individual CDs.

The revised/new US Dept. of Agriculture program - Environmental Quality Incentives Program (EQIP) - may provide a source of funding to address area problems. The Natural Resources Conservation Services (NRCS) offices are coordinating the effort to identify local problems and special areas of concern which will be targeted for funding. Ecology's nonpoint staff will be involved in planning, review and technical assistance where requested.

The Adams County Conservation District (ACCD) in cooperation with the NRCS has recently completed a Centennial Clean Water Fund grant project that provided for implementation of BMPs on Weber Coulee. The project included the preparation of farm plans for both irrigated and dryland farms that included pesticide and nutrient management as well as water use management and tillage recommendations. Other BMPs implemented included road risers, gabion weirs, ecology block structures (sediment dams) and vegetation approaches. The ACCD estimates that approximately 40 percent of the 183,000 acre area was impacted by the project, either directly or through education and information.

The Adams County Health District and ACCD are addressing the abandoned well concern, while the Health District is conducting an on-site system repair and maintenance education project.

The ACCD and the NRCS will expand their area of implementing BMPs to the Lind and Rocky coulees through a new Centennial Clean Water Fund grant. In preparation, the Conservation District has completed a draft Middle Columbia Watershed Management Plan. This will supplement the completed Weber Coulee Watershed Plan. The Middle Columbia project will address both dryland and irrigated farming practices to reduce sediment loading, with a proposed target of a 50% reduction. Also, through an RC&D sponsored project, McElroy Lake is scheduled for restoration. Some of the other projects/programs currently proposed or operating within the basin are as follows:

- * Irrigation Water Management Grants (Centennial Clean Water Fund funded) provided to Upper Grant, Warden and Othello Conservation Districts. These projects provide Irrigation Water Management plans for individual operators which are designed to greatly reduce the amount of water and nutrients going below the root zone and into the groundwater
- * Technical assistance to operators from Natural Resources Conservation Service and the conservation districts
- * Columbia Basin Alliance of Conservation Districts : combining resources to better address water quality problems. (Upper Grant, Moses, Warden and Othello, with Franklin, Adams and Lincoln possibly joining)
- * Home-A-Syst Program operated by WSU Cooperative Extension, Health Dist., Natural Resources Conservation Service and conservation districts, that provides for self evaluations and suggested BMPs to protect water quality around the homesteads
- * Research projects by WSU on cover crops, natural fumigants, nitrate movement, and integrated crop management systems
- * Promotion and use of polymers to settle out sediments on rill irrigated land. Some operators are starting to use on center irrigated systems. (NOTE: there has been more erosion control on rill irrigated land in two years with the use of PAM than in previous 50 years.)
- * Switch from rill to center pivot irrigation: reduces erosion, increases ability to agronomically apply nutrients and water. NOTE: decreased application of water may withdraw water from several wetlands created by excess irrigation water application.
- * Assisted by conservation districts, subwatershed groups consisting of local residents are forming and are beginning to function; they are attempting to identify and propose solutions to problems at the grass roots level. Groups have formed in the Warden, Othello and Mattawa areas. Groups may be forming in other subwatersheds.
- * Bureau of Reclamation is sponsoring the development of a Resource Management Plan for Potholes Reservoir. Conducted by Dames & Moore, the scoping process is now underway.
- * Moses Lake Shoreline protection, cooperation between city of Moses Lake and Ecology
- * Wetland rehabilitation project associated with Frenchman and Winchester waterways, excavating silted-in areas
- * U.S. Bureau of Reclamation has initiated a study to address habitat issues for steelhead and salmon in Sand Hollow Creek, Lower Crab Creek and Wasteway WB10. Part of the study is to evaluate water quality.

- * The Lincoln County CD has a 319 grant for water quality monitoring and BMP inventory and assessment in the upper 40 mile reach of Crab Creek (Crab Creek Basin). Data collected will be useful for work in the lower reaches (Mid-Columbia).
- * The EPA has identified the Columbia Plateau (encompassing much of the Mid-Columbia) as a priority for Regional Geographic Initiative (RGI) Funds. EPA has several Geographic areas competing for funding. If the Columbia Plateau is selected, it would mean that \$250,000 per year for three years would be allotted to, among other things, projects associated with ground water. As of this draft assessment, the Columbia Plateau had survived two cuts.

Additionally, several watershed projects have been proposed, completed or are currently underway in the Mid-Columbia Basin, including the Moses Lake Clean Lakes Project, Lind Coulee and Lower Crab Creek Watershed Projects, U.S.G.S. National Water-Quality Assessment Program (NAWQA).

SUMMARY OF WORKSHOP AND REGIONAL PRIORITIZATION

Appendix A lists the issues, needs, and priorities as identified by the community and Ecology's workgroup briefing papers and presentations. Issues are grouped under four key headings: Potential TMDLs; Monitoring; Coordination/Information; and GIS. The issues are prioritized as high medium or low by the consensus of the workgroup members. Also shown are the workgroup's follow-up actions and the parties responsible for developing those actions.

During the public outreach period of the scoping process and at the internal workshop (Nov 7), participants outlined specific areas where Ecology should focus resources. During the internal workshop, workgroup participants were divided into two subgroups. One group dealt with prioritizing issues which concerned point source pollution and waste water permits within the basin. The other group discussed and prioritized issues concerning nonpoint source pollution.

The nonpoint subgroup focused on geographical areas within the WQMA. A large number of the high priority issues for the upcoming WQMA cycle, will facilitate studying and developing strategies for protecting/improving the water quality of Moses Lake, Potholes Reservoir and their tributaries. These strategies place emphasis on coordination with outside agencies and the public on broad areas such as agriculture. The process of maximizing resources makes these relationships all the more important.

The point source subgroup dealt with issues to better facilitate the process of issuing and reissuing NPDES and SWD permits to industrial and municipal facilities within the basin. The permitting process is very complex and involves a multitude of ground and surface water issues. Inspections, establishment of ambient monitoring stations and coordination issues with outside agencies, are just a few of the priority items.

Because this whole process evolves around Ecology's attempt to maximize water quality resources, there is a certain amount of overlap between the point source and nonpoint source. Ecology's participation in the formation of a ground water management area (GWMA) is an example of this

overlap. The Needs Assessment will help to lay some of the groundwork for the agency's participation in the process.

Workgroup members were also able to prioritize potential TMDL projects for the up coming WQMA cycle. The decision was made by the group to focus these activities on 303d listed waterbodies which effect Moses Lake.

Regional priorities aligned very closely with priorities set at the internal workshop. In early December, regional water quality staff met to discuss the results of the internal workshop. Since a majority of the regional wq staff were present at the workshop, priorities changed very little. The top three (3) high priority TMDLs were regionally prioritized as: 1) Rocky Ford Creek; 2) Lower Crab Creek; and 3) Moses Lake. These are all considered high priority TMDLs by the regional staff, however, because resources may be limited, some were deemed more important then others. The scope (number and type of parameters) of the TMDLs were not determined as of this draft.

Likewise, the high priority ambient monitoring stations were also considered. Each region is allotted five (5) "floating" stations per basin per year. Any over and above the five, incurs additional costs to the region. Excluding the core station on Lower Crab Creek near Beverly (not included in the five allotted stations, the regions top five picks are: 1) Sand Hollow Creek; 2) Upper Crab Creek; 3) Metaline Falls (out of basin station in Pend'Orielle WQMA, to fulfill agency's obligation as part of the Tri-State Agreement); 4) Rocky Coulee Drain; and 5) Rocky Ford Creek (to support TMDL development).

