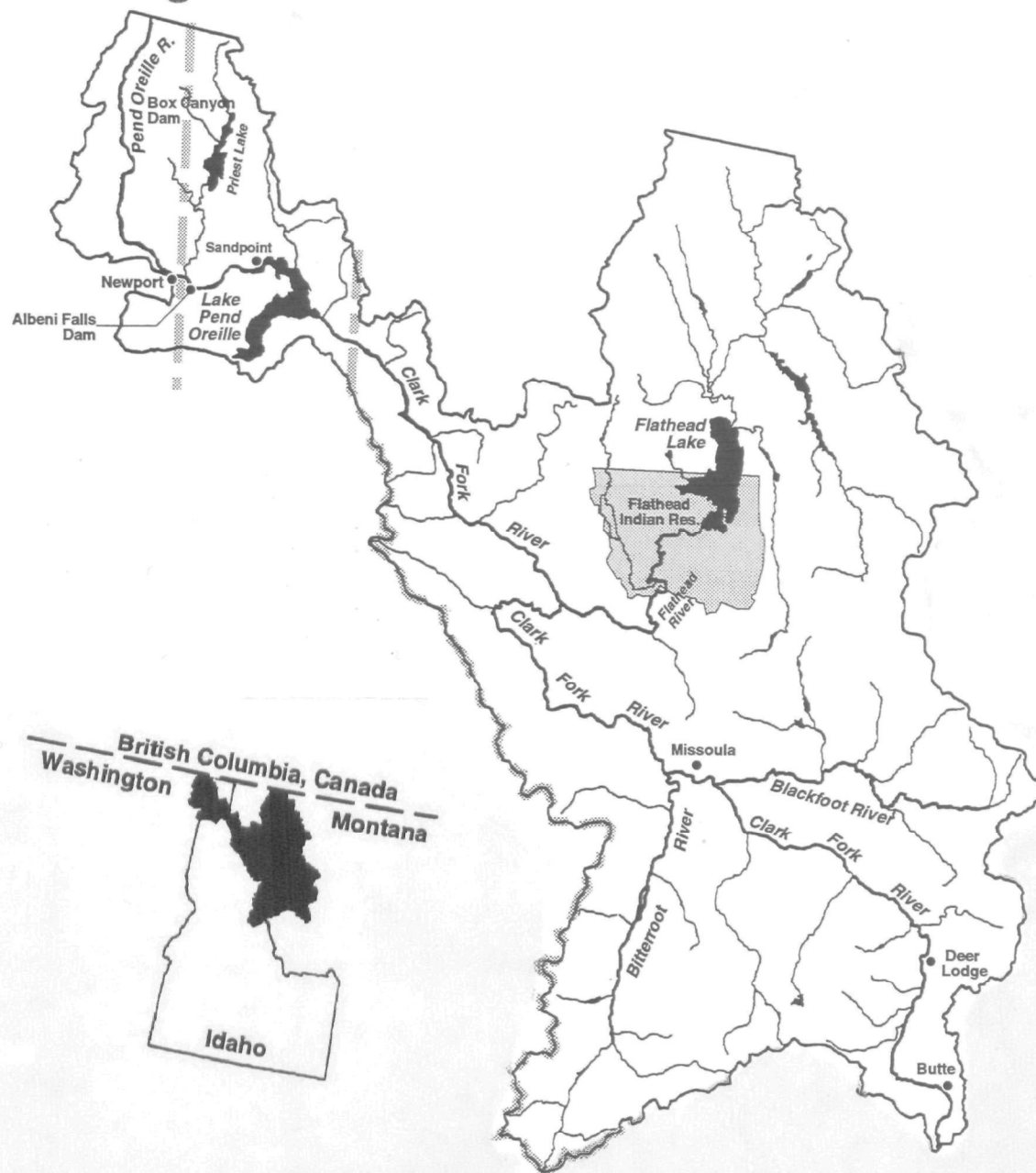




# Clark Fork - Pend Oreille Basin Water Quality Study

## A Summary of Findings and a Management Plan



Conducted Under Section 525 of The Clean Water Act of 1987

U.S. Environmental Protection Agency, Regions 8 and 10,  
State of Montana, State of Idaho, and State of Washington

***CLARK FORK - PEND OREILLE BASIN***

***WATER QUALITY STUDY***

***A SUMMARY OF FINDINGS AND A MANAGEMENT PLAN***

Conducted Under

SECTION 525 OF  
THE CLEAN WATER ACT OF 1987

***January 1993***

**U.S. Environmental Protection Agency, Regions 8 and 10**  
**State of Montana**  
**State of Idaho**  
**State of Washington**

## ***Table of Contents***

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Introduction and Acknowledgements . . . . .	iii
Executive Summary . . . . .	1
Response to Citizens' Concerns: The Purpose and Organization of the Study . . . . .	6
The State of the Basin . . . . .	12
Previous Studies and Current Management Programs . . . . .	16
Scoping the Sources: Research Objectives . . . . .	21
Research Findings . . . . .	27
Managing the Watershed: The Management Plan . . . . .	34
Taking the First Steps: Priorities for Action . . . . .	53
Appendix A: Glossary	
Appendix B: Selected Bibliography	
Appendix C: Response To Comments	
Appendix D: Selected News Features and Articles	

## ***Introduction and Acknowledgements***

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This document summarizes three years of water quality research in the Clark Fork-Pend Oreille Basin and provides a Management Plan for protection of the basin's water quality. All work was conducted pursuant to Section 525 of the 1987 amendments to the federal Clean Water Act as a cooperative effort among the states of Montana, Idaho, and Washington and with assistance from the U.S. Environmental Protection Agency. This report is a synthesis of the following three documents completed for the Clark Fork-Pend Oreille Basin Water Quality Study:

- A Rationale and Alternatives for Controlling Nutrients and Eutrophication Problems in the Clark Fork River Basin, by G. L. Ingman, Montana Department of Health and Environmental Sciences, Helena, 1992
- Phase I Diagnostic and Feasibility Analysis: A Strategy for Managing the Water Quality of Pend Oreille Lake, Bonner and Kootenai Counties, Idaho, 1988-1992, by B. Hoelscher, J. Skille, G. Rothrock, Idaho Department of Health and Welfare, Division of Environmental Quality, Boise, 1993.
- Pend Oreille River Management Plan, by R. Coots, Washington State Department of Ecology, Olympia, 1992.

State reports are available from each state's steering committee members.

This report is the fourth and final annual progress report for the Clark Fork-Pend Oreille Water Quality Study. The first, second, and third annual reports are available from any member of the Steering Committee.



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## ***Executive Summary***

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The Clark Fork-Pend Oreille Basin lies within western Montana, northern Idaho and northeastern Washington. The basin encompasses about 25,000 square miles and is the source of waters that enter and leave Pend Oreille Lake in Idaho. The Clark Fork River begins near Butte, Montana and drains an extensive area of western Montana before entering Pend Oreille Lake. The lake is the source of the Pend Oreille River in northeastern Washington which in turn drains into the Columbia River.

In response to concerns and complaints about the growing presence of algae and water weeds in the Clark Fork-Pend Oreille Basin, Congress mandated the United States Environmental Protection Agency (EPA) to conduct a comprehensive water quality study in the basin, and to report study findings and recommendations to Congress. This mandate appeared as Section 525 of the 1987 amendments to the federal Clean Water Act.<sup>1</sup> The main objectives of the study were to characterize water quality problems, identify sources and recommend actions for maintaining and enhancing water quality throughout the basin. This report and management plan are intended to meet the study and reporting requirements mandated in Section 525.

Regions 8 and 10 of the EPA had the primary federal responsibility for implementing the Clark Fork-Pend Oreille Basin Water Quality Study. The States of Montana, Idaho and Washington identified research objectives within their

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<sup>1</sup> Clean Water Act, 33 U.S.C. 1251, et seq., as amended by the Water Quality Act of 1987, P.L. 100-4, February 4, 1987.

boundaries, conducted the research, wrote reports and recommended state-specific management actions that would meet the basin-wide study objectives. The Clark Fork-Pend Oreille Basin Water Quality Study Steering Committee, consisting of representatives from EPA and the three states, oversaw the study and reviewed and summarized the three state plans into this document, the Clark Fork-Pend Oreille Basin Water Quality Study: A Summary of Findings and a Management Plan.

The Steering Committee invited all interested persons and agencies to comment on individual state management plans and the basin-wide management plan. The Committee sponsored four public workshops in Deer Lodge and Missoula, Montana, Sandpoint, Idaho and Newport, Washington. The Committee also requested comments by mail from over five hundred individuals, agencies and other groups on the mailing list. (Responses to these public comments are included as Appendix C.)

## **Research Findings and Conclusions**

The three-year Clark Fork-Pend Oreille Water Quality Study yielded the following major research findings and conclusions:

### **Clark Fork River**

- Excessive levels of algae caused water use impairment in up to 250 miles of the Clark Fork River.
- About half of the soluble phosphorus derives from wastewater discharges, with the other half contributed by nonpoint sources in tributary watersheds. Three-fourths of the soluble nitrogen comes from tributaries, with the remaining quarter from wastewater discharges.
- The most critical point sources are the municipal wastewater treatment plants, particularly at Butte, Deer Lodge and Missoula. The Stone Container Corporation's Missoula Mill is a major source of industrial wastewater nutrient loading to the river, although the levels of nutrients in its effluent over the past six years have been reduced several fold.

- Phosphate detergent bans in several communities along the river have decreased the phosphorus content of the effluent of the municipal wastewater treatment plants.
- The largest nonpoint sources of nutrient loading to the Clark Fork River are the Flathead, Bitterroot, and Blackfoot rivers.
- A nonpoint source stream reach assessment found that of 99 basin streams with suspected problems, 65 percent have an impaired ability to support designated beneficial water uses.

#### Pend Oreille Lake

- Open lake water quality has not changed statistically since the mid-1950s.
- There is a high correlation between total phosphorous loading from nearshore and local tributaries and the degree of urban development.
- The greatest share (more than 90 percent) of water entering the lake comes from the Clark Fork River inflow, as does about 85 percent of the total loading of phosphorus, the nutrient that limits algae growth in the lake.
- Maintenance of open lake water quality is largely dependent on maintaining nutrient loadings from the Clark Fork River at or below their present levels.
- Pack River, followed by Sand Creek, are the tributaries discharging the highest phosphorus loads per unit of land area to the lake. Lightning Creek, Pack River, and Sand Creek have the highest nitrogen levels.

#### Pend Oreille River

- The mainstem Pend Oreille River has water quality that is generally good and in the oligo-mesotrophic range.
- The primary water quality concern on the Pend Oreille River is the proliferation of Eurasian watermilfoil, an invasive and adaptable plant.
- Roughly 75 percent of the external nitrogen and phosphorus loading to this reach of the river comes from the Newport wastewater treatment plant, Calispell Creek, and Trimble Creek.

- Several tributaries exceed standards for fecal coliform bacteria content.
- Nonpoint sources of pollutants in the Pend Oreille River basin that potentially affect the river are animal keeping practices, agriculture, on-site sewage disposal, stormwater and highway runoff, forest practices, land development, landfills, and gravel extraction.

### **Recommended Management Objectives, Actions and Priorities**

Based on the research findings and conclusions, the Steering Committee of the Clark Fork-Pend Oreille Basin Water Quality Study recommends the following water quality management goals and objectives for the basin.

Goal: Restore and Protect Designated Beneficial Water Uses Basin-Wide.

Objectives:

- Control nuisance algae in the Clark Fork River by reducing nutrient concentrations.
- Protect Pend Oreille Lake water quality by maintaining or reducing current rates of nutrient loading from the Clark Fork River.
- Reduce nearshore eutrophication in Pend Oreille Lake by reducing nutrient loading from local sources.
- Improve Pend Oreille River water quality through macrophyte management and tributary nonpoint source controls.

Actions

Each state outlined numerous specific management actions to meet these basin-wide objectives. These recommended management actions were summarized into a an overall management plan for the entire basin. The recommended management actions include a spectrum of activities that ranges from mechanical harvesting of aquatic weeds, comprehensive public education programs, control of agricultural and residential nonpoint sources, revised permit limits on point sources, and developing and enforcing local zoning and stormwater

ordinances. For each recommended action, the plan identifies possible lead agencies, assigns a priority, estimates costs whenever possible, and identifies possible funding sources.

### Priorities

The Steering Committee identified over 70 specific management actions. From these, the Committee has identified several actions to be the highest priority.

- Convene a Tri-State Implementation Council to implement the Management Plan recommendations.
- Establish a basin-wide phosphate detergent ban.
- Establish numeric nutrient loading targets for the Clark Fork River and Pend Oreille Lake.
- Develop and maintain programs to educate the public on their role in protecting and maintaining water quality.
- Control Eurasian watermilfoil by education, rotovation, and research into alternative methods.
- Install centralized sewer systems for developed areas on Pend Oreille Lake.
- Institute seasonal land application and other improvements at the Missoula municipal wastewater treatment facility.
- Enforce existing regulations and laws consistently and aggressively, in particular state anti-degradation statutes.
- Establish and maintain a water quality monitoring network to monitor effectiveness and trends and to better identify sources of pollutants.
- Develop and enforce stormwater control and erosion control plans and county ordinances.

## ***Response to Citizens' Concerns: The Purpose and Organization of the Study***

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### **Purpose**

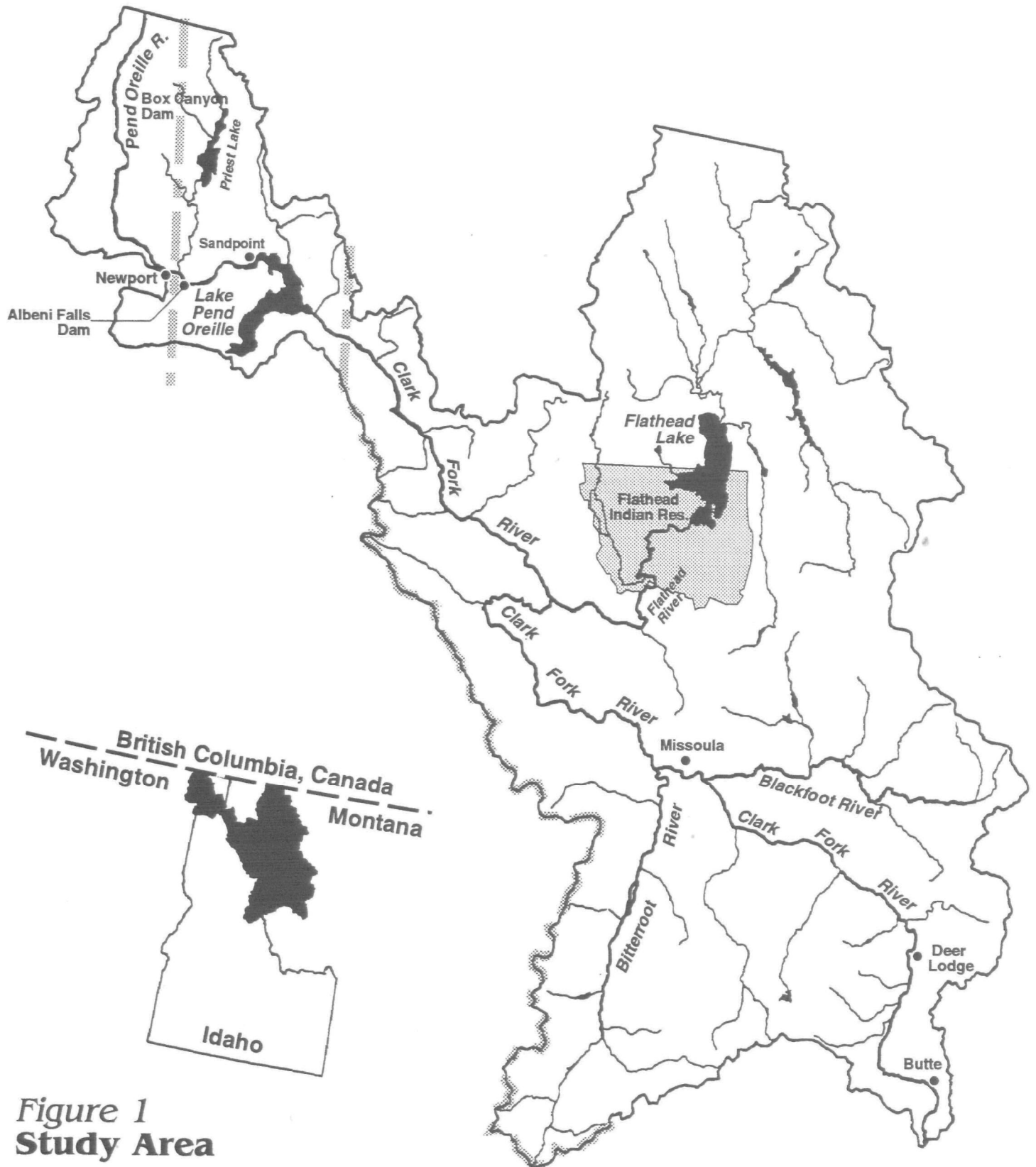
The Clark Fork-Pend Oreille basin encompasses about 25,000 square miles of the intermountain Northwest in the states of Montana, Idaho, and Washington (Figure 1). The Clark Fork River, Pend Oreille Lake, and the Pend Oreille River are among the main bodies of water in the basin. The Clark Fork River has its headwaters near Butte, Montana, is fed by the Flathead, Bitterroot, and Blackfoot rivers and then flows into Pend Oreille Lake, Idaho's largest lake. Pend Oreille Lake is the source of the Pend Oreille River in northeastern Washington.