(for additional details, see Appendix A)

RECOMMENDATIONS

Appendix A of this assessment contains a number of issues deemed to be "high priority" by the Mid-Columbia Watershed Workgroup and Eastern Regional WQ staff. But more importantly, Appendix A addresses actions which will potentially lead to solutions to address these issues.

The blanket goals of the watershed approach are very broad and include, but are not limited to, such things as issuing all wastewater discharge permits on a timely basis, solicit public input into Ecology's projects and maximize the impact of strategies aimed at protecting water quality in the Mid-Columbia Watershed. The scoping process develops projects and strategies for accomplishing these goals. The following is an outline of issues and actions.

Moses Lake and Potholes Reservoir: During the scoping process, it became evident that our efforts could in certain instances be targeted at specific geographical areas such as Moses Lake and Potholes Reservoir. Priority projects for these areas include:

- 1) Development of TMDLs for Rocky Ford Creek, Upper Crab Creek and Moses Lake.
- 2) Ambient monitoring on Rocky Ford and Upper Crab Creeks.
- 3) Summarization of all existing WQ data on Moses Lake (with potential follow-up sampling).

- 4) Evaluation of the effectiveness of BMP implementation along Upper Crab Creek, Lind Coulee and Weber Coulee.
- 5) Work with WDFW on the issue of declining fisheries in Potholes Reservoir (including a baseline water quality study with monthly water sampling and pesticide study).
- 6) Aquatic plant inventory of area lakes to determine the spread or potential spread of noxious weeds.

Ground Water Management Area: In response to EPA's proposal to designate ground water within a large area of the Columbia Basin as a sole source aquifer, local geopolitical jurisdictions are joining together to form Ground water management areas (GWMA). The formulation of the GWMA(s), creates an excellent opportunity for Ecology to partner with the counties. To support this partnership, watershed workgroup members placed a high priority on Ecology's participation in all phases of the GWMA process from planning/operation to providing technical assistance and ground water data.

Agriculture: Agriculture is the biggest industry within the Mid-Columbia Watershed. Ecology and the tax payers of Washington State have invested millions of dollars in research on the development of agricultural best management practices (BMPs) to decrease/prevent wind and waterborne erosion of soils and surface and ground water contamination. Ecology needs to form partnerships with other agencies and agriculture to formulate strategies to implement BMPs through integrated farm plans and watershed plans. A group is currently developing a watershed plan for Lower Crab Creek.

Facility Management: On the facility management side of the house, issuance of wastewater discharge permits on a timely basis is dependent upon equipping Facility Managers with the tools they need to do their jobs. In response to this, high priority is placed on performing Class II inspections at the Othello POTW and the Moses Lake Dunes POTW. In conjunction with the Dunes Class II, ground water monitoring would be performed to study the effects of land applying treated wastewater effluent from the Dunes plant and Basic American Foods (nearby potato processor) on the regions ground water. Additionally, an ambient monitoring station would be located on Rocky Coulee Drain to determine (if any) the water quality impacts of 3-4 industrial facilities which discharge in or around the drain.

There is a need to develop an agreement between the U.S. Bureau of Reclamation and Ecology on the disposition and use of wasteways as it relates to wastewater discharges and water reuse. An agreement is necessary to facilitate 2-3 potential or planned facility constructs or upgrades within the watershed.

Data Availability: Another source of concern warranting a high priority rating is the scattered sources of surface and ground water data within the watershed. To counter this problem, workgroup members proposed development of system for easy access of existing monitoring data. Additionally, it was proposed that a high priority be placed on coordinating data gathering and sharing with NAQWA.

Out Of Basin Ambient Station: Special consideration is to be given to the out of basin placement of an ambient monitoring station in Metaline Falls (Pend' Orielle Basin) to fulfill Ecology's obligation to the Tri-State Agreement. Also, continued operation of the core ambient station Lower Crab Creek at Beverly WA.

Tribal Relations: Finally, all of these projects should be planned and performed in coordination with the Yakama Indian Nation where appropriate.

TABLES

303(d) WATERBODY SEGMENT IDENTIFICATION LIST

Table 1

Waterbody Segment Number	Waterbody Name	Parameters Exceeding Standards	Priority for TMDL (TBP after workshop)
WA-41-1010	Lower Crab Creek	Temperature, pH, Fecal Coliform, Dieldrin, DDT, 4,4-DDE, Chlordene, PCB1254 and 1260	High
WA-41-1016	Crab Creek Lateral	Temperature and pH	Low
WA-41-1030	Crab Creek	Temperature	Low
WA-41-1018	Red Rock Coulee	Temperature, pH, and Dissolved Oxygen	Low
WA-41-1110	Winchester Wasteway	pH and Temperature	Low
WA-41-3000	East Potholes	Temperature and Dissolved Oxygen	Low
WA-41-3500	Lind Coulee	Temperature, pH and Dissolved Oxygen	Low
WA-41-4000	West Canal	Temperature	Low
WA-41-5000	Sand Hallow Creek	Temperature and pH	Medium
WA-41-2010	Rocky Ford Creek	pH, Dissolved Oxygen and Temperature	High
WA-41-1120	Frenchman Hills Wasteway	Temperature and pH	Low
WA-41-9280	Potholes Reservoir	Dieldrin	Medium
WA-CR-1040	Columbia River	Total Dissolved Gas, Temperature pH and Water Column Bioassay	Low
WA-41-4500	Bureau of Reclamation Wasteways W645	Temperature and Dissolved Oxygen	Low
WA-41-9250	Moses Lake	Total Phosphorus and Total Nitrogen	High

303(d) LIST: Current Total Maximum Daily Load (TMDL) Activities

Table 2

Waterbody Name	Parameter	Development Status	Implementation Status	Follow-up ambient monitoring
Columbia River	Dioxin	EPA established TMDL 2/91. TMDL goal is fish tissue concentrations below 0.00007 μ/kg per the National Toxics Rule (40 CFR Part 131).	Water Quality-based permits for eight pulp mills in Washington, Idaho and Oregon.	A draft sampling and analysis plan for fish tissue has been developed by EPA. No date has been scheduled for monitoring to begin.
Bureau of Reclamation Wasteways (DW237, W645W and W645)	BOD (5-day)	Analysis completed 1/94. Awaiting public process of TMDL notification and completion of draft permit for the City of Quincy before submittal of TMDL to EPA for approval.	Implementation expected to begin 6/97 through issuance of a WQ-based NPDES Permit to the City of Quincy	Monitoring plan not yet developed

Mid-Columbia WQMA Industrial Facilities

FY 01

Table 3

PERMITTEE NAME	WRIA	Existing	Permit	PROJECTED REISSUE DATE	EXTEND TO DATE	NOTES
		CLASS	EXPIRES			
Advanced Silicon Materials Inc.	41	Minor (NPDES)	01/02/95	By 06/30/97	06/30/97	
Basic American Foods	41	Minor (S to G)	03/30/98	By 06/30/01		
Basin Frozen Foods (Warden)	41	Minor (S to P)	05/14/00	By 06/30/01		Temporary
Burlington Northern R.R. (Othello)	41	Minor (S to P)	05/22/97	By 06/30/01		Temporary
Columbia Foods Inc.	41	Minor (S to G)	10/06/00	By 06/30/01		
Current Electronics Inc.	41	Minor (S to P)	05/27/00	By 06/30/01		Temporary
Eka Chemicals	41	Minor (S to P)	02/21/96	12/31/96		
El Oro Cattle Feeders (Agri Beef)	41	Minor (NPDES)	03/31/99	By 06/30/01		
J.R. Simplot Co. (Quincy)	41	Minor (S to P)	08/14/95	By 06/30/01		
KDK Corp. (Moses Lake)	41	Minor (S to P)	10/21/00	By 06/30/01		Temporary
Lamb-Weston Inc. (Quincy)	41	Minor (S to P)	06/27/98	By 06/30/01		
Lenroc Co.	41	Minor (S to G)	03/07/01	By 06/30/01		
McCain Foods Inc.	41	Minor (S to G)	02/22/98	By 06/30/01		
Moses Lake Industries	41	Minor (S to G)	06/30/01	By 06/30/01		
National Frozen Foods Corp.	41	Minor (S to G)	07/07/97	By 07/30/97		
Nestles Brands (Moses Lake)	41	Minor (S to G)	06/24/01	By 06/30/01		
Nestles Brands (Othello)	41	Minor (S to G)	06/13/01	By 06/30/01		
Quincy (Industrial)	41	Major (NPDES)	01/15/01	By 06/30/01		

Table 3 (cont.)

Permittee Name	WRIA	Class	expires	projected reissue date	extended	Notes
Safeway Stores Inc.	41	Minor (S to P)	04/29/88	12/31/96		
Schaake Feedlot (Quincy)	41	Minor (S to P)	08/30/00	By 06/30/01		
Seneca Foods Corp. (Othello)	41	Minor (S to G)	01/10/00	By 06/30/01		
Takata Moses Lake Inc.	41	Minor (S to P)	06/30/01	By 06/30/01		
Vern's Meat Co.	41	Minor (S to P)	08/01/86		extended	
Warden (Industrial)	41	Minor (S to G)	03/01/99			
Washington Potato (Russet King)	41	Minor (S to P)	07\25\99	By 06/30/01		Temporary
Western Polymer (Menan Division)	41	Minor (S to G)	06/08/00	By 06/30/01		
Wilcox Family Farms Inc.	41	Minor (S to G)	05/13/01	By 06/30/01		

Key: S to G State Waste Discharge Permit to Ground
 S to P State Waste Discharge Permit to Publicly Operated Treatment Works
 NPDES National Pollution Discharge Elimination System Permit

Table 4

PERMITTEE NAME	WRIA	Existing	Permit	PROJECTED	EXTEND TO	NOTES
		CLASS	EXPIRES	REISSUE DATE	DATE	
Crescent Bar Inc.	41	Minor (S to G)	05/01/01	By 06/30/01		
Ephrata (POTW)	41	Minor (S to G)	07/17/95		extended	Upgrade
Lind (POTW)	41	Minor (NPDES)	11/07/94		extended	Upgrade
Moses Lake Larson (POTW)	41	Minor (S to G)	11/15/97	11/15/97		
Moses Lake Dunes Plant (POTW)	41	Minor (S to G)	07/05/90		extended	Administrative ext.
Othello (POTW)	41	Minor (NPDES)	06/18/97	06/18/97		
Quincy (POTW)	41	Minor (S to G)	06/30/97	06/30/97		Upgrade
Ritzville (POTW)	41	Minor (S to G)	11/30/92		extended	Upgrade
Royal City (POTW)	41	Minor (S to G)	08/10/94		extended	Upgrade
Wanapum Dam	41	Minor (NPDES)	07/16/98	By 06/30/01		
Warden (POTW)	41	Minor (S to G)	04/11/99	04/11/99		Upgrade

Key: S to G State Waste Discharge to Ground Permit
 NPDES National Pollution Discharge Elimination System Permit
 POTW Publicly owned treatment works

Mid-Columbia WQMA General Permits

FY 01

Table 5

PERMITTEE NAME	WRIA	FACILITY TYPE	EXPIRES	PROJECTED REISSUE DATE
Columbia Basin Hatchery	41	Fish Hatchery	04/01/00	04/01/00
Troutlodge #1	41	Fish Hatchery	04/01/00	04/01/00
Troutlodge #2	41	Fish Hatchery	04/01/00	04/01/00
Americold Corp. Moses Lake	41	Ind. Stormwater	11/18/00	11/18/00
Ferrills Auto Parts Quincy	41	Ind. Stormwater	11/18/00	11/18/00
Horizon Air-Grant County Airport	41	Ind. Stormwater	11/18/00	11/18/00
J.R. Simplot Co. Quincy	41	Ind. Stormwater	11/18/00	11/18/00
Lamb Weston Quincy	41	Ind. Stormwater	11/18/00	11/18/00
National Frozen Foods Moses Lake	41	Ind. Stormwater	11/18/00	11/18/00
Washington Central R.R. Warden	41	Ind. Stormwater	11/18/00	11/18/00
Wolfkill Feed & Fertilizer Othello	41	Ind. Stormwater	11/18/00	11/18/00
Wolfkill Feed & Fertilizer Moses L.	41	Ind. Stormwater	11/18/00	11/18/00
BNNR Sand to Beatrice Rail Line	41	Constructio SW	11/18/00	11/18/00
WSDOT Connell to Ritzville SR 395	41	Constructio SW	11/18/00	11/18/00
Custom Apple Packers Inc.	41	Fruit Packer	03/04/99	03/04/99
Double Diamond Fruit	41	Fruit Packer	03/04/99	03/04/99
Double JJ CA Storage	41	Fruit Packer	03/04/99	03/04/99

Table 5 (cont.)

PERMITTEE NAME	WRIA	FACILITY TYPE	EXPIRES	PROJECTED REISSUE
HAAS Fruit Co. Inc.	41	Fruit Packer	03/04/99	03/04/99
Lawrence Fruit	41	Fruit Packer	03/04/99	03/04/99
Quincy Valley CA Inc.	41	Fruit Packer	03/04/99	03/04/99
Sunfresh	41	Fruit Packer	03/04/99	03/04/99
Valley Forge Fruit Co.	41	Fruit Packer	03/04/99	03/04/99
AAA Ready Mix Inc. II (George)	41	Sand & Gravel	08/06/99	08/06/99
AAA Ready Mix Inc. II (Moses Lak)	41	Sand & Gravel	08/06/99	08/06/99
Basin Asphalt Co. (East)	41	Sand & Gravel	08/06/99	08/06/99
Central Washington Concrete (Eph.)	41	Sand & Gravel	08/06/99	08/06/99
Central Wash. Concrete (Michels pit)	41	Sand & Gravel	08/06/99	08/06/99
Central Washington Concrete (ML)	41	Sand & Gravel	08/06/99	08/06/99
Central Washington Concrete (Oth)	41	Sand & Gravel	08/06/99	08/06/99
Central Washington Concrete (Quinc)	41	Sand & Gravel	08/06/99	08/06/99
Central Wash. Concrete (Winchester)	41	Sand & Gravel	08/06/99	08/06/99
Central Washington Concret (GT294)	41	Sand & Gravel	08/06/99	08/06/99
Ferguson Concrete & Excavation	41	Sand & Gravel	08/06/99	08/06/99
Ritzville Premix Concrete Co.	41	Sand & Gravel	08/06/99	08/06/99

**MID-COLUMBIA WATERSHED MANAGEMENT AREA
NON-POINT GRANTS AND LOANS LIST**

Table 6

RECIPIENT	TITLE/GRANT OR LOAN AMOUNT	STATUS
Adams Cons. Dist. G9300155	Weber Coulee Watershed Implementation - \$250,000	Closing 12/96
Adams Cons. Dist. New	Agricultural Best Management Implementation Project - \$250,000	Negotiating
Adams Co. Health Dist. G9600077	On-site Septic System Technical Assistance - \$12,200	On going
Grant County New	Mid-Columbia Watershed Management Plan - \$99,750	Negotiating
Quincy G9500149	Hydrogeological Study - \$60,000	Closing
Quincy New (loan)	Nitrate Monitoring and Wellhead Protection Program - \$75,000	Negotiating
Othello Cons. Dist G9200244	Water Quality Project - \$84,000	On going
Upper Grant CD G9200215	Black Sands Water Quality Project - \$84,679	Closed
Warden Cons. Dist. G9200243	Lind Coulee Water Quality Project - \$84,000	On going