The Clark Fork-Pend Oreille Basin is characterized by highly valued recreational and economic resources and is the central focus of nearly every major urban, industrial and agricultural activity in the region. Vast resources of minerals, timber, fish, wildlife, water, rangeland and croplands support a variety of human uses, ranging from mining and agriculture to recreational fishing and boating.

In response to citizens' concerns about water quality in the basin, members of the three states' Congressional delegations added Section 525 to the Clean Water Act of 1987 which directed the U.S. Environmental Protection Agency (EPA) to conduct a comprehensive water quality study in the Clark Fork-Pend Oreille Basin. Congress, however, did not immediately appropriate the necessary funds for the study. Section 525 of the 1987 amendments to the Clean Water Act states:



# Clark Fork - Pend Oreille Basin



STUDY OF POLLUTION IN LAKE PEND OREILLE, IDAHO.

*The Administrator shall conduct a comprehensive study of the sources of pollution in Lake Pend Oreille, Idaho, and the Clark Fork River and its tributaries, Idaho, Montana, and Washington, for the purpose of identifying the sources of such pollution. In conducting such study, the Administrator shall consider existing studies, surveys, and test results concerning such pollution. The Administrator shall report to Congress the findings and recommendations concerning the study conducted under this section.*

Concerns about environmental problems in the basin are longstanding. The two greatest concerns are pollution from heavy metals from past mining and smelting activities in the headwaters of the Clark Fork River and eutrophication problems caused by excessive nutrients. Eutrophication manifests itself in the Clark Fork River in Montana as abundant developments of nuisance attached algae that impair most designated uses of the river. In Pend Oreille Lake, increasing growths of algae and other water plants in nearshore areas and decreasing water clarity are the primary concerns. In Washington, the Pend Oreille River is choked with nearly continuous growths of water plants that impede boat traffic and most other uses. Increasing population in the inland Northwest are likely to exacerbate these water quality problems in the near future.

In 1988, the Montana Governor's Office released the Clark Fork Basin Project Status Report and Action Plan. The Action Plan provided specific recommendations for addressing the nutrient problems in the basin and called for a coordinated program to investigate the sources and fate of nutrients in the Clark Fork-Pend Oreille Basin. Encouraged by Congress' action and prompted by the Governor's report, the citizen's group known as the Clark Fork-Pend Oreille Coalition (formerly the Clark Fork Coalition) successfully pushed for appropriation of funds to complete the comprehensive, basin-wide assessment authorized by Section 525.

Although the Montana Governor's Office report identified the mining-related heavy metals pollution in the headwaters area as the most acute problem in the

basin, the Steering Committee decided to restrict the water quality studies to nutrient and eutrophication problems because they are the primary interstate water quality issue and are affecting the largest portion of the basin. In addition, investigations and remedial activities on the metals contamination were already well underway through the federal Superfund Program.

This report, the Clark Fork-Pend Oreille Water Quality Study: A Summary of Findings and a Management Plan, summarizes the findings of three years of research conducted pursuant to Section 525. It also provides a management plan for the basin. This is the fourth and final report on the Clark Fork-Pend Oreille Water Quality Study.

## **Organization**

Though Section 525 of the Clean Water Act directs EPA to conduct the study, the project was a joint effort of working teams from Montana, Idaho, Washington, Regions 8 and 10 of the EPA and from EPA's Environmental Monitoring Systems Laboratory at Las Vegas (EMSL-LV). EPA convened the Clark Fork-Pend Oreille Basin Water Quality Steering Committee to oversee the study. The Steering Committee comprises representatives from the two EPA regional offices and the agency from each state responsible for water quality management: the Water Quality Bureau of the Montana Department of Health and Environmental Sciences (MDHES), Idaho's Division of Environmental Quality (DEQ), and Washington's Department of Ecology (Ecology). The Steering Committee met regularly and communicated frequently to oversee progress and to coordinate the three states' research.

Each of the state agencies worked with other agencies and organizations within its state to carry out the research. In Montana, additional work was conducted by EMSL-LV, the Natural Resource Information System (NRIS) at the

Montana State Library, the University of Montana, the U.S. Geological Survey, and several independent contractors.

In Idaho, DEQ managed a Clean Lakes Phase I Project for Pend Oreille Lake which was funded through an EPA Clean Lakes Program grant as well as by Section 525. The U.S. Geological Survey, EMSL-LV, the University of Idaho, the Idaho Department of Fish and Game, Eastern Washington University, the Bonner County Planning and Development Department, and the Panhandle Health District also contributed research to the project. The DEQ project team also convened a Technical Advisory Committee to coordinate and integrate research elements and to review subcontractor results, and a Policy Advisory Committee representing agencies, industries, and interest groups with direct involvement in or concern for Pend Oreille Lake's water quality.

In Washington, the U.S. Army Corps of Engineers, the University of Idaho, and the Pend Oreille County Public Works Department contributed research.

To implement the Management Plan developed as a result of the Clark Fork-Pend Oreille Water Quality Study, EPA and the state agencies will have a guiding role in directing future research, coordinating management regulations, and continuing the interstate links forged through the project. Many other agencies and organizations will be active participants in the success of the management plans. Federal, tribal, state, and local units of government, each with oversight of part of the basin's water quality equation, will be working together for years to come to ensure clean water in the Clark Fork River, Pend Oreille Lake, and Pend Oreille River system. Citizens' groups have parts to play, also. The Clark Fork-Pend Oreille Coalition was instrumental in bringing about the Clark Fork-Pend Oreille Water Quality Study and will maintain active participation in basin water quality efforts. In Idaho, the Clean Lakes Coordinating Council will continue to work with the agencies responsible for the management of Pend Oreille Lake. The ultimate success of the Clark Fork-Pend Oreille Basin Management Plan will depend

upon how well all of these agencies and organizations can frame common goals for water quality, agree upon the methods to be used in meeting these goals, and work together to take necessary actions to protect basin waters.

## ***The State of the Basin***

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### **Clark Fork River**

The Clark Fork River watershed is the largest subunit of the Clark Fork-Pend Oreille research area, comprising some 22,000 square miles, or nearly 90 percent of the Clark Fork-Pend Oreille Basin. A wide range of human activity, from urban centers to farming hamlets, is found within this region. Butte, at the Clark Fork River's headwaters is a city of some 34,000. Copper mining has been the city's major industry for decades. Missoula lies along the middle reaches of the river. It is home to about 34,000 people and the University of Montana. Both these cities are service and retail hubs for their regions. Between the hills that surround Butte and the mountains that begin to rise near Missoula lies the Deer Lodge Valley, a broad and fertile swale with numerous farms and ranches. Further downstream, the mountainous terrain between Missoula and the Idaho border is sparsely settled. Much of the western portion of the watershed is forested mountains, predominantly national forest. Part is wilderness and the remainder is managed for multiple uses, including logging and mineral extraction.

The economy of the region is predominantly natural resource based, with forestry, mining, and agriculture the major industries. In recent years, recreation and tourism have played an increasing role in the region's economy. In the valleys, the largest farms and ranches grow various short season crops, such as hay and winter wheat, as well as raise livestock. Vacation home development is occurring as the region increases in popularity as a recreational destination for skiing, fishing, hiking, and hunting. The cities and towns are more densely settled, but

development and accompanying sprawl are progressing at a fairly restrained pace. The exception is the booming Flathead Valley which is attracting a large population from outside the state.

These diverse land uses and economic activities in the Clark Fork River drainage area have led to an associated range of water quality problems. Apart from the heavy metals residual from mining wastes in the river's headwaters, the most pressing of these are the excessive nutrients that promote the growth of nuisance algae in the Clark Fork River. High concentrations of phosphorus and nitrogen have led to blooms of filamentous algae in the Clark Fork River above Missoula and heavy growths of slime, or diatom, algae below the city. Beside being unattractive, algae impair beneficial uses of the river water, such as irrigation and recreation. Dead and decaying algae form sludge that clouds the water and produces nuisance river foam. Algal respiration also depletes dissolved oxygen required for healthy and balanced populations of fish and other aquatic life. On the lower river, the primary concern is the discharge of nutrients to Pend Oreille Lake.

### **Pend Oreille Lake**

The Pend Oreille Lake watershed is sparsely settled. Bonner County, which almost entirely contains the lake, has a population of about 26,000. Sandpoint, the county's largest city with about 5,200 residents, and the surrounding cities and rural areas along the north shore of the lake hold about half the county's population. In summer, an additional 5,000 people call the north shore their home. Bonner County is predicted to have continuing strong growth as a nonmetropolitan area. By the year 2010, the population may reach 35,000 -- an increase of nearly one-third.

Like the rest of the Clark Fork-Pend Oreille Basin, an array of land uses characterize the Pend Oreille Lake watershed. Much of the northern and eastern parts of the watershed are public lands comprise mountainous or hilly terrain

deeply cut by streams and mostly forested. The broad, fertile valleys and river bottoms, predominately in the western part of the watershed, are mostly in private ownership. Near the lake and on its shore, private lands account for more than half of the ownership. Timber is the region's primary natural resource industry. Until very recently, this and other natural resource based industries dominated the region's economy. However, jobs in services and retail trade are increasing as the region becomes more popular for second home development, tourism, and recreation. It is estimated that recreation and tourism contribute about \$20 million annually to the local economy. Livestock grazing and short season crops, such as hay, wheat, oats, and barley, are important land uses in the valleys and on the lower slopes. Rarely are these operations very large.

Developed lands, primarily residential, are concentrated in a broad valley stretching north of Sandpoint. In this area, semi-rural residential development is gradually replacing agriculture. Almost half of all developable land in the watershed is located within one mile of the lake shore, indicating that the development pressure predicted by population growth figures will be concentrated fairly close to the lake.

Pend Oreille Lake is designated a Special Resource Water under Idaho's Water Quality Standards and Wastewater Treatment Requirements. No new point source discharges are allowed, nor may existing sources increase discharges of pollutants to the lake, a tributary, or an upstream segment if these discharges would compromise water quality necessary to designated uses of the special resource water. Pend Oreille Lake's designated uses are water supply, recreation, salmonid spawning, cold-water biota, wildlife habitat, and aesthetics.

Human activities in the basin have led to water quality concerns about Pend Oreille Lake. Paramount among these are excessive nutrients that promote the growth of slime (attached benthic algae) on shoreline rocks, structures, and boats.



If left unmanaged, the algae eventually could impair of the lake's aesthetic qualities, recreational uses and domestic water supplies.

### **Pend Oreille River**

The Pend Oreille River drains Pend Oreille Lake. Its basin lies mainly in Pend Oreille County, a sparsely settled rural region in northeast Washington. The largest city, Newport, has fewer than 1600 residents. The next largest town, Lone, has about 500 residents. Local, state, and federal government jobs account for 43 percent of employment, with the remaining 57 percent split between retail, manufacturing, and service jobs.

Much of the river basin's land falls within the boundaries of the Kaniksu or Colville national forests. Two-thirds of the northern and central parts of the county are government owned; the southern portion is mostly privately owned. The basin's topography consists of river-bottom flatlands in a long and narrow trough between the Selkirk Mountains and Okanagan Highlands. Agriculture on the lowland plains includes grain crops, hay, pasture, and livestock. The area is largely forested with rough mountainous terrain. Private land ownership is concentrated on river and lake shorelines as strip development.

Milfoil is the mainstem Pend Oreille River's most serious problem. If left unchecked, this tenacious water weed could choke life from the river. In addition to restricting human recreational access to the river, existing data suggest milfoil may also be limiting to the fishery.

## ***Previous Studies and Current Management Programs***

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The language of Section 525 of the Clean Water Act specifically directs the EPA to "... consider existing studies, surveys, and test results concerning such pollution" in the course of the study. Therefore, before discussing the Section 525 research, findings, and management recommendations, it is important to briefly describe previously conducted studies and current water quality management activities in the Clark Fork-Pend Oreille Basin. The management plan developed for the watershed under Section 525 takes into account and builds upon these efforts.

### **Clark Fork River**

#### **Other Studies**

The Clark Fork River has been the subject of water quality concern for many years, primarily because of the residues of heavy metals left behind by the intensive mining around its headwaters. The Clark Fork River is probably the most thoroughly studied stream in the state. Research has ranged from examinations of water chemistry, hydrology, and contaminants to characterizations of the flora and fauna of the river and its tributaries. The effects of mining, logging, agriculture, sewage treatment plants and industrial discharges have also been explored. More recently, attention has turned to the high concentrations of nutrients in the upper and middle Clark Fork River.

A long-range comprehensive study of the Clark Fork Basin was inaugurated in 1984. Its final report, the Clark Fork Basin Project Status Report and Action Plan gathered fragmented information from the numerous studies of the Clark Fork

River. It reviewed the history of water and land uses in the basin, surveyed previous and current research directed at solving water quality problems, and made recommendations for future study and action. This report provided the framework for the Section 525 Clark Fork-Pend Oreille Water Quality Study.

### Current Management Activities

A number of water management activities are already in place in the Clark Fork Basin. Management activities that include nutrient control measures include the Montana Pollutant Discharge Elimination System to control point source discharges of wastewater to protect stream quality; the state's Nondegradation Rules applying to new or increased sources of pollution; Montana's Nonpoint Source Pollution Control Program and the Flathead Basin Phosphorus Control Strategy. The communities of Missoula, Superior, and Alberton have adopted bans on phosphate-containing detergents, and the Stone Container Corporation kraft mill has steadily reduced the nutrient content of its wastewater discharge over the past six years.

In addition, the Salish and Kootenai Tribes have begun an aggressive water quality monitoring program on the Flathead Indian Reservation. The tribes have enacted a water quality ordinance for controlling point and nonpoint sources of pollution and are currently implementing the ordinance. The tribes also cooperated with the State of Montana on Flathead River Basin data collection and monitoring activities to determine nutrient sources in the Flathead Basin.

The upper Clark Fork River Basin has long suffered from the over-appropriation of water. The result has been serious stream dewatering problems during summer months which compromise all water uses. Low stream flows also aggravate the nutrient problem, especially in reaches below wastewater discharges, and promote the development of nuisance levels of algae. In 1991, the Montana Legislature passed legislation which placed a moratorium on most

new surface water rights in the upper basin. It also created the Upper Clark Fork River Basin Steering Committee and charged it with writing a management plan for waters of the upper basin. This plan must consider and balance all beneficial uses of water and develop recommendations to alleviate water shortages. The plan is scheduled for completion in December 1994.

A century of mining and smelting has left the Upper Clark Fork River and its tributaries severely polluted by toxic metals and other chemicals. EPA has listed four Superfund sites in the upper Clark Fork River basin on the National Priority List. Since 1982, EPA, MDHES, industries, and other agencies have worked together to investigate and prescribe clean-up procedures. Efforts conducted under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) are being organized through the Clark Fork Superfund Master Plan.

## **Pend Oreille Lake**

### Other Studies

Pend Oreille Lake has also been the subject of considerable research since the mid-1980s. In 1984, researchers began monitoring the lake and the Clark Fork River to measure nutrients, sediments, and heavy metals. This was in response to the temporary discharge permit that allowed the Stone Container Corporation plant at Missoula to increase industrial wastewater outflows into the Clark Fork River. As a result of the sampling, researchers classified the lake as on the border between nutrient poor (oligotrophic) and moderately fertile (mesotrophic). Phosphorus was found to be the nutrient most often limiting to aquatic plants and algae, and some evidence indicated that heavy metals inhibited algal growth. In 1986, researchers first reported increased attached algae levels in shallow bays and nearshore waters.

### Current Management Activities

The Idaho Division of Environmental Quality has provided technical and financial assistance for management of the lake's watershed. Particularly, the creation of several sewer districts around the lake has resulted in the planning and upgrading of wastewater treatment systems. Bonner County's ban on phosphate detergents, the National Pollutant Discharge Elimination System which controls point source discharges of wastewater, the state's Antidegradation Policy applying to new or increased sources of point sources of pollution to Special Resource Waters, and nonpoint source programs designed to reduce pollution from forest practices and state road construction and maintenance are nutrient control measures that are already in place.

### **Pend Oreille River**

#### Other Studies

Besides the Section 525 research, other Pend Oreille River projects include: 1) yearly studies of fisheries improvement opportunities conducted by the Upper Columbia United Tribes Fisheries Center at Eastern Washington University and funded by the Bonneville Power Administration; and 2) a two-year study by University of Idaho researchers of Box Canyon Reservoir's water quality, fish, wildlife and shoreline characteristics, and recreation and tourism opportunities. That study was completed with funding from the Pend Oreille County Public Utility District. The U.S. Army Corps of Engineers investigated water flow through river weed beds in an 1988 study, and is currently experimenting with the use of the aquatic herbicide trichlopyr for milfoil control. Additional water quality work on the river has focused on weed beds and rotoation in yearly evaluations of the Pend Oreille River Eurasian watermilfoil control program by consultants for the Pend Oreille County Public Works Department.

### **Current Management Activities**

Since 1984, Pend Oreille County has tried several methods to control the spread of Eurasian watermilfoil, first through the application of the herbicide 2,4-D (the use of which is no longer allowed by EPA) and subsequently via the mechanical bottom tillage method known as rotovation, originally pioneered by the British Columbia Ministry of Environment for the Okanagan lakes. (Rotovation is the mechanical harvesting of aquatic weeds.) The rotovator in use since 1988 was purchased by the county's Public Works Department under a joint funding arrangement with Ecology and the U.S. Army Corps of Engineers.

## ***Scoping the Sources: Research Objectives***

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The primary research objective for the Clark Fork-Pend Oreille Water Quality Study was to evaluate the major interstate water quality issue: eutrophication problems caused by excessive quantities of nitrogen and phosphorus.