**MID-COLUMBIA WATERSHED MANAGEMENT AREA
POINT SOURCE GRANTS AND LOANS LIST**

Table 7

RECIPIENT	TITLE/GRANT OR LOAN AMOUNT	STATUS
City Of Lind	WWTP Facility Plan Update/\$37,400	in progress
City of Ritzville	Facility Plan/\$169,000	in progress
City of Ephrata	Design/\$536,400	in progress
City of Ephrata	Engineering Report/\$52,500	in progress
City of Ephrata	Design/\$546,400	starting
City of Quincy	Hydrogeo Study/\$60,000	in progress
City of Quincy	Plan/\$89,800	12/96
Town of Royal City	Design/\$201,525	
Town of Royal City	Facility Plan/\$75,000	in progress
Town of Royal City	Ground water Charac./\$174,000	in progress
City of Warden	Facility Plan/\$82,928	STEP

APPENDIX A

**SUMMARY OF ISSUES NEEDS
AND
PRIORITIES**

**THE MID- COLUMBIA WATERSHED
SUMMARY OF ISSUES, NEEDS, and PRIORITIES**

APPENDIX - A

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
Monitoring	Monitor WQ in Lower Crab Creek (consider Lower Crab Creek TMDL)	Continue ambient monitoring at core station on Lower Crab Creek near Beverly.	AMS (EILS), WQP	High	High
	Establish WQ baseline data for Sand Hollow Creek.	Establish ambient monitoring station on Sand Hollow Creek.	AMS (EILS), WQP	High	High
	The WQ in Upper Crab Creek (coordinate with Moses Lake study).	Establish an ambient monitoring station on Upper Crab Creek near Moses Lake.	AMS (EILS), WQP	High	High
	Establish WQ baseline data for Rocky Coulee drain. Determine effects of Eka Chemical and AsiMI (NPDES dischargers) and Pacific N.W. Chemical (SWD) on water quality.	1) Establish ambient monitoring station on Rocky Coulee Drain at Hwy 17. 2) Acquire historical monitoring data from USBR.	1) AMS (EILS) 2) ERO WQP	High	High

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	Continued monitoring of Pend'Orielle River to fulfill Ecology's Commitment to the Tri-State Agreement (Out of Basin ambient monitoring station)	Ambient monitoring at Metaline Falls (Pend'Orielle Basin) ambient station.	AMS (EILS)	Not prioritized	High
	Monitor Lind Coulee for compliance with the WQ standards	1) Establish an ambient monitoring station on Lind Coulee above Potholes Reservoir. 2) Acquire historical monitoring data from USGS.	1) AMS (EILS) 2) ERO WQP	High	Medium
	Monitor Weber Coulee for compliance with the WQ standards	Establish an ambient monitoring station on Weber Coulee	AMS (EILS), WQP	Medium	Medium
	Monitor WQ in Rocky Ford Creek (coordinate with Moses Lake study and Rocky Ford TMDL; item 10).	Establish an ambient monitoring station on Rocky Ford Creek.	AMS (EILS), WQP	Medium	High
	Determine WQ effects of Quincy Industrials wastewater effluent on wasteway W645.	Establish ambient monitoring station on wasteway W645, downstream from Quincy Industrial Treatment Plant.	AMS (EILS), WQP	High	Medium
	Status of the spread of invasive aquatic plant species in waterbodies within the watershed	Plant surveys of various waterbodies.	AMS (EILS),	High	High

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	Monitor water quality in Moses Lake.	Sampling for total phosphorus and total nitrogen as part of 303d monitoring and assessment requirements and to support Moses Lake TMDL (item 2).	AMS (EILS)	High	High
	<u>Quincy POTW</u> : better estimate critical conditions and evaluate beneficial uses of receiving water.	Additional monitoring of Quincy POTW	TIS and/or WAS (EILS), ERO WQP	Low	Low
	Determine potential impacts of pesticides on lake fauna in Potholes Reservoir.	Sample for determining pesticides concentrations.	TIS (EILS)	High	High
	Declining fishery in Potholes Reservoir.	1) Baseline study of WQ in Potholes Reservoir. 2) Lake Water Quality Sampling	1) WAS (EILS) and WDFW 2) AMS (EILS)	High*	High
	Study the impacts of rotenone treatment on wq for selected lakes.	Sampling study coordinated with WDFW.	WAS and/or TIS (EILS), WDFW	Medium	Medium
	Biological surveys of streams with intermittent and depressed summer flows in the Columbia Plateau.	Benthic survey	AMS and/or WAS (EILS)	Low	Low

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	The Town of Lind's compliance with their Wastewater Discharge Permit	Lind POTW Class II Inspection	ERO-WQP	Low	Low
	The City of Ephrata's compliance with their Wastewater Discharge Permit	Ephrata POTW Class II Inspection	ERO-WQP	Low	Low
	Combined ground water effects of land applying wastewater effluent from the Moses Lake Dunes Plant and Basic American Foods	Concurrent ground water monitoring projects in conjunction with Moses Lake Dunes POTW Class II inspection . Coordinate with Moses Lake work.	TIS (EILS), WQP	High	High
	Othello POTW Permit Compliance	Othello POTW Class II Inspection	ERO-WQP	High	High
	Quincy Industrial's compliance with Wastewater Discharge Permit	Quincy Ind. Class II Inspection	ERO-WQ	Medium	Medium
	The impact of the land application of wastewater on ground and surface water.	Conduct a comprehensive study to determine impacts to GW and SW	TIS and WAS (EILS), WQP	Medium	Medium
	Quality of the sediments removed from canals, wasteways and wetlands during maintenance and rehabilitation.	Pre-sampling of sediments or sampling of sediments after they are removed.	TIS (EILS)	Medium	Medium

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
Monitoring/ Coordination	Continue to study the relationship between irrigation, GW levels and resultant streamflows.	Conduct a Ground water study	Ecology programs (WQ and WR), existing ground water data sources.	Low	Low
	Ground water data gaps and the fulfillment of Ecology's tasking as a partner in the GWMA. Acquire nitrate and ground water level data east of the Columbia Basin Irrigation Project	Ground water monitoring east of the Columbia Basin Irrigation Project. Collect and evaluate all the existing information from sources like the Conservation Districts and Health Department's and add that information to current database	Ecology WQ Program Hydrogeologist, GWMA Participants, EILS and EILS technical assistance.	High	High
Information/ Coordination	Evaluate the effectiveness of BMP implementation on nutrient loading/erosion control in Upper Crab Creek and Weber and Lind Coulees. Determine whether BMPs should be expanded.	Coordinate with CDs and NRCS. EILS providing Technical Assistance.	ERO-WQ, EILS and CDs	High	High
	Odors associated with potato processing industry spray irrigation fields and winter storage facilities	Coordination between Ecology's WQ and AQ programs as well as industry.	WQP, AIR	Medium	Medium