Two broad challenges were tackled by researchers during the three year study:

- Document water quality problems caused by pollution sources in the watershed; and
- Recommend actions for protecting and restoring water resources throughout the basin.

Each state team outlined research objectives specific to the water quality problems of its part of the basin while keeping in mind the basin-wide nature of the project. Each state then conducted studies to meet those objectives. Montana studied the Clark Fork River. Idaho completed a federal Clean Lakes Phase I study on Pend Oreille Lake in order to meet its commitment, and Washington focused its research on the Pend Oreille River. Following completion of the third year of research, each group wrote a management plan. The individual state plans were then forged into the Management Plan that is included in this document.

### **Clark Fork River**

#### **Research Objectives**

The concerns of Montana researchers were two-fold: 1) abundant growths of attached algae in the Clark Fork River and their effects on beneficial water uses,

and 2) nutrient loading to Pend Oreille Lake from the river. Specific research tasks were:

- Identify the sources of nutrients in Montana's portion of the watershed, develop a nutrient budget, and formulate a nutrient control strategy;
- Document the extent and severity of nuisance algae in the Clark Fork River, evaluate the role of instream nutrients in promoting algae growth, and determine what effect nutrient controls would have on the algae, fisheries, and riverine ecosystem; and
- Assimilate study results through use of a computerized Geographic Information System (GIS).

#### Research Conducted

Montana researchers intensively monitored the 350 miles of the Clark Fork River from its headwaters to the Idaho border, many of its tributaries, and most of the point source discharges of wastewater. This work provided data and information on the major sources of nutrients to the river. Section 525 research in Montana:

- Assessed the extent and severity of nuisance algae in the river and developed nutrient criteria for the control of algae growth;
- Determined instream nutrient concentrations from headwaters to Pend Oreille Lake, documented and ranked nutrient contributions from tributaries and wastewater discharges, and identified the sources that can be most readily controlled;
- Compiled data on the nonpoint sources and causes of water quality impairment within the tributary basins, along with information on the geographical distribution of problem streams; and



- Evaluated the potential negative effects of nutrient controls on fish production.

In addition to this research, EMSL-LV developed a GIS for the Blackfoot River watershed. (A GIS integrates data from many sources and may be used to analyze how various topographic, climatic, geologic, biotic, and land use factors affect water quality.) The focus of the GIS work was nonpoint source pollution, particularly from silvicultural practices and livestock production. The Blackfoot River was selected as a demonstration project since it is a subbasin of the Clark Fork River, and had all nonpoint source modeling requirements. EMSL-LV worked directly with the Montana State Library and the Water Quality Bureau on remotely-sensed data acquisition, GIS database layering, and development of a user interface.

Concurrent with the Blackfoot River GIS project, the Natural Resource Information System at the Montana State Library developed a GIS system for the entire Clark Fork River watershed. The latter system was used extensively to help evaluate the Clark Fork-Pend Oreille Water Quality Study data and to display results. Both the Clark Fork River and the Blackfoot River GIS systems are housed at the Montana State Library where they will continue to be available for basin-wide water quality management and planning purposes. Plans are underway to increase the accessibility of the GIS systems to government and private institutions.

## **Pend Oreille Lake**

### **Research Objectives**

For Pend Oreille Lake, the major charges were to investigate citizens' concerns about increased growths of algae and the potential for lake eutrophication

caused by nutrients from the Clark Fork River and rapid population growth and development in the immediate lake basin. Specific research objectives included:

- Assess current water quality and characterize the trophic status of the littoral, pelagic, and riverine zones of the lake;
- Identify and quantify nutrient inputs from natural, point, and nonpoint sources and prepare a mass balance nutrient budget for the lake;
- Conduct a land use inventory of the Idaho portion of the watershed;
- Develop a predictive computer model of the lake's response to nutrient loads; and
- Formulate alternative water quality management strategies and select and initiate a comprehensive, long-term water quality management plan.

#### Research Conducted

The Idaho project team used several methods, including water quality monitoring in the lake and its tributaries and outflow, creating computer models, measuring organic productivity, and listing and mapping various land uses.

Specific research accomplishments were:

- The U.S. Geological Survey (USGS) collected limnological and hydrological data from the lake and its tributaries and outflow to describe the lake's trophic status and develop nutrient and hydrological budgets for the lake.
- The USGS used an empirical nutrient load-lake response computer model to simulate how the open, deep area of the lake would respond to different rates of nutrient loading.
- University of Idaho researchers assessed nearshore water quality and algae production, and identified the types of phytoplankton found in the deeper waters of the lake.

- The Panhandle Health District inventoried all septic tanks close to the lake for use in the nutrient load-lake response computer model.
- The Bonner County Planning and Development Department and Eastern Washington University listed all current and anticipated land use practices in the Idaho portion of the watershed.
- The DEQ and Idaho Department of Fish and Game compiled all available knowledge on the lake's fishery, described its economic value, provided general information on heavy metal accumulation in fish tissue, and discussed the effects on fish populations of the proposed water quality goals.
- EMSL-LV used satellite imagery to identify vegetative cover in the Idaho watershed and aerial photographs to map aquatic macrophytes and potential nonpoint nutrient sources.

## **Pend Oreille River**

### Research Objectives

The Pend Oreille River research centered around overall water quality and point and nonpoint pollution sources on the mainstem river and selected tributaries, in order to determine how to maintain the river's generally good water quality and to manage the worsening Eurasian watermilfoil (*Myriophyllum spicatum*) invasion.

### Research Conducted

Sampling of water, aquatic plants, and fish as chemical and biological indicators was the primary research method in Washington during all three years of the project. Washington scientists addressed the question of the river's trophic status and its effect on aquatic plant and fish life. The researchers:

- Evaluated the general water quality of the mainstem river and determined pollutant loading from tributaries to Box Canyon Reservoir;

- Assessed fish communities and water quality within and outside weed beds; and
- Estimated primary productivity in the river mainstem and conducted further studies on the water quality and pollution sources of selected problem tributaries.

Researchers also conducted experiments with a variety of rotovation techniques and looked at several patterns of rotovation as methods for management and control of Eurasian watermilfoil.

## ***Research Findings***

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### **Clark Fork River**

The highest densities of attached algae in the upper Clark Fork River occur between Drummond and the Blackfoot River inflow, and in the middle river between Missoula and Harper Bridge. British Columbia, Canada, has proposed that undesirable changes occur in river communities when algal densities go above 100 milligrams of chlorophyll *a* per square meter, and that aesthetics and recreational uses are impaired at half this level. Upper river algal densities are four and eight times these criteria, respectively, while middle river algal densities are three and six times these criteria. Algal respiration causes dissolved oxygen levels in the river to fall below applicable state water quality standards in a number of reaches between the headwaters and the Flathead River confluence.

The nutrient source inventory project shows that about half of the soluble phosphorus (the form of the nutrient most readily available for use by plants and algae) derives from wastewater discharges, with the other half contributed by nonpoint sources in tributary watersheds. Three-fourths of the soluble nitrogen came from tributaries, with the remaining quarter from wastewater discharges.

A number of wastewater discharges, or point sources of potential pollutants, occur along the Clark Fork River. For the purposes of this study, with its focus on excessive nutrients, the most critical point sources are the municipal wastewater treatment plants, particularly at Butte, Deer Lodge, and Missoula. Nutrient loading from these plants correlates directly with reaches in the river at which nuisance algae problems are most prevalent. The Stone Container

Corporation's Missoula Mill is a major source of industrial wastewater nutrient loading to the river, although the levels of nutrients in its effluent over the past six years have been reduced several fold. Phosphate detergent bans in several communities along the river have decreased the phosphorus content of these cities' municipal wastewater treatment plant effluent.

Nonpoint sources of soluble nutrients were identified in a number of the tributary watersheds in the Clark Fork Basin. The largest nonpoint sources of nutrient loading to the Clark Fork River are the Flathead, Bitterroot, and Blackfoot rivers. Groundwater seepage from the Missoula area contributes up to half of the nitrogen in the lower Bitterroot River during summer. Three small tributaries to the lower Flathead River that flow through the Flathead Reservation provide a large share of the nutrients that river contributed to the Clark Fork River. Many other creeks have high nutrient concentrations in their waters but smaller nutrient discharges overall. Several tributaries whose waters are cleaner, as well as the major rivers with considerable water volume, have a diluting effect on the Clark Fork River's nutrient concentrations. During several years of drought in the late 1980s, smaller volumes of spring runoff and summer rains meant higher amounts of nutrients per unit of water, especially in reaches of the river below wastewater discharges. However, the early 1990s have seen lower overall nutrient concentrations as a result of more normal precipitation and the improved quality of municipal and industrial discharges. The nonpoint source stream reach assessment found that of 99 basin streams with suspected problems, 65 percent have an impaired ability to support designated beneficial water uses. The largest number of impaired streams are located in the upper Clark Fork River and Blackfoot River basins.

## **Pend Oreille Lake**

Pend Oreille Lake comprises two different aquatic regimes in one water body. The pelagic region, generally in the central and southern portions of the lake, is deep, clear, and cold, and is classified as oligotrophic. Researchers have found that water quality in this region of the lake has not changed since the mid-1950s. The nearshore littoral zone, which accounts for about 11 percent of lake volume, is classified as meso-oligotrophic and is the primary location for water quality problems. University researchers consistently found the highest nearshore algae growth in areas adjacent to shorelines with significant residential development. Attached algae levels at the most productive site are one-third to one-half those that other Northwest researchers have reported as constituting nuisance conditions.

The greatest share (more than 90 percent) of water entering the lake comes from the Clark Fork River inflow, as does about 85 percent of the total loading of phosphorus, the nutrient that limits algae growth in the lake. Measurements of nutrient loads entering the lake and exiting via the Pend Oreille River show that, year to year, 55,000 kilograms of total phosphorus and about 750,000 kilograms of total nitrogen remain in the lake.

A nutrient load-lake response model has been used to aid in predicting the effect these and other nutrient levels could have on the lake. Computer simulations indicate that the trophic state of the lake's pelagic waters would be little changed by small to moderate alterations in how much nitrogen and phosphorus entered the lake. The smallest responses come from complete removal of phosphorus and nitrogen inputs from nearshore septic tanks and discharges from the Sandpoint and Priest River wastewater treatment plants. This is not surprising, since wastewater contributes only about 3 percent of the lake's nutrient budget, and since the treatment plants discharge into the Pend Oreille River downstream from Sandpoint and do not enter the lake. Although the research did

not quantify the effect, removal of septic tank nutrient sources would probably improve nearshore water quality. Scientists found a correlation between higher nearshore algae growth and areas with higher phosphorus loadings. The largest responses were produced by alterations in nutrients contributed by the Clark Fork River. Therefore, maintenance of open lake water quality is largely dependent upon maintaining nutrient discharges from the Clark Fork River at or below their present levels. Reductions in nutrient contributions from the river would probably result in corresponding reductions in nearshore nutrient concentrations. The exact correlation is unknown as the rate of water exchange between the open lake and nearshore waters was not quantified.

The lake's flora and biota are consistent with the trophic classification. Phytoplankton species in Pend Oreille Lake indicate conditions to be oligotrophic but tending toward mesotrophy. The ascendancy of green and blue-green algae blooms in recent years may be an early indicator of eutrophication. Eurasian watermilfoil is not currently present in Pend Oreille Lake, though it is abundant immediately downstream of Albeni Falls Dam in the Pend Oreille River. Winter drawdown may prevent its gaining a foothold in the lake.

The sport fishery, a valuable resource to the state and local economy, is characterized by the native fishes westslope cutthroat trout, bull trout and mountain whitefish, and by kokanee salmon and rainbow trout which have been introduced into the system. Due to reduced numbers, westslope cutthroat trout and bull trout are listed as state species of special concern and federal sensitive species. Generally, the lake's fish catch in recent years has been one-fifth to one-third of past levels of production, probably due to hydropower development on the rivers flowing into and out of the lake and to land use practices that have damaged tributaries. Restoration to past levels of production is compatible with the water quality goals set for the lake.



Six point sources discharge treated wastewater into Pend Oreille Lake. Five have National Pollutant Discharge Elimination System (NPDES) permits. Nutrient loadings from these sources represent less than three percent of the total load to the lake. Bonner County's recent ban on phosphate detergents may contribute to an observed decline in phosphorus loads from the Sandpoint wastewater treatment facility. Scientists concluded that these discharges likely have minimal impact on the lake's pelagic water quality, and are more likely to affect nearshore areas and the Pend Oreille River.

Nonpoint sources in the Pend Oreille Lake watershed are the result of land uses activities that disturb or compact land, such as silviculture, agriculture, grazing, septic tanks, and urban runoff. Scientists estimating total phosphorus loading from nearshore and local tributaries found a high correlation between phosphorus loadings and the degree of urban development. Monitoring of tributaries flowing into and out of the lake allowed managers to estimate the amount of pollutants per unit of land area transported to the lake. Pack River, followed by Sand Creek, are the tributaries discharging the highest phosphorus loads per unit of land area to the lake. Lightning Creek, Pack River, and Sand Creek contribute the largest nitrogen loads. The Clark Fork River contributes the least amount of nutrients per unit of land area drained. However, since it provides most of the lake's water, the Clark Fork River contributes the lion's share of the nutrient load.

### **Pend Oreille River**

The mainstem Pend Oreille River has water quality that is generally good and in the oligo-mesotrophic range, based on nitrogen and phosphorus concentrations, chlorophyll *a*, and Secchi disk transparency. Water and nutrient inputs from Washington tributaries account for less than 4 percent of the Pend Oreille River flow and nutrient load. Roughly 75 percent of the additional external nitrogen and

phosphorus loading to this reach of the river comes from the Newport wastewater treatment plant, Calispell Creek, and Trimble Creek. Nitrogen appears to be the limiting nutrient to plant growth during the late winter, while phosphorus may be limiting during the rest of the year.

Department of Ecology surveys show no violations of state water quality standards on the river, though several tributaries exceed standards for fecal coliform bacteria content. These tributaries are small enough that their effect on the main river's water quality is minimal at present because of high dilution ratios.

The primary water quality concern on the Pend Oreille River is the proliferation of Eurasian watermilfoil, an invasive and adaptable plant. Although the river appears to be dominated by milfoil, limited data suggest that other plants in the community, like pondweed, may be co-dominant. Milfoil's dense growth slows water velocities, so that nutrients and sediment precipitate out of the water column, thus promoting further macrophyte growth. Water column nutrients do not appear to be a factor in milfoil proliferation; phosphorus concentrations in the Pend Oreille River are well below the eutrophication threshold guideline of 25 micrograms per liter. However, water quality within the weed beds was found to be different from that of open water on the Pend Oreille River. Primary productivity in the river is fairly high, though fish numbers were quite low in the weed beds where sampling was done during the second year of the Clark Fork-Pend Oreille Water Quality Study. A GIS is assisting resource managers in tracking the expansion or upstream migration of macrophyte beds.

Nonpoint sources of pollutants in the Pend Oreille River basin that potentially affect the river are: animal keeping practices, agriculture, on-site sewage disposal, stormwater and highway runoff, forest practices, land development, landfills, and gravel extraction. The two permitted point sources, both within the Box Canyon Reservoir, are the Ponderay Newsprint Company plant at Usk (about 4.0 million

gallons per day permitted) and the Newport wastewater treatment plant (permitted monthly average discharge limit of 0.5 million gallons per day).

## ***Managing the Watershed: The Management Plan***

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Though the Clark Fork-Pend Oreille Basin Water Quality Study Steering Committee completes its assigned mission with the release and distribution of this document, all agencies represented on the Steering Committee are committed to working with other agencies, tribes, and interested groups to convene a Tri-State Implementation Council to implement the management actions outlined in the plan. Ideally, the Council would include representatives from federal, tribal, state and county agencies, along with citizens and special interest groups. Since most of the recommended actions must be implemented at the local level, the Steering Committee recommends that the local agencies, tribes and other locally-based interest groups and citizens have a large role in the Council. The Tri-State Implementation Council is discussed in more detail in the next chapter. The Steering Committee envisions that this Management Plan will serve as a guide to the Council.

### **Management Goals and Objectives**

All management plans must begin with a stated goal. Therefore, the Committee recommends the following:

#### ***Restore and Protect Designated Beneficial Water Uses Basin-Wide.***

Often, a management plan involves selection of a single preferred management alternative to achieve the desired water quality goals. The Clark

Fork-Pend Oreille Basin Water Quality Steering Committee decided that this approach would be inappropriate, since the research and input from experts and citizens established that numerous actions would need to be taken in order to reach the water quality goals. In particular, the Policy Advisory Committee for the Pend Oreille Lake Clean Lakes Project believes that any large, expensive project or use of expensive in-lake restoration techniques are inappropriate at this time. Thus the Management Plan for responsible management of the water quality of the Clark Fork-Pend Oreille Basin is cumulative.

Over 70 specific management actions are outlined in the management matrixes that follow. Many are relatively inexpensive and fairly easy to implement. Some rely on existing programs and authorities. For the most part, the Clark Fork-Pend Oreille Basin Water Quality Steering Committee recommendations rely on voluntary approaches to nutrient controls and pollution reduction in the Clark Fork-Pend Oreille Basin. However, the states would pursue the development of optional nutrient wasteload allocations so that mandatory controls could be implemented if voluntary measures fail to achieve the desired results.

The Steering Committee sees education as one of the most effective methods of reducing the amount of nutrients that enter the Clark Fork-Pend Oreille Basin. Informed watershed and lake users will be more conscious of how their activities affect the body of water they depend on and value, and will be more willing to modify these activities to meet water quality goals they understand. Enforceable regulations such as local zoning and planning ordinances, and rules governing sale and use of detergents and fertilizers, are other recommended tools for controlling watershed activities that generate pollutants.

It should be noted that there are also other existing authorities on which to rely to manage the water quality of the basin. The Clean Water Act provides states with the broad authority to survey, report on, and to correct water quality problems. In addition, individual state water quality statutes stipulate that their

respective water quality agencies provide a comprehensive program for the prevention, abatement, and control of water pollution. Furthermore, each state's surface water quality standards designate water use classifications for all surface waters in the state and establish standards for protecting, maintaining, and improving their quality and potability.

#### **Clark Fork River: Management Objective**

- ***Control nuisance algae in the Clark Fork River by reducing nutrient concentrations.***

The Steering Committee recommends that instream ambient nutrient concentrations be reduced in the Clark Fork River from its headwaters to the Flathead River confluence to achieve decreases in attached algae levels sufficient to eliminate associated water quality standards violations, and to restore all designated beneficial water uses. Furthermore, maintenance or reduction of current rates of nutrient discharge in the Clark Fork River at the Montana-Idaho border would provide reasonable protection against accelerated cultural eutrophication in Pend Oreille Lake.

Benefits that would derive from this management objective include: reductions in algae growth and lessening of algal impacts on cold-water biota, recreation, and irrigation; improved water clarity and aesthetics; lessened surface foam; increases in dissolved oxygen levels; and a reduced threat of eutrophication in Pend Oreille Lake.

#### **Recommended Instream Conditions for the Clark Fork River**

Many factors may promote or inhibit algae growth, however those other than nutrient levels may be very difficult to control. Hence, criteria for water quality focus on the nutrients that will achieve the desired improvements in Clark Fork River waters. Experiments showed that the levels of attached diatom algae in

the middle Clark Fork River would be reduced with concentrations below 30 micrograms per liter for soluble phosphorus and 250 micrograms per liter for soluble nitrogen. The filamentous alga *Cladophora* dominating the upper Clark Fork River seemed able to thrive even when phosphorus was well below 30 micrograms per liter and nitrogen below 20 micrograms per liter. Its ability to persist in low nutrient environments may mean that its abundance can only be controlled, but not eliminated.

While algal level decreases can be expected with nutrient concentrations below the figures given, target concentrations at which all beneficial uses would be protected throughout the river are not available. Regardless, it would be appropriate to set summer nutrient target levels at concentrations found in river reaches where algae are not a problem. These goals are 6 micrograms per liter or less for phosphorus and 30 micrograms per liter or less for nitrogen. While controls necessary to meet these restrictive levels may not be feasible everywhere on the river, even lesser reductions, or restoration of beneficial uses in fewer river miles, would constitute a worthy goal.

Nutrient reductions may affect other flora and biota as well as nuisance algae. However, a study designed to address this question concluded that proposed target nutrient levels would have a small impact on the Clark Fork River's trout fishery, a beneficial use and economic resource currently restricted by a number of other problems.

#### **Pend Oreille Lake: Management Objectives**

- ***Protect Pend Oreille Lake Water Quality by Maintaining or Reducing Current Rates of Nutrient Loading from the Clark Fork River.***
- ***Reduce nearshore eutrophication in Pend Oreille Lake by reducing nutrient loading from local sources.***

Desired water quality goals for Pend Oreille Lake are maintenance of lake water quality and reduction of the rate of nearshore eutrophication. These two management recommendations seek to protect and preserve the beneficial water uses of Pend Oreille Lake by controlling pollutants, particularly phosphorus, that enter the lake from natural, point, and nonpoint sources. Controlling nutrient pollution from local nutrient sources, as well as from the Clark Fork River, is expected to reduce the level of attached algae and prevent lake-wide eutrophication. If nutrients are not controlled, algal growth can be expected to increase. Eventually increased levels of algae would impair the beneficial water uses of aesthetics, recreation, and domestic water supply.

#### Recommended Instream Conditions for Pend Oreille Lake

It was not possible to reach consensus on publicly acceptable levels of attached algae and therefore determine target nutrient concentrations for phosphorus in the lake. To resolve the issue, it was decided to set target nutrient levels at concentrations found at "undeveloped" sites. These target levels are two micrograms per liter for soluble phosphorus and five micrograms per liter for total phosphorus. Proposed target nutrient levels were determined to have a potentially small effect on the lake's fishery.

#### **Pend Oreille River: Management Objective**

- ***Improve Pend Oreille River water quality through macrophyte management and tributary nonpoint source controls.***

The primary problem afflicting the Pend Oreille River water quality is pervasive milfoil. Rotovation, as the most effective management tool, should continue in high use areas of the river. One rotovator is able to maintain about 200 acres of macrophyte beds. An additional rotovator should be purchased to double the amount of weed bed cleared. This additional machine could also be



used to strip-rotovate milfoil beds in less used parts of the river to improve fish habitat, since strip rotovation provides a more diverse fishery habitat in weed beds. Since harvested aquatic plants could have beneficial uses, resource managers should investigate alternatives to disposing of the harvested weeds on the banks of the river (e.g. using harvested materials as fertilizer). Educating boat owners on how they can prevent the spread of milfoil is also crucial. Pend Oreille County could be the lead agency, with assistance from the county's Public Utility District, Ecology, and the U.S. Army Corps of Engineers.

Herbicide applications in high use areas may be feasible, though more research is needed on application rates in flowing waters. With possible approval of trichlopyr by the EPA, local water quality managers may be able to experiment with herbicide control of milfoil, with projected state and federal technical and financial assistance. Biological agents, particularly aquatic insects and fungi, the subject of ongoing research, may also be an additional management method for the future.

The two major wastewater discharge sources, the Ponderay Newsprint Plant and the Newport sewage treatment plant, are adequately limited by NPDES permits. No additional conventional pollutant controls are recommended at present.

Since agricultural practices are likely a significant contributor of fecal coliform bacteria and nutrients levels in Pend Oreille River tributaries, implementation of best management practices (BMPs) would be the best way of improving water quality in these streams. Additional sampling, however, would be needed to better identify and prioritize problem areas and sources. The Pend Oreille Conservation District, as the responsible agency for BMP development and implementation related to agricultural water quality protection and management, could be the lead agency in conducting additional monitoring and follow-up on these nonpoint source problems. Education is crucial in this arena, since

landowners who understand the deleterious effect of poor agricultural management practices on the common water resource are more likely to accept and implement BMPs.

#### Recommended Instream Conditions for Pend Oreille River

No special instream conditions are warranted for the mainstem Pend Oreille River since no obvious problems related to excessive nutrients occur. Attached algae communities do not approach nuisance levels, and free-floating algae indicates unpolluted waters in the main stem of the Pend Oreille River. Primary productivity of the main river was in the middle to upper range of the values reported in the scientific literature for larger rivers. In order to protect Box Canyon Reservoir from accelerated eutrophication, however, several tributaries that have elevated nutrient levels should meet a general guideline of less than 50 micrograms of phosphorus per liter.

## ***Management Matrixes***

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The following matrixes outline the Steering Committee's recommended actions for protection and restoration of Clark Fork-Pend Oreille Basin water quality. The actions are organized according to the four management objectives for the basin.

- ***Control nuisance algae in the Clark Fork River by reducing nutrient concentrations.***
- ***Protect Pend Oreille Lake water quality by maintaining or reducing current rates of nutrient loading from the Clark Fork River.***
- ***Reduce nearshore eutrophication in Pend Oreille Lake by reducing nutrient loading from local sources.***
- ***Improve Pend Oreille River water quality through macrophyte management and tributary nonpoint source controls.***

A key to the abbreviations and the recommended funding sources in the matrixes can be found on page 52.

**MANAGEMENT OBJECTIVE: Control Nuisance Algae in the Clark Fork River by Reducing Nutrient Concentrations.**

**POINT SOURCE CONTROLS**

Management Action	Lead Agency	Priority	Cost (thousands)	Funding Source(s)
Implement seasonal land application and/or other improvements at the Missoula wastewater facility.	City of Missoula	High	600 (construction only)	4, 23
Implement seasonal land application of Deer Lodge municipal wastewater	City of Deer Lodge	High	405 (construction only)	4, 24
Adopt basin-wide phosphorus detergent bans	Municipalities, Counties	High	Low	1
Secure long-term protection for instream flows in the Clark Fork River	Upper Clark Fork Basin Steering Committee	High	Unknown	Unknown
Enforce an aggressive nondegradation policy with respect to nutrient sources	MDHES	High	_____	27
Establish numeric nutrient loading targets for the Clark Fork River and implement the TMDL wasteload allocation process if voluntary nutrient control measures are unsuccessful.	MDHES	High	50-500 (development of TMDL only)	1, 2, 27
Require nutrient monitoring as a condition of all wastewater discharge permits	MDHES	High	Low	29
Change nutrient limits for Stone Container Corp. to include surface and subsurface discharges	MDHES	High	_____	27, 29
Implement nutrient removal or alternative disposal methods for Butte municipal wastewater treatment facility	City of Butte	Medium	Unknown	4, 25, 26
Evaluate and implement additional measures to curb municipal and industrial wastewater nutrient discharges	Municipalities, Industries	Medium	Unknown	1, 28, 29
Organize wastewater discharge permits on a concurrent, five-year cycle	MDHES	Medium	_____	27

**MANAGEMENT OBJECTIVE: Control Nuisance Algae in the Clark Fork River by Reducing Nutrient Concentrations.**

**NONPOINT SOURCE CONTROLS**

Management Action	Lead Agency	Priority	Cost (thousands)	Funding Source(s)
Develop and implement a nonpoint source management plan specifically for the Clark Fork Basin	MDHES	High	1000	1, 3
Identify and control sources of nutrients in Mission and Crow creeks, Coleman Coulee, and the Little Bitterroot River	Confederated Salish and Kootenai Tribes	High	50 (Identification only)	1, 3, 27
Identify and control sources of nitrogen in the Dempsey, Lost, Mill, Willow and Racetrack creeks drainages.	MDHES	High	25 (identification only)	1, 3
Control groundwater sources of nitrogen loading to the Bitterroot River.	Missoula County, City of Missoula	High	Unknown	Unknown
Modify irrigation practices in the Gold Creek drainage to reduce phosphorus loading	Powell County, MDHES	Medium	Unknown	Unknown
Implement additional nonpoint source reclamation demonstration projects in the Clark Fork Basin	MDHES	Medium	Unknown	3
Identify nonpoint sources and causes of water quality impairment in the Blackfoot River drainage	MDHES, USFS, BLM, etc.	Medium	100	3
Implement the use of the Blackfoot Geographic Information System in nonpoint source pollution control	EPA, MDHES	Medium	50 - 100	1, 3
Implement the use of the Clark Fork Geographic Information System in nonpoint source pollution control	MDHES	Medium	50 - 100	1,3
Evaluate sources of nitrogen in Fish Creek, Trout Creek and the Bull River	MDHES	Low	10	1

**MANAGEMENT OBJECTIVE: *Protect Pend Oreille Lake Water Quality by Maintaining or Reducing Current Rates of Nutrient Loading from the Clark Fork River***

**POINT SOURCE CONTROLS**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Require nutrient monitoring as a condition of all wastewater discharge permits	IDEQ, MDHES, EPA	High	1,000 annually per discharger	28, 29
Enforce an aggressive antidegradation policy with respect to nutrient sources	IDEQ, MDHES, EPA	High	N.A.	27
Establish numeric nutrient loading targets for Pend Oreille Lake and implement a nutrient allocation strategy if voluntary nutrient control measures are unsuccessful in protecting water quality	IDEQ, MDHES, EPA	High	40,000 (development only)	1, 2, 3

**MANAGEMENT OBJECTIVE: Reduce Nearshore Eutrophication in Pend Oreille Lake by Reducing Nutrient Loading from Local Sources.**

**POINT SOURCE CONTROLS**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement nutrient removal or alternative disposal methods for Kootenay-Ponderay municipal wastewater	IDEQ, Local Sewer District	High	30,000 (evaluation only)	8, 28
Require nutrient monitoring as a condition of all wastewater discharge permits	IDEQ, EPA	High	1,000 annually per discharger	28, 29
Enforce an aggressive antidegradation policy with respect to nutrient sources	IDEQ, EPA	High	N.A.	27
Establish numeric nutrient loading targets for Pend Oreille Lake and implement a nutrient allocation strategy for Pend Oreille Lake if voluntary nutrient control measures are unsuccessful in protecting water quality	IDEQ, MDHES, EPA	High	40,000 (development only)	1, 2, 3

**NONPOINT SOURCE CONTROLS**

Education

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Prepare brochures to support recommended ordinances and provide a clearinghouse for information to interested and concerned lake and watershed users.	Clean Lakes Council, Tri-State Council	High	60,000 annually	1, 2, 5

**MANAGEMENT OBJECTIVE: Reduce Nearshore Eutrophication in Pend Oreille Lake by Reducing Nutrient Loading from Local Sources (continued).**

**Septic Systems**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Install centralized sewage treatment systems in developed areas	IDEQ, PHD, Local Sewer Districts	High	Cost dependent on site	1, 4, 8
Identify areas and zone for more dense development with centralized sewage treatment systems	Bonner County, PHD, SCS	High	Unknown (Low)	12
Periodic mandatory maintenance and operation inspections of septic systems	PHD, Local Sewer Districts	Medium	25,000 annually	13

**Stormwater**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement a county stormwater management plan	Bonner County, PHD, IDEQ	High	15,000 (development only)	1, 2, 3, 12

**Fertilizer Use**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement a county ordinance prohibiting the sale of phosphate lawn fertilizers	Bonner County, IDEQ	Medium	2,000 (development only)	1, 2, 12
Develop BMP's for methods and rates of application of fertilizers based on soil type and slope	Bonner County, SCS	Medium	10,000	1, 2, 3
Implement a county ordinance requiring fertilizer BMP's within a lake or stream protection zone	Bonner County	Medium	2,000 (development only)	2, 12



**MANAGEMENT OBJECTIVE: Reduce Nearshore Eutrophication in Pend Oreille Lake by Reducing Nutrient Loading from Local Sources (continued).**

Development and construction

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement an county erosion control plan	Bonner County, IDEQ	High	15,000 (development only)	1, 2, 3, 12
Amend zoning ordinances to set residential density based on land and lake capabilities	Bonner County, SCS, IDEQ	High	Unknown (Low)	12
Amend zoning ordinances to restrict development in environmentally sensitive and unstable areas	Bonner County, SCS	Medium	Unknown (Low)	12
Increase set backs between development and watercourses	Bonner County, IDEQ	Medium	Unknown	12
Allow individuals and developers to design erosion control plans based on soil type and slope	Bonner County, IDEQ	Medium	30,000 annually	12, 13

Road construction

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement road construction and maintenance BMP's specific to Pend Oreille Lake watershed and develop a Memorandum of Understanding with Bonner County Road Department	Bonner County, IDEQ	High	10,000 (development only)	1, 2, 3
Review travel corridor construction proposals within the Pend Oreille Lake watershed	IDEQ, ITD	High	N.A.	27

Agriculture

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Identify and control sources of nutrients in Pack River and Sand Creek	IDEQ, SCD	High	30,000 (identification only)	1, 2, 7

**MANAGEMENT OBJECTIVE: Reduce Nearshore Eutrophication in Pend Oreille Lake by Reducing Nutrient Loading from Local Sources (continued).**

Forest practices

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement a cooperative road management program with federal, state, and private landowners	IDL	High	Unknown	3
Increase personnel for enforcement of the Forest Practices Act and operator training	IDL	Medium	60,000 annually per new hire	Unknown
Encourage nomination of stream segments of concern to develop site specific BMP's		Medium	N.A.	6

Metals toxicity

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Technically review proposed mining activities in the basin	IDEQ, IDL	High	N.A.	27
Implement a metals toxicity monitoring program	IDEQ	Medium	Unknown	Unknown
Complete a health risk assessment based on available literature	IDHW, PHD	Medium	30,000	Unknown

Motorized watercraft use

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Require marinas to install pump-out stations	Bonner County	High	Unknown	13
Enforce the no sewage discharge standard	County Marine Division's	High	N.A.	Unknown
Implement a ban on phosphate detergents to clean watercraft	Bonner County, IDEQ	High	1,000 (development only)	1, 2, 12

**MANAGEMENT OBJECTIVE: Reduce Nearshore Eutrophication in Pend Oreille Lake by Reducing Nutrient Loading from Local Sources (continued).**

**Shoreline Burning**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Implement a county ordinance prohibiting shoreline burning	Bonner County, IDL	Medium	2,000 (development only)	1, 2, 12

**Aquatic Macrophytes**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Selective removal of aquatic plants by hand	Bonner County, Private	Low	100-1,500 for hand-held cutter	12, 13
Remove aquatic plants periodically using mechanical harvesting	Bonner County	Low	500-800 per acre biannually	12
Cover lake bottom with fabric barrier	Bonner County, private	Low	0.06-1.25 per sq. ft. with annual maintenance	12, 13

**Environmentally sensitive or critical areas**

Management Action	Lead Agency	Priority	Cost (dollars)	Funding Source(s)
Map environmentally sensitive areas with high water tables (wetlands)	COE, SCS	Medium	1,000	1, 12
Purchase or dedicate environmentally sensitive or critical areas		Low	Unknown	10, 11, 12, 13

**MANAGEMENT OBJECTIVE: Improve Pend Oreille River Water Quality Through Macrophyte Management and Tributary Nonpoint Source Controls**