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	Development of Potholes Reservoir Resource Management Plan (RMP)	Review USBRs RMP. Participate as much as possible, in development of RMP in relation to point source impacts. Coordinate with other EILS Potholes Res. studies. EILS provides technical assistance.	ERO nonpoint staff, ERO-WQ Hydrogeo, EILS, AMS (EILS) as it relates to aquatic plants.	Medium	Medium
	Improve enforcement coordination between agencies (specifically WDOE and WDFW)	Direct coordination with agencies such as WDFW and USFW in a timely manner.	Ecology ERO-WQ	Medium	Medium
	Coordination of data gathering and sharing with NAQWA.	EILS coordinating with NAQWA on data transfer between USFW, USBR etc.	EILS	High	High
	Determine cause of periodic fish kills in Sand Hollow Creek	Coordinate with local land owners and the WDFW	Ecology, WDFW, CDs and local land owners	Medium	Medium
	Third party development of a watershed plan for lower Crab Creek.	Coordination with interested parties on the development of a Lower Crab Creek Watershed Plan. EILS provides technical assistance.	Ecology WQ nonpoint staff and EILS, CDs and Washington Trout, USFW and growers.	High	High
	Education of land owners on WQ problems in the Lower Crab Creek watershed.	Develop an Education outreach Plan, EILS technical assistance	ERO non-point staff, EILS, NRCS and Conservation districts.	Medium	Medium

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	Salinity trace element contaminants in irrigation return flows.	Coordinate with Ecology Wetlands person on project/study.	ERO-WQ and Wetlands Staff	Medium	Medium
	Agreement between USBR and Ecology on the disposition and use of waste ways.	USBR, EPA and Ecology coordination on agreements and regional policies.	Ecology, USBR and Irrigation Districts, EPA	High	High
	Information coordination associated with Moses Lake WQ monitoring eg. CDs, WDFW, City, County, and USBR	Inter-agency coordination. EILS technical assistance	EILS, ERO-WQ	Medium	Medium
	Improve coordination with outside agencies on watershed projects.	Coordinate with WDFW on projected watershed projects. Coordinate with CDs on future and on-going watershed plans	Regional WQ nonpoint staff	Medium	Medium
	Coordination with the Mid-Columbia Watershed Planning Council on formulation of a GWMA(s).	Provide ground water and hydrogeo technical assistance and data as needed.	Ecology WQ Program	High	High
	Creating an easy way to access existing data, or knowing which agency maintains existing data.	Develop a "data directory" for all agencies to have access to. EILS technical assistance	EILS, WQ Bridge	High	High*

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	Relationship between Air Quality and Water Quality as it relates to projects/research on agricultural BMPs (e.g. PAM and cover crops etc.)	Coordinate/share information with other Ecology programs	Ecology AQ and WQ coordination with WSU Cooperative Extension, CDs and industry	High	High
	Determine the success of on-going programs within the basin.	Maintain coordination with NRCS on the EQIP Program and home-a-syst.	Regional nonpoint staff	Medium	Medium
	"Coming out" of CRP lands in large quantities and the effects of increased irrigation and the resulting erosion problems			Medium	Medium
	Tribal Relations with the Yakama Tribe	Keep tribes informed of WQ actions with in the Columbia Basin	ERO working with EPA and the Yakama Nation.	High	High
TMDL	<u>Rocky Ford Creek</u> : 303d List for pH, dissolved oxygen and temperature.	Develop TMDL (coordinate wit Moses Lake work)	WAS (EILS), WQP	High	High
	<u>Lower Crab Creek</u> : 303d List for temperature, pH, fecal coliform, Dieldrin, DDT, 4,4-DDE, chlordane, PCB 1254 and 1260	Develop TMDL	WAS with TIS (EILS), WQP	High	High*

CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	TMDL for Moses Lake	Review status of Moses Lake Clean Lakes Project and package as TMDL. Sampling in year 3, if needed.	WAS (EILS), WQP	High	High
	<u>Potholes Reservoir</u> : 303d List for dieldrin.	Resampling of fish from Potholes Reservoir for dieldrin	TIS (EILS), WQP	Medium	Medium
	<u>Sand Hallow Creek</u> : 303d List for temperature and pH	Develop TMDL	WAS (EILS), WQP	Medium	Medium
	<u>Columbia River</u> : 303d List for total dissolved gas, temperature pH and water column bioassay	Develop TMDL	EILS, EPA, WQP	Low	Low
	<u>Upper Crab Creek</u> : 303d List for temperature.	Develop TMDL (coordinate with Moses Lake work).	EILS, WQP	Low	Low
	<u>French man Hills Wasteway</u> : 303d List for temperature and pH	Develop TMDL	WAS (EILS), WQP	Low	Low
	<u>USBR Wasteway W645 (WA-41-4500)</u> : 303d List for temperature and dissolved oxygen	Develop TMDL	WAS (EILS), WQP	Low	Low
	<u>Red Rock Coulee</u> : 303d List for temperature, pH, and dissolved oxygen	Develop TMDL	WAS (EILS), WQP	Low	Low
	<u>Winchester Wasteway</u> : 303d List for pH and temperature.	Develop TMDL	WAS (EILS), WQP	Low	Low

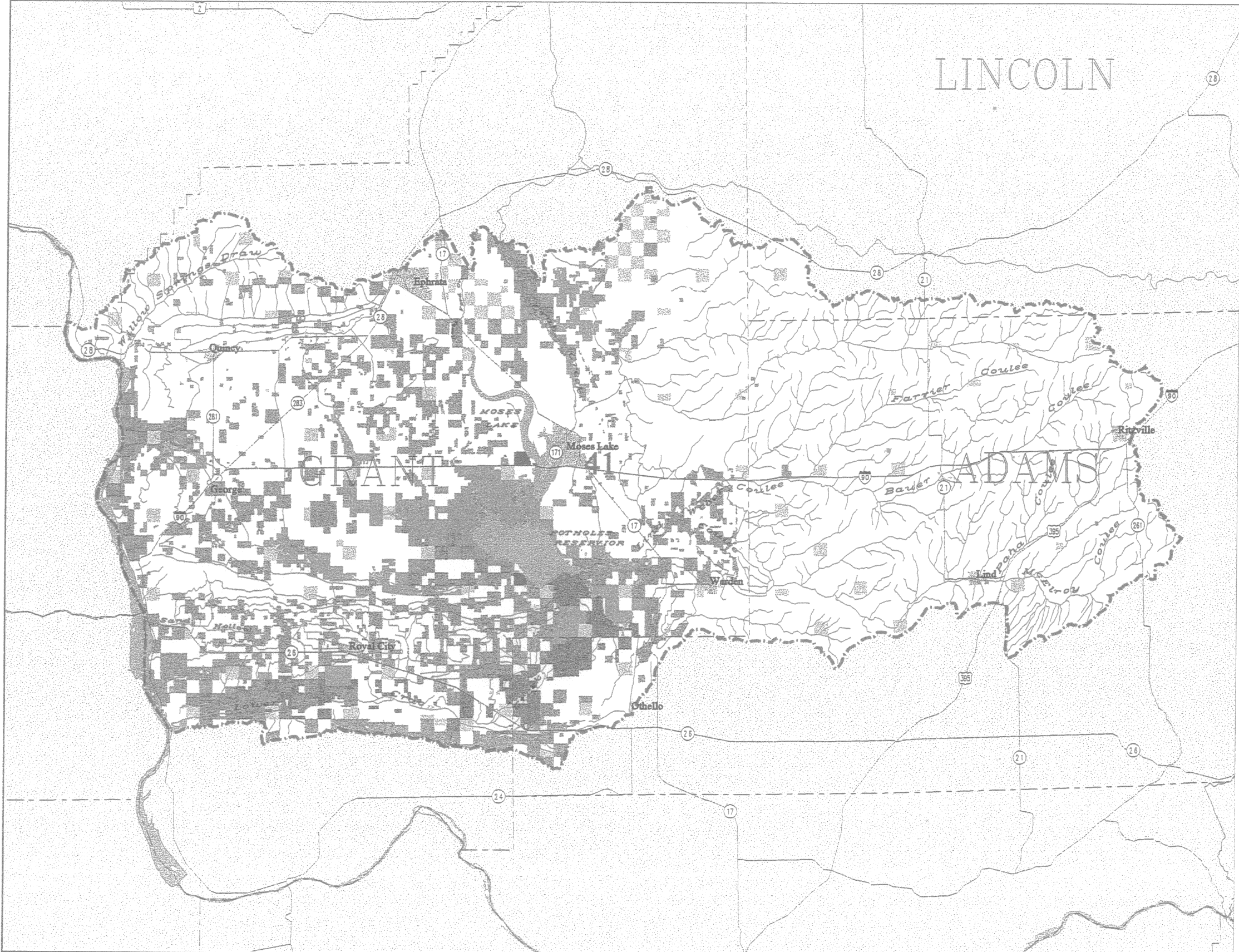
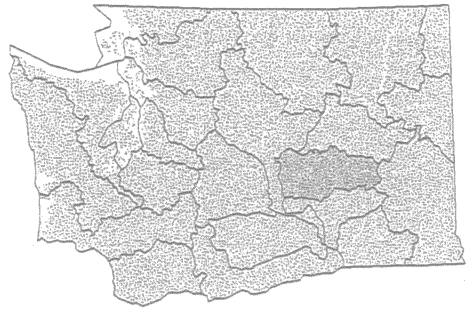
CATEGORY	ISSUES	ACTIONS	RESPONSIBILITY	PRIORITY	
				Workgroup	Region
	<u>Lind Coulee</u> : 303d List for temperature, pH and dissolved oxygen	Develop TMDL	WAS (EILS), WQP	Low	Low
	<u>West Canal</u> : 303d List for temperature	Develop TMDL	WAS (EILS), WQP	Low	Low
	<u>East Potholes</u> : 303d List for temperature and dissolved oxygen	Develop TMDL	WAS (EILS), WQP	Low	Low
56. GIS	Determining land ownership	Develop a land ownership map	WQ Bridge, IS	Medium	Medium
	Determining land use	Develop a land use map	WQ Bridge, IS	Medium	Medium