Management Action	Lead Agency	Priority	Cost (thousands)	Funding Source(s)
Rotovation of milfoil in high use areas of the Pend Oreille River should continue, with additional emphasis on control of upstream pioneer colonies.	County, PUD	High	80K/year	1, 4, 16, 20
Purchase an additional rotovator to increase area coverage and enable alternative methods of harvesting, like strip rotovation.	County, PUD	High	135K	1, 4, 16, 18, 19, 20
Develop and maintain programs to educate the public on their role in preventing the migration of milfoil.	County, PUD, Ecology	High	10K/year	3, 4, 5, 16, 17, 18, 19
Resource managers should explore the possible use of harvested milfoil as a resource, in addition to herbicide application and biological agents as alternative milfoil controls.	County, PUD	Medium		1, 16, 18, 20
Tributaries exhibiting water quality problems from nonpoint sources should be referred to the Conservation District for additional sampling (if necessary), followed by BMP development and implementation.	Conservation District	High		3, 4, 17, 21
Grants secured by the Conservation District for BMP implementation should include post implementation monitoring to evaluate effectiveness of nonpoint source controls.	Conservation District	Medium		3, 4, 17, 21
As a general guideline, total phosphorus should not exceed 50 $\mu\text{g}$ P/L in any tributary of the Pend Oreille River, nor 25 $\mu\text{g}$ P/L within Box Canyon Reservoir.		Low		Unknown

**MANAGEMENT OBJECTIVE: Improve Pend Oreille River Water Quality Through Macrophyte Management and Tributary Nonpoint Source Controls (continued).**

Management Action	Lead Agency	Priority	Cost (thousands)	Funding Source(s)
Pend Oreille County should establish a local watershed management committee fashioned after the "nonpoint rule" (WAC 400-12).	County	High	40K	3, 4, 17, 19, 20
Pend Oreille County should form and manage a citizen monitoring program to gather current land use information in the Pend Oreille River Basin.	County	High	10K	3, 4, 17, 19
Ecology should maintain the Pend Oreille River at Newport as a core monitoring station and re-establish Metaline Falls as a rotating station to be sampled one year of every three.	Ecology	Medium	2K/year	1, 22
Pend Oreille River resource managers should utilize a GIS system for management of basin water resource data.	PUD, County	Medium	15K/year plus equipment	1, 19, 20

## ABBREVIATIONS

BLM	U.S. Bureau of Land Management
COE	U.S. Corp of Engineers
EPA	U.S. Environmental Protection Agency
IDEQ	Idaho Division of Environmental Quality
IDHW	Idaho Department of Health and Welfare
IDL	Idaho Department of Lands
ITD	Idaho Transportation Department
MDHES	Montana Department Health and Environmental Sciences
N.A.	Not Applicable. Implementation is possible under current programs.
PHD	Panhandle Health District
SCD	Soil Conservation District
SCS	U.S. Soil Conservation Service
TMDL	Total Maximum Daily Load
USFS	U.S. Forest Service

**FUNDING SOURCES** *All funding sources are possible funding sources. No commitment for funding has been received from of any of the identified sources.*

1	Clean Water Act Section 525 Reauthorization
2	Clean Water Act Section 314 (Clean Lakes Program)
3	Clean Water Act Section 319 (Nonpoint Source Program)
4	State Revolving Fund
5	National Environmental Education Act
6	Idaho Antidegradation Policy
7	Agricultural Water Quality Management Program
8	Municipal Facilities Construction Grants Program
9	(Reserved)
10	Habitat Improvement Program (Idaho)
11	Forest Stewardship Program
12	Bonner County, Idaho
13	private landowner
14	(Reserved)
15	(Reserved)
16	Corps of Engineers Eurasian Watermilfoil Control Grants
17	Centennial Clean Water Fund (Washington)
18	Freshwater Weeds Account (Washington)
19	Pend Oreille County, Washington
20	Pend Oreille County Public Utility District, Washington
21	Pend Oreille Conservation District, Washington
22	State General Fund (Washington)
23	City of Missoula, Montana
24	City of Deer Lodge, Montana
25	City of Butte, Montana
26	Superfund Program
27	Clean Water Act Section 106 Funds
28	Municipalities
29	Industries/Dischargers

## ***Taking the First Steps: Priorities for Action***

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Recognizing that it would be difficult to immediately implement all of the management actions outlined in the Management Matrixes, the Steering Committee has identified the following actions to be of the highest priority.

- ***Convene a Tri-State Implementation Council to implement the Management Plan recommendations.***

The Clark Fork-Pend Oreille Basin Water Quality Steering Committee is committed to working with the appropriate agencies and groups to convene a Tri-State Implementation Council to implement the management actions outlined in the plan. The Council should include representatives from federal, tribal, state and county agencies, along with citizens and special interest groups. The Council could also include representation from the suggested local watershed management committee in Pend Oreille County. (One of the management recommendations for improving Pend Oreille River water quality is the establishment of a local watershed committee fashioned after the Washington "nonpoint rule.") Since most of the recommended actions must be implemented at the local level, the Steering Committee recommends that the local agencies, tribes and other locally-based interest groups have a large role in the Council.

In particular, the Council should include or consult with all interested and affected Indian Tribes in the Clark Fork-Pend Oreille Basin and should ensure that the appropriate tribes be included in the planning and use of any funds allocated for water quality monitoring of reservation waters as well as other activities that

are necessary to implement the Clark Fork-Pend Oreille Basin Water Quality Management Plan.

There are several federally recognized Indian Tribes in the basin and many are developing resource management capabilities. Some have received federal "treatment-as-a-state" status under the federal Clean Water Act which makes them eligible to accept responsibility for developing and managing water quality programs. In addition, some of the Idaho and Washington tribes have formed the Upper Columbia United Tribes fishery research center with offices in Wellpinit, Washington, and on the campus of Eastern Washington University in Cheney.

Tribes likely to be most affected by this Management Plan are the Confederated Salish and Kootenai Tribes of the Flathead Indian Reservation in western Montana and the Kalispel Tribe in Washington. Several miles of the Kalispel Reservation are located directly on the banks of the Pend Oreille River. The Flathead River flows through the Flathead Reservation and contributes substantially to the nutrient loading in the lower Clark Fork River. Other tribes, such as the Spokane Tribe and the Colville Confederated Tribes in Washington and the Coeur d'Alene Tribe of Idaho, may not be directly affected by implementation of the plan but may have cultural interests or aboriginal territories in the Clark Fork-Pend Oreille Basin. The Council should be sure to keep these tribes apprised of its activities and decisions.

The Council would have various roles and responsibilities. These include, but may not be limited to, the following: building strong citizen, community and agency support for the plan; coordinating the activities of the various agencies implementing the plan; developing timetables; identifying funding; establishing budgets; securing agreements among agencies; establishing criteria for success; identifying or revising priority recommendations; communicating with appropriate groups as needed (e.g., the Upper Clark Fork Basin Steering Committee); and providing a forum for public input and support. The Council itself would not have



any regulatory or enforcement authority beyond the authorities of the individual agencies represented on the Council.

- ***Establish a basin-wide phosphate detergent ban.***

Studies by the University of Montana concluded that management of both nitrogen and phosphorus could reduce nuisance algal levels in the Clark Fork River and would be important in protecting reaches without current problems. Idaho researchers concluded that phosphorus is the primary nutrient controlling algal and plant growth in Pend Oreille Lake. In addition, the Montana Governor's Office in its 1988 Clark Fork Basin Project Status Report and Management Plan stated that "Regulatory agencies, industries, municipalities, and public interest groups should work to reduce all forms of nutrient loading to the Clark Fork Basin."

Phosphate in detergents is the source of much of the phosphorus discharged by municipal treatment plants, and approximately half of all soluble phosphorus loading to the Clark Fork River originates from wastewater discharges. Bans on the sale of high phosphate detergents are already in effect in Montana in the Flathead River Basin and in the communities of Missoula, Superior and Alberton. Bonner County, Idaho has also adopted a phosphate detergent ban. These actions have been highly successful in reducing phosphorus discharges to the Clark Fork River from the respective municipal wastewater treatment facilities. For example, the phosphate detergent ban that was implemented by the City of Missoula in May 1989 has resulted in greater than a 40 percent reduction in phosphorus loading to the Clark Fork River from the Missoula wastewater treatment plant. Concentrations of phosphorus in the river downstream from this facility have subsequently declined by a large margin. A modeling study conducted by the University of Montana predicted a reduction in algal standing crops in 110 miles of the Clark Fork River as a direct result of this action.

It seems clear that there have been very tangible water quality benefits associated with the elimination of the sale of phosphate detergents in Missoula. Therefore, the Steering Committee strongly recommends the adoption of similar bans in other basin communities. Adoption of bans at Butte and Deer Lodge, Montana, could achieve a 10 percent reduction in soluble phosphorus loading to the upper Clark Fork River during summer. Adoption of bans at all remaining communities would have even greater cumulative effects and could reduce annual loading of soluble phosphorus to Pend Oreille Lake by five percent or more.

Low phosphate and phosphate free soap products are readily available to consumers and their effectiveness is not substantially different from high phosphate detergents.

- ***Establish numeric nutrient loading targets for the Clark Fork River and Pend Oreille Lake.***

The Steering Committee has recommended the following targets for instream concentrations of phosphorus and nitrogen in order to attain the stated water quality objectives:

- Six micrograms per liter or less of soluble phosphorus and 30 micrograms per liter or less of soluble nitrogen in Clark Fork River.
- Two micrograms per liter of soluble phosphorus and five micrograms per liter of total phosphorus in Pend Oreille Lake.
- Fifty micrograms per liter of total phosphorus in several tributaries of the Pend Oreille River.
- No special instream conditions are warranted for the mainstem Pend Oreille River.

In order to meet these instream concentration targets of nutrients, it would be necessary to establish numeric loading targets for various reaches of the Clark Fork River and Pend Oreille Lake. Loads would then be allocated among the

various sources contributing nutrients to those reaches. These numeric loading targets and the associated nutrient source allocations would not have to be regulatory but would provide voluntary reduction targets for the various point and nonpoint sources in the basin.

The Steering Committee recommends a voluntary approach to nutrient controls and pollution reduction in the Clark Fork-Pend Oreille Basin. However, Montana and Idaho would consider the application of mandatory wasteload allocations if voluntary measures fail to achieve the desired results.

- ***Develop and maintain programs to educate the public on their role in protecting and maintaining water quality.***

All three individual state plans as well as the overall Basin Management Plan put a high priority on public education. A comprehensive and well targeted public education program should have three main messages or components. First, inform watershed users how their activities directly affect the body of water that they depend on and value. The Steering Committee views this message as one of the most effective methods of reducing the amount of nutrients that enter the water. This component should include education about proper fertilizer and pesticide application, proper maintenance of septic tank systems, better agricultural and livestock management practices, and the benefits of low phosphate products.

Second, the public education program should clearly articulate water quality goals and benefits of improving and protecting water quality. Users and residents may be more willing to modify their activities to meet water quality goals that they understand. Third, the program should educate the public about the need for and benefits of any management action that is selected for implementation as a means of building public support for the action. For example, the public should be informed of the need for and benefits associated with stormwater and erosion

control plans and how these plans would help to achieve the stated water quality goals.

Public education should begin before implementation, but it is particularly critical during implementation. Often nuisances are created and water uses are restricted while restoration is in progress. Examples would be shoreline stabilization, weed harvesting and stormwater improvements. People typically respond positively when they understand what is occurring and why, and react negatively when they are uninformed.

- ***Control Eurasian watermilfoil by education, rotovation, and research into alternative methods.***

The primary problem afflicting Pend Oreille River water quality is pervasive milfoil. Rotovation, as the most effective management tool, should continue in high use areas of the river and an additional rotovator should be purchased to double the amount of weed beds cleared. Since harvested aquatic plants could have beneficial uses, resource managers should investigate alternatives to disposing of the harvested weeds on the banks of the river (e.g. using harvested materials as compost).

Local water quality managers may be able to experiment with herbicide control of milfoil, with projected state and federal technical and financial assistance. Biological agents, particularly aquatic insects and fungi, the subject of ongoing research, may also be an additional management method for the future.

To date, Eurasian watermilfoil is a problem only in the Pend Oreille River portion of the Clark Fork-Pend Oreille Basin. Milfoil is an invasive and adaptable plant that needs to be aggressively managed to prevent its spread into other parts of the basin. One of the primary means of spreading milfoil is by boaters. The milfoil is transported on the hulls of boats as boaters move from waterbody to

waterbody. Therefore, educating boat owners on how they can help prevent the spread of milfoil is crucial.

- ***Install centralized sewer systems as part of development activities on Pend Oreille Lake.***

The Steering Committee recommends sewerage in areas around Pend Oreille Lake that are experiencing development pressures. Prime high density development areas should be identified and zoned as such. Installation of centralized sewer systems in these high density development zones should be required before construction when the number of homes or commercial sites to be developed will exceed a specified number of septic systems. The specified number should be based on soil type and slope. Existing septic systems in developed areas should be replaced with centralized sewer systems, but only when technically or economically feasible.

Sewerage will soon be underway at Hope and East Hope, Idaho. The Steering Committee recommends that LaCleda, Clark Fork and Trestle Creek be targeted as the next areas for installation of centralized sewer systems.

- ***Institute seasonal land application and other improvements at the Missoula municipal wastewater treatment facility.***

Utilization of treated municipal wastewater for agricultural irrigation is one potentially beneficial alternative for reducing the discharge of nutrients and other pollutants to surface waters. Most of the water quality problems associated with nuisance levels of algae in the Clark Fork River occur during the summer. During this period, the largest share of nutrients that feed the algae come from wastewater discharges.

If the entire volumes of municipal wastewater from the Deer Lodge and Missoula municipal wastewater treatment facilities were utilized for irrigation

purposes during the months of July through September, summer nutrient loading to the upper and middle reaches of the Clark Fork River could decrease by as much as 30 and 70 percent, respectively. Nutrient concentrations in the reaches of the river below these discharges would decline by as much as 70 percent or more. Target levels would be achieved for phosphorus and nitrogen in the middle Clark Fork River and for phosphorus in the upper Clark Fork River. Lastly, annual reductions in soluble nutrient loading to Pend Oreille Lake of from 3-10 percent could be realized. Implementation of this alternative could reduce current summer algal levels in 200 or more miles of the Clark Fork River.

The City of Missoula has evaluated the opportunities for land application of its municipal wastewater. While a number of precautions are necessary, and legal issues relative to downstream water rights have not yet been explored, land application appears to be a viable option. Sewer rate increases of 31 percent were projected in order to utilize land application, therefore strong support of this alternative by the citizens of Missoula would be necessary for implementation.

- ***Better enforcement of existing regulations and laws, in particular states' anti-degradation language.***

A nutrient control strategy for the Clark Fork-Pend Oreille Basin logically should consider and build upon the pollution control measures that are already in place. A number of programs, statutes, regulations, and planning efforts are in effect now or will be implemented in the near future. There are too many to list here and many are identified in the individual state plans, but some examples include the NPDES program for control of point source discharges; the Nonpoint Source Pollution Control Program which requires states to establish a framework for controlling nonpoint sources; Tribal Water Quality Programs which are developing comprehensive water quality management plans; Idaho's Nutrient

Management Act; the Upper Clark Fork River Basin Management Plan; and Washington's Aquatic Plant Management Program.

A notable and important existing program is each state's Nondegradation Rules. The Nondegradation Rules are part of each state's water quality standards and apply to new or increased sources of pollution. The specific nondegradation language is different in each state's laws. Generally, however, nondegradation requirements state that if existing water quality is better than that which is necessary to support the designated uses of the waterbody as defined in the water quality standards, that level of water quality must be maintained. Montana, in particular, should enforce a consistent and aggressive policy of nondegradation, with respect to nutrient loading from new and enlarged point source discharges, because of the well-documented water quality problems in the Clark Fork River. It should be noted that MDHES has proposed legislative changes to the nondegradation statute in order to clarify its intent and ensure its consistent application.

One of the first steps that the Council should take to enforce existing authorities is to compile a list of all pertinent laws and the agencies responsible for their enforcement. From there, the issues and problems associated with their enforcement should be identified and this information distributed to all appropriate agencies.

- ***Establish and maintain a water quality monitoring network to monitor effectiveness and trends and to better identify sources of pollutants.***

Preliminary instream nutrient targets for the Clark Fork River, Pend Oreille Lake, and tributaries to the Pend Oreille River have been proposed in this report. A continuing basin-wide monitoring program to evaluate progress towards achievement of these target concentrations will be an essential component of a successful nutrient control strategy.

Presently all three states have some fixed station monitoring sites in the basin. MDHES has maintained a network of fixed monitoring stations throughout the Clark Fork River drainage since 1985. Idaho DEQ has contracted with the USGS to continue monitoring tributaries and outflows of Pend Oreille Lake. Washington maintains a routine monitoring station on the Pend Oreille River at Newport. As long as funding remains available, all three states plan to continue these programs in order to provide the needed information to assess trends in nutrient concentrations and loads throughout various areas of the basin and to evaluate overall progress toward water quality goals.

However, these programs will need to be expanded, or separate programs initiated, to monitor the successful implementation and effectiveness of individual management actions basin-wide. Anytime an implementation project is funded and initiated, a portion of the project budget should be set aside for water quality monitoring before and after implementation to evaluate the project's effectiveness.

In addition, citizen volunteer monitoring programs should be initiated or modified as appropriate to collect information that would be useful to assess long term trends or to provide information that is not available elsewhere. For example, information on current land use in Pend Oreille County is needed. Available information is over 20 years old. Detailed land use information would be a significant contribution to the refinement of the watershed management plan.

Finally, the Steering Committee recommends that a larger Clark Fork-Pend Oreille Basin GIS System be developed and maintained by an appropriate agency or group of agencies.

- ***Develop and enforce stormwater control and erosion control plans and county ordinances.***

Due to increased population and development around Pend Oreille Lake, the Steering Committee recommends that the Tri-State Council work with Bonner



County to incorporate stormwater and erosion control plans during the current updating of the county's comprehensive plan. The recently completed Kootenai County erosion control plan could be used as a model and revised as appropriate for Bonner County.

## ***Appendix A: Glossary***

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**algae** Small aquatic plants lacking stems, roots, or leaves which occur as single cells, colonies, or filaments.

**algal bloom** Rapid, even explosive growth of **algae** on the surface of lakes, streams, or ponds; stimulated by **nutrient** enrichment.

**beneficial use** Any of the various uses which may be made of the water, including, but not limited to, domestic water supplies, industrial and agricultural water supplies, recreation in and on the water, wildlife habitat, and aesthetics. Any use may not lower the **ambient water quality**.

**benthic** The bottom of lakes, streams or ponds.

**best management practices** Accepted methods for controlling nonpoint source pollution; may include one or more conservation practices.

**chlorophyll *a*** The dominant green, photosynthetic pigment in plants; a measure of aquatic plant production.

**coliform bacteria** A group of bacteria found in the colons of animals and humans, but also in natural soil and water where organic content is high. The presence of coliform bacteria in water is an indicator of possible **pollution** by fecal material.

**cultural eutrophication** An accelerated rate of lake aging induced by human sources of **nutrients**, **sediment**, and organic matter.

**discharge** In the simplest form, discharge means outflow of water. The use of this term is not restricted as to course or location and it can be used to describe the flow of water from a pipe or from a drainage basin. Other words related to discharge are runoff, **flow**, and yield.

**dissolved oxygen** Molecular oxygen freely available in water and necessary for the respiration of aquatic life and the oxidation of organic materials.

**drainage area** The land area contributing runoff to a stream or other **body** of water, and generally defined in terms of acres, square miles, or square kilometers.

**effluent** The **sewage** or industrial liquid waste which is released into natural waters by sewage treatment plants, industry, or septic tanks.

**erosion** The wearing away of the landscape by water, wind, ice, or gravity to smaller particles, usually **sediment**.

**eutrophic** Literally, "nutrient rich." Generally refers to a fertile, productive body of water. Contrasts with **oligotrophic**.

**eutrophication** The natural process by which lakes and ponds **become** enriched with dissolved **nutrients**, resulting in increased growth of **algae** and other microscopic plants and reduced **water clarity**.

**flow** The rate of water discharged past a point expressed in water volume per unit time.

**littoral zone** That portion of a lake or pond extending from the shoreline lakeward to the greatest depth occupied by rooted aquatic plants.

**load** The amount of substance, usually **nutrients** or **sediment**, discharged past a point; expressed in weight per unit time.

**mesotrophic** Literally, "moderate nutrients." Generally refers to a moderately fertile body of water.

**nitrogen** An essential nutrient for aquatic organisms, comprising 80% of the earth's atmosphere.

**nonpoint source pollution** Pollution discharged over a wide land area, not from one specific location.

**nutrient loading** The addition of **nutrients**, usually **nitrogen** or **phosphorus**, to a water body (often expressed as g/m<sup>2</sup> of lake surface area per year) . The majority of nutrient loading in a lake usually comes from its tributaries.

**nutrients** Elements or compounds essential to life, including but not limited to oxygen, carbon, **nitrogen**, and **phosphorus**.

**oligotrophic** Literally, "nutrient poor." Generally refers to an infertile, unproductive body of water. Contrasts with **eutrophic**.

**pelagic zone** The open area of a lake from the **littoral zone** to the center of the lake.

**Phosphorus** An essential nutrient for aquatic organisms derived from weathered rock and human sources.

**phytoplankton** Usually microscopic aquatic plants (sometimes consisting of only a cell).

**point source pollution** Pollutants discharged from any identifiable point, including pipes, ditches, channels, sewers, tunnels, and containers of various types.

**pollution** Any alteration in the character or quality of the environment which renders it unfit or less suited for **beneficial uses**.

**primary production** The synthesis of organic compounds by green plants in the presence of elements (e.g. **nitrogen**, **phosphorus**) and light energy.

**secchi depth** The mean depth at which a black and white disk 20 centimeters in diameter is no longer visible from the water surface; a measure of water transparency.

**sediment** Fragmented organic and inorganic material derived from the weathering of soil, alluvial, and rock materials removed by **erosion** and transported by water, wind, ice, and gravity.

**sewage** The water-carried human and animal waste from residences, buildings, industrial establishments, or other places, together with groundwater infiltration and surface water.

**stormwater runoff** Surface water runoff, usually associated with urban development, which carries both natural and human-caused **pollutants**. Stormwater runoff can be conveyed to lakes, ponds, and streams either through point or nonpoint sources.

**trophic status** Referring to the nourishment status of a water body, e.g. **oligotrophic**, **eutrophic**.

**wastewater** Treated or untreated **sewage**, industrial waste, or agricultural waste with such water as is present. Sometimes referred to as **effluent**.

**water clarity** The ability of water to transmit light; often reported as **secchi depth**.

**water quality standard** Legally mandated and enforceable maximum contaminant levels of chemical, physical, and biological parameters for water. These parameters are established for water used by municipalities, industries, agriculture, and recreation.

**water quality** A term used to describe the chemical, physical, and biological characteristics of water with respect to its suitability for a **beneficial use**.

**watershed** An area of land that contributes surface runoff to a given point in a drainage system.

**wetlands** Lands where water saturation of the soil for at least part of the year is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the surrounding environment. Other common names for wetlands are sloughs, ponds, swamps, marshes, and riparian areas.

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## ***Appendix C: Response to Public Comments***

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## INTRODUCTION

This appendix contains public comments received on the draft Clark Fork-Pend Oreille Basin Water Quality Study: A Summary of Findings and a Management Plan. The 30-day public comment period ended August 3, 1992. Public meetings were held in Deer Lodge (July 13), Missoula (July 14), Sandpoint (July 15), and Newport (July 16), to hear comments and concerns. Those meetings were tape recorded and the comments received are summarized (paraphrased) below. In addition, a notice that the draft plan was available for review was sent to over 500 persons. Responses to written comments follow the responses to comments at the public meetings. Responses from the Clark Fork-Pend Oreille Water Quality Study Steering Committee are provided in bold.

## PUBLIC WORKSHOPS

### Deer Lodge, Montana, July 13, 1992

#### *Registered Attendees*

Peter Chapin	Butte, Montana
Tom Neihart	Deer Lodge, Montana
Ivan Wallgren	Deer Lodge, Montana
Pat Hansen	Avon, Montana
Dick Hafer	Anaconda, Montana
Ron Kelley	Deer Lodge, Montana
Pat McDonald	Philipsburg, Montana
Dick Pederson	Helena, Montana
Wayne Hadley	Deer Lodge, Montana
Errol Hammond	Deer Lodge, Montana
Frances B. Helton	Deer Lodge, Montana
Sally Spear	Anaconda, Montana

#### *Comments and Responses*

- The end of July does not allow enough time to comment on the draft management plan.

The public comment period could not be extended beyond August 3, 1992 due to the publication deadline for the final draft report.

EPA had a mandate from Congress to conduct a water quality assessment of the Clark Fork-Pend Oreille Basin with emphasis to be placed on nutrients and eutrophication issues. Scientists and managers on the three-state steering committee directed the scientific studies. Now that we have completed the investigations and identified pollution sources, we are soliciting input from all interested parties with regard to management alternatives. We are recommending that implementation of the selected alternatives be directed by a Tri-State Council which will include representatives of all potentially affected parties.

- Agriculture is the economic mainstay of the upper Clark Fork Basin. I am not convinced agricultural activities are a significant source of nutrient pollution in the basin, especially when tributaries with similar land use have different nutrient levels. We should look more closely to pinpoint the sources of nutrients in tributary drainages.

Approximately 75 percent of the soluble nitrogen loading to the Clark Fork River originated from various nonpoint sources. The relative contribution from agricultural activities was not determined. Recommended management actions include the identification and control of nutrient sources in specific tributary watersheds, regardless of the land uses that may be responsible.

- Clark Fork River streambanks should be stabilized so they don't erode into the river.

Eroding streambanks can be a significant source of phosphorus loading to streams. The Superfund Program has placed a high priority on stabilizing streambanks and tailings areas in the upper Clark Fork Basin to control metals inputs. These actions will also serve to reduce nutrient inputs to the river.

- Will the cost-effectiveness of the management alternatives be considered?

Costs versus potential benefits of the various management alternatives was considered in the assignment of priority ratings. It will continue to be an important factor in the implementation process.

- Would aeration at the Deer Lodge sewage lagoon improve the quality of the discharge to the Clark Fork River?

The lagoon is currently aerated. The design capacity of the system currently exceeds the population served and treatment efficiency is high. A problem is that streamflows in the Clark Fork River in this area are small during summer when the nuisance algae are most prevalent and dilution rates for the wastewater are relatively low.

- Aren't nutrient loads to the upper Clark Fork River from tributaries fairly small during the summer? It appears that the Butte and Deer Lodge municipal wastewater

discharges account for the majority of nutrient loading to the upper Clark Fork River during the summer.

Nutrient loads from upper Clark Fork River tributaries are individually rather small during the summer, despite elevated nutrient concentrations in many of them. Many of the tributaries are heavily utilized for irrigation and the total volume of water which reaches the Clark Fork during summer is limited. However, tributary sources are collectively important, accounting for perhaps 60 percent of the soluble nutrient loading to the upper Clark Fork during the summer when algae problems are most severe. The remaining 40 percent originates from municipal wastewater discharges, with 80 percent of the total coming from the Deer Lodge sewage lagoon.

- Is nitrogen or phosphorus, or both, limiting to the growth potential of the filamentous green alga Cladophora in the upper Clark Fork River? What is the role of high spring streamflows on the development of nuisance levels of filamentous algae in the upper Clark Fork?

Based on an examination of instream nitrogen to phosphorus ratios, it would appear that nitrogen is most often the limiting nutrient with respect to algal growth potential in the upper Clark Fork River (above the Blackfoot River confluence) during the summer. However, both nitrogen and phosphorus concentrations are currently high enough in much of this reach of the river to support nuisance growths of algae. Control of both nitrogen and phosphorus sources is warranted.

Periodic channel-scouring streamflows would be expected to provide some benefit from the standpoint of controlling nuisance algal growths in the Clark Fork River. This is especially true for diatom (slime) algae. However, experience has shown that the basal holdfasts (or point of attachment to the stream bottom) of Cladophora are capable of withstanding normal spring runoff water velocities and associated scouring with no apparent detrimental effects. Filamentous algae "blooms" in the upper Clark Fork have occurred in recent years immediately following the subsidence of "normal" spring runoff conditions. Scouring flows of a magnitude sufficiently high to actually tumble stream bottom rocks would probably destroy Cladophora holdfasts and reduce the potential for algal blooms for several months.

- Why did Anaconda and Opportunity not appear as nutrient sources in the findings of the Section 525 assessment?

Anaconda's municipal wastewater is treated in a lagoon system and stored in holding ponds for seasonal irrigation usage. There is no direct discharge to the Clark Fork River or any of its tributaries.

Opportunity has no central sewage treatment facility and residences are on individual septic systems. The area has very shallow groundwater levels and serious problems

Opportunity has no central sewage treatment facility and residences are on individual septic systems. The area has very shallow groundwater levels and serious problems with the operation of septic systems. Surfacing sewage is a common problem and a recognized health hazard. Some of the groundwater enters the Mill and Willow creeks bypass channel around the Warm Springs treatment ponds. Elevated nitrogen levels in the Mill-Willow Bypass are believed to originate from septic systems in the Opportunity area. This was discussed in several of Montana's Section 525 annual reports. A sewage collection and treatment system for Opportunity is badly needed.

- The steering committee has recommended that Deer Lodge sewage effluent be seasonally land-applied at an initial construction cost of \$405,000. Is there a time limit within which the city must do this?

The steering committee developed the various management alternatives from the standpoint of which actions would achieve the greatest instream improvements in water quality. They are recommendations only, recognizing it may well be impractical for communities such as Deer Lodge to bear the cost of implementing major actions such as land application. The proposed Tri-State Council will be responsible for coordinating implementation of the plan, developing a timetable, and securing funding for high priority alternatives. Even with adequate funding, the successful implementation of the plan will require strong citizen, community and agency support.

## **Missoula, Montana, July 14, 1992**

### ***Registered Attendees***

Wendy Moore	Lolo, Montana
Barry L. Dutton	Missoula, Montana
Jon Schulman	Missoula, Montana
Peter Nielson	Missoula, Montana
David Haire	Pablo, Montana
Murray Carpenter	Missoula, Montana
Gail Miller	Missoula, Montana
Lorraine Gills	Philipsburg, Montana
J. F. Schombel	Missoula, Montana
Steve Schombel	Missoula, Montana
Patti Hansen	Gold Creek, Montana
C. B. Pearson	Missoula, Montana
Stu Levit	Missoula, Montana
Les Billington	Missoula, Montana
John Donahue	Missoula, Montana
Terry & C. McLaughlen	Missoula, Montana
Anne Stewart	Missoula, Montana

Esther J. McDonald	Philipsburg, Montana
Mike Snavelly	Missoula, Montana
Hal Ort	Missoula, Montana
Earl Reinsel	Missoula, Montana
Mark Sanz	Missoula, Montana
Liz Colantuono	Missoula, Montana
Seth Makepeace	Pablo, Montana
Ron Broker	Missoula, Montana
Linda Lee	Missoula, Montana

### ***Comments and Responses***

- What is the source of nonpoint pollutants in Clark Fork tributaries?

Numerous land use activities occur in the Clark Fork Basin and all have the potential to cause nonpoint source pollution. An assessment of nonpoint sources was conducted in 99 Clark Fork Basin tributary drainages as part of the Clark Fork-Pend Oreille Basin Water Quality Study. It was learned that grazing, road development, mining, logging and irrigation were the dominant land uses in tributary drainages rated as having impaired water quality. More information on the Clark Fork Basin nonpoint source assessment is available in Montana's draft management plan.

- Do you think streambank erosion is a significant concern from the standpoint of nonpoint source pollution?

Yes. Eroding streambanks have a direct negative effect on downstream water quality and beneficial water uses. Suspended sediment and turbidity levels may be increased. Stream channels may become wider and shallower, thereby affecting water temperature and fish habitat. Concentrations of nutrients, especially total phosphorus, may increase. In the upper Clark Fork, eroding streambanks contribute heavy metals to the river because of the abundance of streamside mine tailings deposits.

- What is the source of phosphorus in Gold Creek?

Gold Creek drains the geologically phosphorus-rich Phosphoria formation and Cabbage Patch Tertiary lake beds. Much of Gold Creek's phosphorus load is believed to come from these natural sources, although irrigation practices may contribute to their influence. This was the subject of a 1991 University of Montana M.S. thesis by Jennifer Carey.

- Have you studied the contribution of irrigation return flows to late season instream flows in the Clark Fork?

No. It was a recommendation of the interstate steering committee to preserve adequate streamflows in the Clark Fork. Our rationale was that any improvements in the quality of wastewater discharges can quickly be reversed if dilutional streamflows are not maintained. The Upper Clark Fork Basin Steering Committee is currently developing a water management plan and has expressed an interest in exploring your question. There may be some benefit to late season streamflows in certain reaches of the river and in various tributaries resulting from land application of water (irrigation) during earlier months.

- Isn't the algae problem in the river related to a prolonged drought and/or a lack of scouring streamflows?

The nuisance algae problem in the Clark Fork River is a common occurrence dating back at least to the early 1970's, or about the time that improved treatment of mine discharges in the headwaters reduced copper levels in the river. Copper is highly toxic to algae and some suspect that the former high copper concentrations prevented the algae from reaching nuisance proportions. The recent drought years have undoubtedly made the algae problem worse by increasing water temperatures and nutrient concentrations and decreasing the frequency of scouring.

- There is a need to better coordinate local planning processes and subdivision review with watershed protection efforts such as the Section 525 project.

The proposed Tri-State Council will include representatives from all levels of government within the basin, as well as citizen's groups. This should improve coordination and communication between entities in the Clark Fork-Pend Oreille Basin. In addition, the Clark Fork-Pend Oreille Basin Water Quality Study has documented surface water problems in the Missoula area resulting from subdivisions. The Montana Department of Health will be meeting with local officials there to formulate a new policy for future development proposals where surface waters may be impacted.

- There is a problem with developers finding loopholes in the subdivision regulations. I have heard that 90 percent of the rural lots in the Missoula area are developed without ever going through the subdivision review process.

Subdivisions in Montana, defined as lots less than 20 acres in size, are regulated under two acts. The Subdivision and Platting Act empowers the county commissions and planning boards to review subdivisions for planning matters (impacts on services, taxation, natural environment, wildlife, public health and safety...). The Sanitation in Subdivisions Act requires that the State or contracted authority review subdivisions for adequate sanitary facilities (water, wastewater, solid waste and storm drainage).



There are exemptions available from each act. It is very common for land owners in rural areas to divide off a single parcel for sale and exempt the division from planning review. This exemption can be claimed once each 12 month period for a given parcel of land. Such lots are, however, subject to sanitary review.

Attempts have been made in the past to change the legislation and will most likely be proposed for the next legislative session as well.