*High priority

APPENDIX B

WATERSHED MAP

MID COLUMBIA WQMA

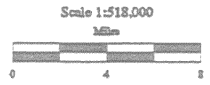


MID COLUMBIA WQMA

- WRIA Boundary
- County Boundary
- Major Roads
- Rivers/Streams

- Public Land Type**
- U.S. Parks, Wilderness, Recreation
- USFS Managed Forest Land
- USFWS Wildlife Refuge
- DNR Managed Forest/Range Land
- Wa. Dept. Fish & Wildlife
- State Parks & Recreation
- City/County Watershed or Park
- Other Federal
- Other State
- Other Lands
- Tribal Lands
- Incorporated Cities
- Private Ownership

Source:
 WOFM - 1990 Census Population and Reference Features (TIGER)
 WDW - Washington Rivers Information System (WARIS)
 DNR - Major Public Lands of Washington (MPL)
 Ecology - Water Resource Inventory Areas (WRIA)



APPENDIX C

LIST OF BRIEFING PAPERS

CONTRIBUTED

APPENDIX C

LIST OF BRIEFING PAPERS CONTRIBUTED

1. Environmental Investigations and Laboratory Services..... Dale Davis
Dave Hallock
Guy Hoyle-Dodson
Art Larson
Paul Pickett
2. Nonpoint overview Nancy Weller
3. Point Source/permit overview Roger Ray
4. Basin Characterization Jim Jacobson
5. Water Resources John Covert
6. Air Quality Mark Stephens
7. Wetlands Dennis Beich
8. Toxics Cleanup Program Phil Leinart
9. Solid Waste Financial Assistance Brian Farmer
10. Hazardous Waste Toxics Reduction Jim Malm
11. Environmental Protection Agency Chuck Rice
12. Shorelands Doug Pineo

(Above papers are attached to original - available on request)

APPENDIX D

Commentors On Final Draft Needs Assessment

(A Special Thanks To Each)

External Commentors:

- Dave Koller, Conservation Districts Water Quality Partnership
- Ron Friesz, Washington State Department of Fish and Wildlife
- Chuck Rice, United States Environmental Protection Agency
- Alice Parker, Columbia Basin Developmental League

Ecology Commentors:

- Paul Pickett and Dave Hallock, EILS Program
- Mark Stevens, Air Quality Program
- Phil Leinart, Toxics Cleanup Program
- Jim Malm, Hazardous Waste and Toxics Reduction Program
- Nancy Weller, Carl Nuechterlein and Mimi Wainwright, ERO Water Quality
- Dave Howard and Ron McBride, Water Quality Program

APPENDIX E

SUMMARY OF COMMUNITY COMMENTS

MID-COLUMBIA WATERSHED SCOPING MTG W/NRCS AND CONSERVATION DISTRICTS WATER QUALITY ALLIANCE 9/11/96

Attendees: Dave Knight, Nancy Weller, Ecology
Harold Crose, NRCS
Dave Koller, Upper Grant Conservation District
Frank Easter, NRCS, Washington State Office

WATER QUALITY ISSUES AND CONCERNS

1. Nitrates in ground water
2. Siltation and erosion attributable to irrigation practices
3. Nutrients transported by silt attributed to irrigation activities
4. Small, seasonal cattle CAFO's (coliform bacteria)

WHAT RESOURCES ARE AT RISK

1. Drinking water, both ground water and surface water for human consumption and recreational use
2. Pot holes Reservoir
3. Soil loss through erosion due to storm water run-off and poor irrigation practices.
4. Fisheries, Salmon, Steelhead and trout

CURRENT SUCCESSFUL PROGRAMS IN THE WATERSHED

1. Irrigation water management grant (Centennial Clean Water)
2. Technical assistance from NRCS
3. Columbia Basin Alliance, 4 CD partnership
4. Columbia Basin Planning Council, GWMA
5. Home Assistance Program
6. Formation of sub-watershed groups
7. Grass roots efforts for gov't access/partnerships with citizens
8. Environmental Quality Incentive Program (EQIP)
9. RESEARCH
 - a. nitrate mvnt thru soils
 - b. BMP devel.
 - c. cover crops, bio controls, pest controls,
 - d. polymers (N2-carbon chains) for erosion prevention and moisture retention.

ECOLOGY SHOULD FOCUS SUPPORT

- 1) Partnership w/USGS and technical assistance group for GWMA monitoring plan.
- 2) Research BMP development (expand existing research)
 - a. research success and failure of BMPs
 - b. integration of successful BMPs into systematic approach
- 3) Data consolidation from all sources into "One Database"
- 4) Extension of grant longevity to cover monitoring and data interpretation

"CITIES IN MID-COLUMBIA" WATERSHED SCOPING MEETING 9/5/96 (EPHRATA CITY HALL) NOTES FROM MID COLUMBIA BASIN PLANNING MEETING WITH POTW REPRESENTATIVES:

<u>NAME</u>	<u>REPRESENTING</u>	<u>PHONE</u>
R.E. Keeney	City of Warden	(509)349-2032
Mike Thompson	City of Warden	(509)349-2033
Tom Wendt	Grant County EDC	(509)754-0978
Joe Gavinski	City of Moses Lake	(509)766-9201
Curt Andrews	City of Othello	(509)488-3302
Wayne Hampton	City of Ephrata	(509)754-4601

CONCERNS

- USBR canals source of ground water contamination
- use of wasteways for reuse of wastewater
- cities need alternative , request that use of wasteways be an issue that gets addressed.
- seal off old wells---they are a source of contamination
- Dryland farming issue, sediments from storm water run-off fill pools and coulees
- Involvement in the GWMA.
- The promotion of wetlands for stormwater treatment and management
- Auto salvage yards need to be regulated to reduce toxic discharges such as metals and petroleum products