- Action levels for nitrate in groundwater are being developed for the Missoula aquifer. Can we develop nutrient action levels for surface waters?

Nutrient criteria for surface waters must be developed on a site-specific basis, if the criteria are to be meaningful. This is essentially what we have done for the Clark Fork River and Pend Oreille Lake through the Clark Fork-Pend Oreille Basin Water Quality project. The response to the next question provides further explanation.

- We need to adopt firm, enforceable standards for nutrients in the Clark Fork River rather than goals and develop a plan to meet those levels instream.

The Clark Fork-Pend Oreille Basin Water Quality project was successful in determining nutrient concentrations for the Clark Fork below which algal densities can be controlled. These are called "saturation" concentrations. Unfortunately, we cannot at this time establish a defensible lower limit for nutrients where we can be assured that all beneficial water uses will be protected all of the time. In the absence of these standards, we have proposed nutrient concentration target levels for the river. These numbers are 6 micrograms per liter ( $\mu\text{g/l}$ ) for soluble Phosphorus and 30  $\mu\text{g/l}$  for soluble Nitrogen and are comparable to nutrient concentrations found in reaches of the Clark Fork that normally do not sustain nuisance growths of algae or experience the related dissolved oxygen and aesthetics problems. The proposed management actions have been developed to help achieve these target levels instream. As stream modeling exercises and other work can be carried out, we anticipate that more definitive nutrient standards will be developed and enforced.

- Can the Montana Department of Health, under the broad authority of the federal Clean Water Act, develop administrative rules to ban the sale of phosphate detergents throughout the Clark Fork Basin? This approach would be superior to having to pass numerous local ordinances.

The Clean Water Act provides broad authority to survey, report on, and to correct water quality problems. The Montana Water Quality Act is patterned after the Clean Water Act but gives the state of Montana broader and stronger authority than the federal legislation. The Department will examine its administrative rule-making authority under the Act with regard to phosphate detergent bans as a means of controlling a recognized pollution problem in the Clark Fork Basin.

- Montana has a law against land application of treated wastewater within floodplains. There may be opportunities for a variance from the law in situations where the alternative is a direct discharge to the river. We need to take a critical look at Missoula's land application feasibility study and come up with a practical alternative.

**Wastewater disposal systems discharging treated wastewater onto lands located within a designated floodplain are allowable as long as the land is not within the designated floodway and the disposal systems meet standards and/or laws set by the Montana Department of Health. Pollutants cannot be discharged to floodwaters and the systems for disposing of the wastes must be able to withstand damage caused by flood conditions. The systems could only operate under prescribed operating conditions.**

- If a TMDL wasteload allocation process is implemented in the Clark Fork Basin, communities with phosphate detergent bans already in place should receive extra allocation credits.

**A TMDL would be based on allowable pollutant loadings to a given reach of the river. The allowable load would then be apportioned among all point and nonpoint source contributors to that reach of river. The current degree of wastewater treatment, including source controls such as phosphorus detergent bans, would be a major consideration in the allocation process.**

- Why was the correction of nonpoint sources of nutrients in upper Clark Fork tributaries listed as a medium rather than a high priority action item?

**Nutrient loads from upper Clark Fork tributaries are individually rather small but collectively important. Together they provide about 60 percent of the soluble nutrient loading to the upper Clark Fork during the summer when algae problems are most severe. The anticipated cost of nonpoint source controls in many miles of tributary streams versus the benefits was a factor in the priority rating. Considering the cumulative impact of these nutrient sources on water uses in the upper river, this alternative has been elevated to a high priority rating in the final plan.**

- You didn't mention the possibility of funding the various management alternatives through a variety of sources. Perhaps we should seek implementation money through a reauthorization of Section 525 of the Clean Water Act, especially for the more expensive alternatives such as land application of the Missoula municipal wastewater.

**A number of potential funding sources were identified for the proposed management alternatives, including Section 525 of the Clean Water Act. The steering committee recognizes that successful implementation of the management plan will depend upon**

meeting the challenge of securing adequate funding. We remain open to any funding suggestions.

- What is the timetable for the proposed revisions to Montana's Nondegradation Statute and how will that relate to the proposed alternatives outlined here tonight?

The Montana Department of Health is optimistic that revisions to the current nondegradation rules can be finalized by early in 1993. Anticipated changes that may be relevant to nutrient controls in the Clark Fork Basin include reduced limits for nitrate in groundwater and new standards for groundwater that discharges to surface waters. In particular, the proposed changes may help to control groundwater sources of nitrogen loading to the Bitterroot River.

- There have been a lot of questions tonight but not many comments. I'd like to offer my three point plan for the Clark Fork River. First, we need to continue and expand monitoring programs on the river to document successes and to prove the validity of our actions. Second, we need to do things to get results. We know enough about the river to implement actions now. The public wants to see things happen. Taking action does a lot to build public support for your programs. Lastly, we need to continue to study the system through basin-wide and region-wide modeling of surface and groundwater resources as well as through special smaller scale studies.

**The steering committee fully concurs with your suggestions.**

- What is the City of Missoula's position on land application of its municipal wastewater as proposed in the draft management plan? The land which has been identified as suitable for wastewater application has increasing subdivision potential. The City should pursue a lease or purchase of this property while they still can because costs can be expected to increase.

Joe Aldegare, Missoula's Director of Public Works, has indicated that the city council is environmentally concerned and will give serious consideration to alternatives that could lessen the impact of the city's municipal wastewater on the Clark Fork River. However, cost is a consideration. A 38 percent sewer rate increase is projected for land application of nine million gallons per day of wastewater for six months of the year. Some of the suitable land which may be available for land application is already being subdivided. These lots are selling at high prices and it may be hard to convince adjacent landowners to sell or enter into long-term lease agreements with the city. There is no money in the city's Fiscal Year 1993 budget to purchase or lease land. At the current time, the city has contracted with a private engineering firm to evaluate alternative nutrient removal technologies and associated costs. No decision on land application will be made until after this study is completed.

- Have you looked at the potential effects of nutrient reductions on fisheries resources in the Clark Fork River?

**Yes. This area of concern was addressed in a project-related report entitled "Potential Effects of Nutrient Control Measures in the Clark Fork Basin on Resident Fisheries" (Knudson, 1992). The report concluded there was a low probability of reduced fish production associated with the proposed management actions.**

- Unless there is going to be tertiary treatment or land application, I don't see the sense of requiring sewage collection and central treatment of Missoula subdivision wastewater over septic tanks. There isn't a significant reduction in nutrients in conventional treatment plants is there?

**It is true that the conventional secondary sewage treatment process does not markedly affect nutrient concentrations. However, point source discharges are easier to treat, control and monitor than diffuse, nonpoint sources such as seepage from septic tanks. Additionally, septic tanks are a major contributor to the increasing nitrate levels in Missoula's sole source groundwater aquifer. When coupled with the proposed disposal alternatives for the Missoula wastewater treatment facility, sewerage of Missoula's rural subdivision areas makes a lot of sense.**

- Is the Department looking at revising the current 10 mg/l nitrate standard for surface waters? The current standard is not doing a very good job of protecting beneficial uses in the Clark Fork River.

**The 10 mg/l nitrate standard is a health-based standard for drinking water supplies (and for streams with designated drinking water supply usage) and will remain as such. A universal surface water standard to protect against the growth-stimulating effect of nitrogen has not been quantified because it must be developed on a site-specific basis. This problem was discussed at length in Montana's Clark Fork Basin nutrient management plan.**

## **Sandpoint, Idaho, July 15, 1992**

### ***Registered Attendees***

R. Hawkins	Sandpoint, Idaho
Ken Heffner	Sandpoint, Idaho
Charlton Mills	Sandpoint, Idaho
Doug Worman	Sandpoint, Idaho
Dennis Clark	Sandpoint, Idaho
Bayview Chamber of Commerce	Bayview, Idaho

E. H. Robbins	Sagle, Idaho
Al Bricker	Sandpoint, Idaho
Ed Bittner	Sandpoint, Idaho
Kevin M. Laughlin	Sandpoint, Idaho
Tom & Nancy Renk	Sandpoint, Idaho
Daily Bee	Sandpoint, Idaho
Liz Sedler	Sandpoint, Idaho
Jim Hahn	Sagle, Idaho,
Bill Middleton	Hope, Idah
Jerry Palmer	Sandpoint, Idaho
Lloyd Pierce	Bayview, Idaho
Robert Tate	Sandpoint, Idaho
Harold Riese	Sandpoint, Idaho
Gene Brown	Sandpoint, Idaho
Joel Petty	Sandpoint, Idaho
Pam Auman	Sandpoint, Idaho
Juanita Whitson	Sagle, Idaho
James D. Thomas	Bayview, Idaho
Kathie Hasselstrom	Coeur D'Alene, Idaho
Norman Bonner	Ponderay, Idaho
Jean Gerth	Sandpoint, Idaho
David Sawyer	Sandpoint, Idaho
Scott Engstrom	Sagle, Idaho

### ***Comments and Responses***

- When will the final Idaho plan be available?

**Draft Pend Oreille Lake project reports are now being reviewed internally. The final reports will be available late this fall. They will consist of three volumes; an executive summary, a management plan, and a collection of contractor reports. The public can receive a copy of the executive summary and management plan by signing the "Request for Copy" sheet circulating this evening or by contacting our office. Due to publication expenses, copies of the contractor reports will be on display at local libraries or can be obtained at printing costs. This should be about \$16.00.**

- Is there any more detail in the Idaho management plan?

**Yes, our management plan will give the rationale behind the recommendations for controlling nutrients in Pend Oreille Lake. It will also elaborate on contractor findings.**

- How was the Idaho plan put together?

The formulation of management recommendations began nearly two years ago when the Policy Advisory Committee identified priority issues and set management goals for both open and near shore lake conditions. Then DEQ reviewed other state management plans, Citizens Clean Lakes Council options, and drew upon their experience in lakes management to develop a list of management options relating to the priority issues. These options were then presented to the PAC who selected the preferred recommendations.

- What is the status of the lake drawdown option?

The PAC decided to include the lake drawdown option for future consideration in the event Eurasian water milfoil ever got established in Pend Oreille Lake. This is why it does not appear in the management plan as an action item. Dr. Falter's work indicates that the current drawdown may be preventing Eurasian water milfoil from becoming established in Pend Oreille Lake.

- Does lake drawdown and its flushing action increase the flow of nutrients through the system, thereby reducing eutrophication?

That type of information was not collected as part of the Pend Oreille Lake Project. However, I would say no. Study of the vertical and horizontal distribution of the Clark Fork River inflow revealed different patterns. In 1989, the turbid river-water plume was routed into the northern part of the lake while in 1990 the turbid water extended throughout the lake. Irrespective of the different distributions, net retention of total phosphorus and total nitrogen in Pend Oreille Lake was about equal in both years.

- Is it possible to monitor for toxic metals, especially in the lower river and the lake's near shore, before ASARCO builds its Rock Creek Project?

We have quite a bit of baseline information on the Clark Fork River. The Montana Water Quality Bureau has been monitoring metals below Thompson Falls Dam, at Noxon Bridge, and below Cabinet Gorge Dam from 15 to 17 times a year since September 1985. We are also concerned about possible metals problems from the ASARCO mine, so to establish a baseline, we started monitoring Rock Creek about three years ago.

- Is it possible metals from the upper river could be getting into the lake?

As far as heavy metals getting to the lake from the upper river, studies have shown metals being contained by the Milltown Dam. Cabinet Gorge and Noxon reservoirs have also been studied. Metals enrichment was found but at much lower levels than at Milltown. There may be some metals enrichment in the lake, but it is probably very insignificant. Most of the metals in the system are moving with sediments. They are not in solution and, therefore, would probably be very hard to detect in the lake.

- A friend told me there is a hole in the Noxon Dam.

**I work at Noxon Dam, and I can tell you there are no holes in the dam.**

- Regarding your map that shows developable land, I live in one of those areas and I would call it developed. What criteria was used for "developable?"

**Eastern Washington University-Department of Urban and Regional Planning inventoried land uses in the watershed. For the purpose of their inventories, developable lands were parcels less than 10 acres which had no structures and were privately owned. Unfortunately, the map does not provide the resolution to which the data was interpreted and only general categorization of land development is possible.**

- Regarding some of the options proposed, a lot of these are already on the books as laws with state agencies, but they aren't enforced. Unless enforcement is a priority, regulations and ordinances will not work.

**The Steering Committee fully concurs.**

- I understand that EPA Region 10 had to do some battling with headquarters to get the money that had been appropriated by Congress. Has an accounting been done to verify that all the money came through to Region 10?

**No retrospective account audit has been done of the project, however, all money appropriated by Congress for this study was received by the EPA Regions.**

- The Draft Environmental Impact Statement will be coming out soon from the Idaho Department of Transportation on the Highway 95 Sandpoint by-pass. If the by-pass goes along the creek, it will cause a tremendous amount of sedimentation and erosion into the creek and lake. Has DEQ had any input into the Draft EIS, and are you concerned about the overall effect of this project on Pend Oreille Lake?

**Yes, we are concerned about the effects of the by-pass on Pend Oreille Lake water quality and have prepared two responses for consideration in formulating alternatives in the Draft EIS. Of course, our primary concern is the protection of water quality especially with the heightened public awareness generated by this project. One recommendation was to upgrade existing roadways whenever possible to minimize compacting and exposing new soils. We suggested a plan which addresses measures to control erosion during all phases of construction and offered to review this plan on the ground during construction. Other water quality concerns included alteration of groundwater flow and maintaining public drinking water supplies, the destruction of wetlands and aquatic habitat, and leakage from stored fuel. Your concern over the accidental release of toxic substances is real. However, an emergency response**

**action plan already exists. This plan provides a structure for response to emergency situations. We will comment when the Draft EIS is available for review.**

- **I am disappointed in the turnout tonight. We have 35,000 people in this county. Where are they? I believe there is a need to have a clearinghouse for information from studies that have been done and other environmental information. I feel that the agencies' right hand doesn't know what the left hand is doing. This is a frustration for the public.**

**Comment noted.**

- **I am concerned about mining adits and the contamination of groundwater. Mining adits around the lake need to be reclaimed. No one is willing to take care of this problem. Who is responsible?**

**I understand your frustration. A local water quality task force has looked at past mining activities near Lakeview to identify the extent of the problem and brainstorm on what can be done. Who is responsible does not seem to be as big a question as where do we find the money to fix the problem. Both of these questions are compounded when we are talking about activities that occurred nearly a hundred years ago. Idaho Department of Lands is the regulatory agency for all major surface mining activities and DEQ for mining activities using cyanidation for recovery of precious metals. I believe DEQ also regulates subsurface mining activities. Ultimately, however, it is the landowner who would shoulder the costs of reclamation.**

- **What about Garfield Bay? Will mining problems be solved there before logging can take place? I am concerned about how this will be done.**

**I agree there needs to be better coordination with regulators on mixed-ownership and mixed-use areas. The problem is there are so many different programs. We are aware of the problem, but also must prioritize it in light of the other issues concerning water quality in the Pend Oreille Lake watershed.**

- **I am disturbed by impacts of heavy equipment in areas around eagles' nests. Near our home, it drove eagles away. Now we only have one nest in the area.**

**We do not work with the agencies that deal with wildlife habitat. The US Fish and Wildlife Service would be the agency to contact.**

- **Is EPA the coordinating body for all the other agencies working on habitat, water quality, endangered species, etc.?**



While we are not mandated by Congress to play this role, we are doing more of it. At Lake Roosevelt and several other major watersheds, we are taking on more of a leadership role; working on interagency coordination.

- Who do we contact when we have a concern about a particular local project? Where do we get answers to the problems, such as one I am concerned with on local shoreline development?

There are a couple publications which identify who to call for a particular problem or concern. These are Idaho Lake Management Guide and The Citizens Guide to Idaho Water Policy. Local shoreline development is regulated by state and county rules. If there are water quality issues involved, this is when federal and state standards would come into play.

- Regarding sewer systems as an option in plan, it states these would be done where feasible, Have criteria been developed to determine what is "feasible?"

No, this would be determined on a case by case basis.

- When and why was there a decision made not to monitor mining pollution during the lake study?

Idaho residents have for some time been more concerned about increased growth of algae on the rocks and the potential for lake eutrophication than mining pollution. Also, a report from the Montana Governor's office in 1988 recommended a nutrient study of the watershed. Metals were not looked at in Montana because of the extensive Superfund Project already underway. In addition, Montana has a monitoring program in place and our last station is actually below the Cabinet Gorge Dam in Idaho. In Idaho, the Technical Advisory Committee decided early in the study that sediment testing for metals would be too expensive given the budget, so this was dropped from the project's scope of work. Finally, nutrients are considered the primary interstate water quality problem.

- U.S. Geological Survey figures from 1984 and 1988 show toxic levels of heavy metals in fish flesh.

I believe the data you are referring to indicate that cadmium was consistently above chronic and acute toxicity criteria for freshwater aquatic life, and on occasion copper and zinc exceeded EPA criteria. The researcher recommended further investigations be made. So as part of the Pend Oreille Lake Project, a preliminary investigation of metals concentrations in fish collected from the lower river and lake was conducted. It showed that levels were below recommended action limits, but that the data base should be expanded. The Policy Advisory Committee acted upon this recommendation and has included a metals toxicity monitoring program and health risk assessment

action items in the plan. No commitment for funding to complete these tasks has been received. Copper and zinc, that have caused fish kill problems in the upper river and are of high concern, are not toxic to humans. These metals do not bioaccumulate; they do not build up in the food chain.