U.S. BUREAU OF RECLAMATION WATERSHED SCOPING MEETING 9/6/96

<u>NAME</u>	<u>AGENCY</u>	<u>PHONE</u>
Ed Kemp	USBR	(509)754-0228
Bill Gray	USBR	(509)754-0214
Tom Buckholtz	DNR	(509)925-0935
Dick Erickson	ECBID	(509)488-5671
Jim Michael	USBR	(509)754-0247
Chan Glidewell	DNR	(509)754-3834
Dave Zimmer	USBR	(208)378-5088
Don Nichols	WDOE	(509)456-6169
Donna Postma	USBR	(509)754-0209
Ron McBride	WDOE	(360)407-6469
Keith Franklin	QCBID	(509)787-3591

ISSUES

- There are a lot of programs going on at once (shotgun approach) DOE needs to use a narrower approach.
- Formation of GWMA's, who will be in charge?
- agriculture and WQ Program water quality standards in wasteways and intermittent streams.
- Sharing ambient data between Bureau of Rec. and Ecology and DNR.
- Dischargers to wasteways are being recommended to municipalities (Consultants)
- Irr. Dist. need to establish standards
- who pays cost of having constant effluent in wasteways?
- Integrate g.w. standards.

Questions standards vs mechanical breakdown in WWTPs

most wasteways are recaptured except when they drain to the Columbia
farmers and customers complain @ apples irrigated w/wastewater
Health Dept. needs to participate in standards design

Legal Issue.....who owns water in the wasteways? AGs office is looking into. This needs to be discussed between the agencies involved!

- Othello growth mgnt and nitrates. They halted const. then found that problem was not verified.
- Moses Lake PBS? concentrations
- DNR findings "there is lots of chemicals in surface water".
- Is nitrates in gw an old question that will correct itself over time-or is it worsening?
- Problem of gw contamination due to old leaky abandoned wells
- Sediment from runoff issue
- Nutrient laden waste in the winter, drains to wasteways from dairies and small feedlots as well as "mint piles"
- Odor problem from vegetable and food processors

ADAMS COUNTY CONSERVATION DISTRICT WATERSHED SCOPING MEETING 8/27/96

<u>NAME</u>	<u>REPRESENTING</u>
Dennis Swinger	Adams CD
Curtis Hennings	" "
Tim Smith	" "
Randy Kulm	" "
Emmit Cain	" "
Gary Mitchell	NRCS
David Lundgren	Lincoln Co. CD
Richard Bain	Bain Engineering
Gary DeVore	Adams Co. CD

Notes

1. Soil losses due to run-off from irrigated and nonirrigated lands
2. Nitrates not real question in Adams Co.
3. Nitrate more of a problem in irrigated land
4. McElroy Lake rehabilitation project, look for nitrate, pesticides, etc.
5. Farmers wanting to do projects but not enough NRCS and CD people to handle workload, Possibly looking for outside engineering and/or "self engineering".

6. Issue of loans vs grants is hurting projects
7. Urbanization
8. Abandon wells
9. CRP lands (96, 97, 98), program ending, air and run-off problems
10. Pesticide spraying, mosquito control, Purple Loosestrife.
1. Have done monitoring, Clean Lakes Project and Rocky Coulee
2. Large space sub-soiling
3. Bureau has daily records of run-off-east of Warden and Weber Coulee
4. Lind Coulee report, irrigated area by Warden CD
5. Weber Coulee report
6. Federal money- a lot of effort will be watershed based-farm programs -developing geographic priorities for funding.
7. Educational projects are working

DEPARTMENT OF TRANSPORTATION-MID-COLUMBIA WATERSHED SCOPING MTG., SPOKANE 8/28/96

- Spokane office has Adams and Lincoln Counties
- Main request--DOT wants to be part of the loop for regulations and requirements
- Will be sending out grant applications for stormwater projects to cities, counties, etc along State Highways. On the ground implementation projects.
- Should coordinate grant activities
- Wetland Mitigation- want to form wetland banks on watershed system or basis.

NORTHWEST COUNCIL OF GOVERNMENT 8/29/96

Ecology.....Claude Sappington, Kirk Cook, Nancy Weller, Jim Jacobson
 Bill Schleyel, Adams County Commissioner
 Paul Stoker, President of Alliance of Cds, Othello farmer
 Carol Burch (sp)
 Frank Broch, Franklin County Commissioner
 Bill Wrye, Franklin County
 Leroy Allison (sp), Alliance of Cds
 Lee Faulkner, Dept. of Agriculture
 Bill Graedel, Lincoln County

ISSUES

Sole Source Aquifer

- Farm Bureau and Alliance concerned about Texas situation (?)
- Edwards Aquifer, Judge limited pumpage from aquifer and is considering cutting off federal funding to farmers pumping from aquifer.
- GWMA

ADAMS COUNTY AND LINCOLN COUNTY 8/29/96 MID- COLUMBIA SCOPING MEETING

Bill Graedel, Lincoln County Commissioner
 Kami Snowden, Adams County Public Works
 Michelle Fuson, Adams County Health District.

Lincoln County

- No water
- Cost of fertilizer has caused better management practices

Adams County

- High Nitrates around City of Ritzville and Bruce Landfill

MID-COLUMBIA SCOPING MTG W/FISH AND WILDLIFE IN EPHRATA 9/19

Ecology: Nancy Weller and Dave Knight
 WDFW: Ron Friesz, Habitat Biologist Region 2 Office
 Joe Foster, Fish Biologist

Issues/Concerns

- 1) Lower Crab Creek watershed from Grant/Adams line to Red Rock Coulee
 - Bank cutting, Bank Stability
 - Erosion causing creek to meander
 - Enforcement problem, farmers try to correct problems w/o proper permits or engineering
 - Development of fishery and wildlife habitat
 - Spawning Habitat for salmon and steelhead

- Management problems, increases in irr. = more water to mng.
 - Cattle rangeland, contribution to nutrient loading
 - flood irr. of rangeland = erosion and nutrient contribution
 - Small seasonal CAFOs
 - Noxious weeds, purple loosestrife and Canadian Thistle
 - Carp in waterbodies ie irr. ditches
- 2) Rocky Ford Creek
 - High flows (what is the source of flow variations)
 - Water Quality
 - Weed growth
 - Contribution of nutrients to Moses Lake
 - Fish hatcheries contribution to nutrient load
 - 3) Sand Hollow Creek
 - Cause of recent fish kills (salmon, steelhead etc.)
 - Erosion problems-same concerns as Lower Crab Creek
 - Several new irr-circles in Royal Slope area w/o run-off control, causing erosion and head cutting.
 - fish passage problems
 - D.O.T. and hiway 26
 - 4) Pot Holes Reservoir and Moses Lake
 - Reasons for recent decline in fishery (?)
 - crappie, yellow perch and bass
 - 5) Point and non-point source discharge effects on wq in Winchester and Frenchmen Hills Waste ways.
 - Columbia Foods
 - Data gaps
 - City of Royal City's proposed discharge to waste way
 - What nutrients?, Oxygen depletion, loss of habitat

Resources at Risk

- 1) Fishery and fishery potential in Lower Crab Creek
- 2) Wetlands associated with Lower Crab Creek
- 3) Water fowl habitat in and around Lower Crab Creek, especially during migration periods
- 4) Salmon and steelhead fishery improvements in Lower Crab Creek (ie habitat)
- 5) Recreational usage of Pot Holes Reservoir and Moses Lake
- 6) Over wintering of water fowl in and around Pot Holes Res. and Moses Lake.
- 7) Declining Fishery in Pot Holes Res. (why?)

Current Programs

- 1) Hatcheries
- 2) Management plans for specific water bodies
- 3) Shorelands protection of Moses Lake
- 4) Mosquito Control District
- 5) Co-op Project with volunteers and sponsors looking at fishery decline in Moses Lake.
- 6) Aggressive wetland rehabilitation
- 7) Lake rehabilitation to remove carp and improve water quality. Fish barrier in Upper Pelican Horn
- 8) Habitat development
- 9) Priority habitats and species
- 10) Noxious weed eradication program

Where do You Want Ecology to Focus Resources (and \$)

- 1) Determine whether or not decline in fishery (M.L. and Pot Holes) is a water quality related problem.
- 2) Watershed study of Lower Crab Creek
- 3) Rocky Ford Creek
- 4) Identify source(s) of fish kills in Sand Hollow Creek
- 5) WQ issues in wasteway

APPENDIX X

FIELD ACTIVITIES FOR
THE MID-COLUMBIA WATERSHED

APPENDIX X - - Field Activities for the Mid Columbia Water Quality Management Area

June 1997

CATEGORY	NAME of WATERBODY	PROJECT SUMMARY	FACILITY NAME (if applicable)	PARAMETERS (if applicable)	REMARKS
MONITORING					
	Rocky Ford Creek @ Hwy. 17	Characterization of WQ in Rocky Ford Creek, and it's effects on the water quality of Moses Lake.			WY 1998 basin station requests
	Rocky Coulee Drain @ Hwy. 17	Establish WQ baseline data for Rocky Coulee Drain. Determine effects of waste water dischargers located adjacent to drain.			WY 1998 basin station requests
	Sand Hollow Creek @ SR 243	Characterization of WQ in Sand Hollow Creek.			WY 1998 basin station requests
	Upper Crab Creek near Moses Lake @ gaging station south of Road 7 NE	Characterization of WQ in Upper Crab Creek, and it's effects on the water quality of Moses Lake.			WY 1998 basin station requests
	Area Lakes Aquatic Plant Survey at Selected Lakes	Monitoring the spread of noxious weeds within lakes where their presence has been verified and checking close by lakes without noxious weeds.			Confirm lakes with Jenifer Parsons

CATEGORY	NAME of WATERBODY	PROJECT SUMMARY	FACILITY NAME (if applicable)	PARAMETERS (if applicable)	REMARKS
MONITORING (CONTINUED)	Potholes Reservoir Water Quality--Basin Lake Monitoring	Determine pesticide concentrations. Determine any correlation between water quality and declining fishery in reservoir.			Will be done by TIS
	Potholes: "Pesticide Effects on Lake Fauna" Study	Lake water column sampling to determine pesticide concentrations.			Water column pesticides only
	Moses Lake Dunes Plant Compliance Inspection	Perform Class II Inspection. Evaluation of Ground Water impacts and recommendations for treatment upgrades.		Class II Inspection	Combine w/ Basic American Foods
	Basic American Foods Compliance Inspection and GW Study	Perform Class II Inspection, prepare summary of results and evaluation with recommendations for treatment system upgrade and remediation of contaminated Ground Water.		Class II Inspection	
	Nitrate and Pesticide Levels in Ground Water in Eastern Grant and Western Adams Counties	Sampling program to fill in data gaps and allow for a determination as to the level of nitrate contamination in dryland areas.		Nitrate concentration	GWMA & WSPMP

CATEGORY	NAME of WATERBODY	PROJECT SUMMARY	FACILITY NAME (if applicable)	PARAMETERS (if applicable)	REMARKS
TMDL					
	Moses Lake TMDL	Review Status of Moses Lake Clean Lakes Project and package as TMDL		Nitrogen, Phosphorus	
	Moses Lake Water Quality--Basin Lake Monitoring	Acquire additional WQ data for associated Moses Lake study to fill in data gaps since last monitored.			For Moses Lake TMDL. Need to scope
	Moses Lake Water Quality Literature Search and Summary	Review and summarize present and previous water quality associated research.			Combine with Moses Lake TMDL
	Coordination of Data Gathering and Sharing with NAWQA	EILS coordinating with NAQWA (USGS) on data base transfer between USFW, USBR and other federal agencies.			Get NAWQA data for TMDLs
	Rocky Ford Creek TMDL	TMDL development		pH, dissolved oxygen and temperature	
	Lower Crab Creek TMDL	Develop a strategy for improving water quality in Lower Crab Creek		Temperature, pH fecal coliforms, dieldrin, DDT, 4,4-DDE, Chlordane, PCB	may be data rich

APPENDIX Y

**ASSOCIATED ACTIVITIES FOR YEARS 2&3 FOR
THE MID-COLUMBIA WATERSHED**

APPENDIX - Y

ISSUE	ASSOCIATED ACTIVITIES	MILESTONE DATE	INDIVIDUAL(S) INVOLVED
Evaluate the effectiveness of BMP implementation on nutrient loading/erosion control in Upper Crab Creek and Weber and Lind Coulees. Determine whether BMPs should be expanded.	1) Coordination with Adams County CD. review work 2) EILS technical assistance	1) CCWF Grant ends 12/99	ERO-WQ: Nancy Weller EILS: upon request Adams Co. CD: Gary DeVore
Third party development of a watershed plan for Lower Crab Creek.	Coordination with interested parties on development of plan	To Be Determined (TBD)	WQ-Nancy Weller EILS- upon request
Reach agreement with USBR and the individual irrigation districts on the disposition and use of the wasteway system.	1. Review and comment on USBR policy statement concerning discharges.	January-February 1997	Ecology WQP-Mike Lewellyn
Coordination with the Mid-Columbia Watershed Planning Council on formulation of a GWMA (s)	Provide ground water and hydrogeo technical assistance and data as needed. Provide representative to Ground Water Advisory Council (GWAC)	1) 1996-1999 2) EPA Regional Geographic Initiative money may become available as GWMA resource in the Spring of 1997.	WQP-Kirk Cook GWAC rep-TBD EPA Chuck Rice

ISSUE	ASSOCIATED ACTIVITIES	MILESTONE DATE	INDIVIDUAL(S) INVOLVED
Relationship between air quality and water quality as it relates to projects/research on agricultural BMPs (i.e. PAM and cover crops etc.)	Coordinate/exchange information with other Ecology programs and outside agencies.	Two Projects pending; 1) EPA - Regional Geographic Init. 2) CCWF Grant Proposal, WSU Cooperative Extension	WQ-Nancy Weller AQ- Regional an HQ staff CDs-Dave Koller (CD Alliance) WSU-Bob Gillespie EPA-Chuck Rice
Coordination of data gathering and sharing with NAQWA.	EILS coordinating with NAQWA on data transfer between USFW, USBR etc.		EILS-
Ground water data gaps and the fulfillment of Ecology's tasking as a partner in the GWMA.	1) 2) EILS technical assistance	1) Dependent upon GWMA formulation, probably 1997-98. 2) On-going	1) WQP-Kirk Cook 2) EILS- Larry Goldstein
Sharing Ground water data between Ecology Programs.	1) SWFAP ground water data from Ephrata Land Fill monitoring wells. 2) two-way exchange of gw data between WQ and SHWR as part of GWMA formulation.	periodic or on request	1) SWFAP: Brian Farmer 2) SHWR: John Covert 3) WQP: Wayne Peterson and Kirk Cook
Ground water data from MTCA clean up site at Burlington Northern in Othello and monitoring data required by waste water permit (State Waste Discharge to POTW)..	TCP shares monitoring data with WQ plus continued coordination on site clean-up.	1) Discharge permit expires July 1997, renewal not required. 2) Cleanup consent decree will be signed in the Spring of 1997.	WQ-Lisa Olson TCP Teresita Bala