- Regarding development around the lake, how much of the load is coming from septic systems?

Wastewater contributes about 3% of the total phosphorus and 1% of the total nitrogen to the lake annually. This includes septic-tank and Sandpoint and Priest River wastewater treatment facilities effluent.

- Is there any way of knowing how much of this affects the near shore?

There is no easy way to separate wastewater effects lake-wide from effects near shore. Even though the computer model indicated that 100% wastewater removal would have little or no effect on lake water quality, common sense tells us since septic-tank effluent are coming in at the near shore level they are likely to effect the near shore area. The reason computer modeling showed little effect from wastewater removal was because it represents a small percentage of the annual lake load and is discharged into the Pend Oreille River.

- How does the goal of 5 parts per billion (ppb) of phosphorus near shore compare with existing phosphorus levels in open water?

The average total phosphorus concentration in the upper water column was 7 ppb and ranged from 3 to 13 ppb.

- Is not a goal of 5 ppb of phosphorus too minimal to detect?

The mean concentration of phosphorus in the near shore areas where the public is perceiving a problem is 8 ppb, so there is a small window that accounts for nuisance algal growth. Therefore, we do need to be very precise. The laboratory detection limit for total phosphorus is 2 ppb.

- Have there been any studies done on contributions from road dust to water quality and also road oiling?

I am sure there have been, but I am not familiar with any. Data collected for this study indicates that about 5% of the annual phosphorus load to the lake comes from the atmosphere. Since phosphorus is adsorbed to soil particles, I would suspect that fugitive dust from roads contributes to the annual phosphorus load, especially when the road is near a lake or stream. Falter did some studies on outboard engines and contributions of nutrients from exhaust, and I suspect you probably get more

contributions of phosphorus from road dust than you do from oil. Oiling does control dirt and, therefore, nutrients but probably causes other problems.

- About half of Bottle Bay Sewer District is sewerred. The other half just conducted a survey and 50% of them did not want to add on to the system. It would only cost them \$35 a month, but they think their septic tanks are working since they got permitted by Panhandle Health.

**Comment noted.**

- When folks change to other positions within the agency, is there some level of continuity and coordination with new people?

**Yes, we keep extensive computer files and there is coordination for transfer of information.**

- The By-pass is going to be a lot more important than DEQ thinks. DEQ needs to come up to speed on this issue.

**This would make a good recommendation as an option in the plan: that DEQ work closely with ITD on water quality concerns of by-pass alternatives.**

- Regarding work being done in the lake watershed by Bio/West for the Forest Service, are they sampling sediments for heavy metals?

**No, they are only sampling for sediment amounts.**

- I am with the National Park Service, Coulee Dam Recreation Area, and I have been impressed by your getting together and taking a basin-wide approach with the three states. We have come a long way, and I really appreciate all the input from the citizens. I represent one and a half million visitors who come to our recreation area. This evening I have also received a little geographic lesson: Pend Oreille is part of the Coulee Dam system.

**Comment noted.**

- Have we ever tried to get Canada involved in this project?

**No, not in this project, but the basin-wide approach is getting more and more common. Canada has been involved in the Lake Roosevelt project that John was just referring to, and there is also a Kootenai River Network that I am involved in that includes the province of British Columbia, state agencies in Idaho and Montana, federal agencies, the Lower Kootenay Band, Kootenai Tribe of Idaho, and various**

environmental groups. Their focus is watershed management in the Kootenai River Basin. We have also had some cooperation with the mining interests.

- Is there a phone number for calling someone with all of these concerns?

The public comment form has the phone numbers and addresses of contacts in each state. They can help you sort out which agency you should be dealing with when you have a problem. Earlier we mentioned two publications that identify what each state agency is responsible for; Idaho Lake Management Guide and The Citizens Guide to Idaho Water Policy.

- Five minute presentation given by Harold Riese. He is concerned about drug labs in the watershed and their impact on water quality from pollutants.

Comment noted.

## **Newport, Washington, July 16**

### ***Registered Attendees***

Dick L. Arkills	Newport, Washington
Bill Kelley	Cheney, Washington
Pam Tunnell	Newport, Washington
Ken Rux	Newport, Washington
Lori Blau	Usk, Washington
Dorothy Sandvig	Newport, Washington
Linda Lee	Usk, Washington
Rick Donaldson	Coeur D' Alene, Idaho
Do Hopp	Newport, Washington
Clarence Soliday	Usk, Washington
Harold Dilling	Cusick, Washington
John W. Miller	Spokane, Washington
John Krogh	Newport, washington

### ***Comments and Responses***

- How much of the Pend Oreille River study was performed by the Washington State Department of Ecology?

All of the Ecology studies presented at the public workshop were performed by Ecology. Some assistance from other associated groups was used on sub-projects like popnetting and electrofishing. Additionally, we used information from other studies done in the past. We also utilized aquatic plant surveys performed by a consultant

for the Pend Oreille County Public Works Department for our GIS demonstration project contained in Ecology's Draft Pend Oreille River Management Plan.

- How can the Pend Oreille County Conservation District obtain funding to perform monitoring etc. identified in the draft plan?

In the back of Ecology's Draft Pend Oreille River Management Plan is a section on funding sources. This section describes specifics of federal, state, and local monies available. Reauthorization of Section 525 of the Clean Water Act is a high priority for funding. Our goal is to get monies to locals for implementation of the management plan.

- Washington and Idaho seem to be lax on their inspections of septic tanks and sewers. Up and down the river there are developments in areas where the soil is a problem for septic, and there are also areas where people don't even have septic but are dumping their sewage directly into the river.

Septic systems are under the authority of county health agencies. If you know of direct dumping of sewage, failed or failing septic systems, or other like potential impacts to the river, you are encouraged to contact the Northeast Tri-County Health District in Washington or the Panhandle Health District in Idaho.

- I live in Pend Oreille County and about 10 years ago I was told I had 30 days to do something about my septic or else I'd get fined; within 3 months we had a sewage lagoon that met their standards. So if you make the penalties stiff enough, it seems you can force the issue and make people clean up their sewage in a hurry.

As previously stated, individual sewage disposal systems are under the jurisdiction of the local Health Districts. However, this suggestion does have merit and should be presented to the local Board of Health for consideration.

- What did you have in mind for the local "Watershed Management Committee"?

The Committee would be made up of diverse interests in the watershed who would meet frequently to decide on priorities for work that is needed. The group would seek grant money to fund and oversee water quality improvement projects. The Watershed Management Committee would be a good candidate for representation on the proposed Tri-State Council.

- Does the presence of Box Canyon Dam increase the milfoil problem?

When a river is impounded current velocities are lowered. This results in an increased rate of sedimentation. Nutrients carried with the sediments settle out and are a source of food for aquatic plants. The dam also increases shallow areas where you

would expect nuisance plant growth. It is probably true that the impoundment enhances the habitat for aquatic plants in general.

- The use of a rotovator to stir up the milfoil is a poor approach. The milfoil needs to be removed, but there is a better way. There is a machine now available that harvests the stems and leaves much like a hay field is harvested. The biomass is removed to the shore for disposal. The rotovator system stirs up the roots, sets them adrift to grow in new places. The machine I refer to does not do that. It is in wide spread use in California and has proven its value. The use of a rotovator should be excluded from your plan, however harvest of the milfoil plant should still be included.

Rotovation is a 3 step process. First debris is removed from the bottom area to be rotovated. Then the bulk of the biomass is removed by a cutter bar, probably much like the harvester referred to. The third step is bottom tillage. Bottom tillage is done by a tiller head like rototillers for gardens, except that it is used underwater and on a larger scale. The tilled roots and stem debris float to the surface for collection and bank disposal, as does the plant material from the second step. The same machine performs all three steps. A different detachable head is placed on the hydraulic boom for each step. If rotovation is ever determined to be undesirable, the ability to harvest is always there. One problem with just harvesting is that it does nothing to inhibit regrowth. Rotovation sets back regrowth of milfoil, giving other opportunistic plant species an opportunity to colonize first. One may not need to come back to rotovate for 2 or 3 years.

- I wonder if we should look into ways of harvesting milfoil for use as fertilizer or animal feed? We use it at our home as a fertilizer. In Japan they use it as animal feed. There may be some uses for milfoil that would be beneficial.

The idea merits further investigation and has been incorporated into the basin management plan.

- Regarding the statement in the management plan about freezing of milfoil, I have a pond with milfoil and for five years it's frozen over in the winter and the milfoil keeps coming back. I'll volunteer my pond as a test site.

Ecology appreciates the offer of the pond as a test site and will keep this idea in mind for any future work done on the Pend Oreille River.

- If your going to look at management control options for milfoil, you're going to have to go in there and manually harvest it. If you don't remove it before you put water back over it, you haven't gained a thing. Also, if you operate the river under a FERC license, you'd have to go through a lot of procedure to lower the river in order to control milfoil. Why do you make recommendations for milfoil control options that you haven't researched further?

**We are offering options that have been used elsewhere. There is not a lot of background on milfoil control alternatives for the Pend Oreille River. It may be that multiple approaches are needed to most effectively manage milfoil.**

- **Milfoil that is rotovated must be piled up away from the shoreline area so it doesn't wash back into the river.**

**This is a good suggestion. The management plan has been modified to reflect the need for resource managers to investigate alternatives to bank disposal of harvested plant materials.**

- **I strongly oppose a winter drawdown of the Pend Oreille River. This idea does have some merit concerning a reduction in the milfoil community, but it also has the potential to seriously impact the fishery. The Box Canyon Reservoir is generally a shallow reservoir and therefore the milfoil plants are able to grow and thrive in a large percentage of the reservoir. In order to really impact the milfoil community a severe drawdown would be required. A drawdown of this nature would completely dewater the littoral areas, concentrating most of the fish in the main channel of the river. As fish are not very active during the cold winter months, it is likely that a good percentage of the fish would simply be flushed from the system.**

**It appears potential impacts from drawdown of the reservoir far outweigh possible benefits. Based on the number of persons concerned about the negative impacts from drawdown, and a general lack of support, the final management plan will remove the recommendation to explore drawdown as a management option.**

- **There was a drawdown a few years back, and warm weather baked the milfoil; it did slow its growth for awhile.**

**When drawdown of the reservoir was first investigated as a possible management alternative, winter was assumed to be the season with the least potential impacts. Summer was not considered because of the problems that would be created during peak periods of recreation and tourism. It may be that desiccation rather than freezing is a better method of milfoil management. Yet it is also likely that summer drawdown would be even less well received than winter drawdown.**

- **I strongly recommend that rotovation of Eurasian watermilfoil in the Pend Oreille River should include rotovating rows or paths through the dense beds. This would enhance habitat for largemouth bass, as it would allow access to the small perch which hide in the weed beds. Most of the bass captured during our studies were associated with weed beds. According to Prince and Maughan (1979) prey (yellow perch) that are attracted to structure become concentrated in vegetation, thereby increasing encounter rates with, and vulnerability to, foragers (bass) that reside there.**

Open spaces or "trails" through the dense macrophyte beds would be advantageous to predators (bass) as they would provide more area for ambushes.

This is a good suggestion and consistent with recommendations already in the management plan. The ability to strip rotovate is contingent on local resource managers acquiring an additional rotovator or utilizing other management options. At present, the rotovator now used is only able to maintain high use areas of the river (*i.e.* swimming beaches, boat launches etc.). With two rotovators, one machine could maintain the high use areas while the other could be used for fishery habitat enhancement.

- Shouldn't Washington seek funding through reauthorization of Section 525 or other means to study biological agents for milfoil control?

We advocate staying abreast of current research on milfoil control methods and evaluating it's applicability to the Pend Oreille River. At the present time, we do not intend to pursue a site-specific study of biological controls for the Pend Oreille River.

- We encourage research on biological control methods; we do not support the use of herbicides.

Biological controls may be many years away from use. Alternatives that have worked elsewhere need to be looked at for applicability to the Pend Oreille River. Ecology is not endorsing use of herbicides, but rather suggesting an alternative that should be evaluated by local resource managers if and when it becomes available.

- Regarding the Newport wastewater treatment plant and the Ponderay Newsprint Company, are they always in compliance with their wastewater discharge permits?

Compliance reports indicate there has not been a problem complying with NPDES permit limits. Occasional exceedances of permit limits can happen to even the most sophisticated treatment systems. The Newport wastewater treatment plant and Ponderay Newsprint Company discharge about 0.5 millions gallons per day (mgd) and 4 mgd, respectively, which allows for ample dilution by the river, which has an average annual flow of about 16,500 mgd.

- Please explain the units for attached algae in your presentation and give the source of the guideline quoted.

One slide in Washington's presentation noted units for periphyton concentrations in the Pend Oreille River in parts per billion (ppb). This was in error and should have read in mg/M<sup>2</sup>. The recommended guideline comes from a report entitled Nuisance biomass levels of periphytic algae in streams, contained in Hydrobiologia 157:161-168, 1988, by Welch, E.B., J.M. Jacoby, R.R. Horner, and M.R. Seeley.



- Were dissolved oxygen (DO) measurements made over a 24 hour period, and have the lowest DO's of the summer been getting steadily higher?

The DO measurements referred to were for determination of primary productivity and are based on 24 hour measurements. The methods and the data set used for determination of primary productivity are described in Ecology's third annual report of the Section 525 study entitled Pend Oreille River Primary Productivity And Water Quality Of Selected Tributaries by Coots, R. and R. Willms, 1991. The DO was measured specifically for determination of primary productivity and was only collected during two weeks of the summer. From this limited data set, we are unable to evaluate if the lowest DO's of the summer have been getting steadily higher.

- You indicated that most measures of water quality at the Newport station have gotten better. Do you have long term flow and channel depth data? If so, have river flows and channel depths in the Pend Oreille River been getting lower, and if so, what are the causes and correctives - since this would encourage macrophytes.

We have long term river discharge data, but do not have data concerning channel depth and current velocity. A trend analysis of river discharge indicated a significant decrease has occurred over the past 15 years. While this decrease in discharge likely improved conditions for aquatic plant growth, the decrease probably resulted from circumstances beyond our control - *i.e.* natural changes in climate and run-off.

- Perhaps efforts to restore channel flows and some judicious dredging would have less negative impacts and longer term benefits than herbicides and drawdown to freeze macrophytes.

Restoring channel flow would require integrated water resources coordination throughout the Pend Oreille Lake/River system. Dams would be potentially impacted because by allowing more water to spill, less electricity would be produced. This would likely be confronted with strong opposition by power generating and fisheries interests. Restoring channel flows would impact water levels of Pend Oreille Lake and Box Canyon Reservoir if dam gates are lowered, specifically by dewatering some littoral areas and fishery habitat. Dredging does have merit, although it would be a drastic change in direction requiring a substantial capital investment initially, besides being more labor intensive. Dredge materials would need to be transported and disposed of properly. Locally, habitat for native plants would be lessened. Dredging below the optimal growth depth of milfoil (about 3.5 meters) is possible, but would create deep pockets of water nearshore.

- I strongly support a water quality monitoring network. The Kalispel Tribe will be monitoring water quality in waters on and adjacent to their Reservation. A network with this type of information would be very beneficial to the Tribe and the whole community of the Pend Oreille River.

The development of a water quality monitoring network should be a product of the proposed local Watershed Management Committee and the Tri-State Council. This information would be essential to any group wanting to manage a waterbody or determine priorities for restoration on a basinwide approach. The Kalispel Tribe should be represented on the Watershed Management Committee and possibly the Tri-State Council also. This is indeed an opportune time for coordination of efforts within the basin.

- The newspaper article published in the Newport Miner officially announcing the public workshops points the finger at livestock and stated 87% of the fecal coliform in the Pend Oreille River came from Skookum Creek.

The article was somewhat inaccurate in referencing Ecology's third year report, which stated five tributaries were studied for fecal coliform in the summer of 1990. Of those five tributaries, Skookum Creek accounted for 87% of the load. There was evidence of livestock directly accessing the creek. Ecology was not aware of the newspaper article prior to the public workshop. In fact Ecology has sent a letter to the editor of the Newport Miner, which was subsequently published, stating Ecology's position that the article was misleading with its emphasis on "Domestic animals adding to river pollution" instead of the most significant problem we identified, namely proliferation of Eurasian watermilfoil. The newspaper article and Ecology's letter are contained in the Appendices of this management plan. (See Appendix D, July, 1992.)

- What is the maximum level for fecal coliform in surface waters of Washington State?

The maximum allowable fecal coliform bacteria in Class A surface waters is 100 colonies per 100 milliliters (about ½ cup) of water.

- Your third year report indicates 1200 colonies per 100 milliliters were found at SK5, a site on Skookum Creek. Did you determine how much of that comes from livestock?

No; livestock were identified as one possible source. Field observations, noted at the time of sampling, identified livestock having direct access to Skookum Creek with evidence of shore erosion. While it appeared from visual observations that livestock were responsible for the high counts, other sources potentially impacting Skookum Creek include wildlife and domestic wastes.

- Skookum Creek has been impacted by beavers for many years. Your samples from SK5 were taken right on top of a known beaver pond. Doesn't this impact your sampling?

All samples taken for the survey were collected from flowing water. Samples from the Skookum Creek site (SK5) were collected at a culvert crossing under Skookum Creek Road. Wildlife are one potential source of bacterial contamination to surface waters. Further sampling would be needed to determine the relative contribution from beavers at this site.

- How do you account for some of the low bacterial readings from Skookum Creek?

Nonpoint source pollution tends to be highly variable in the environment. The low bacterial counts at some sites are likely a result of dilution from higher quality inflowing water as it moves down the system and natural die-off of bacteria. Other potential bacteria inhibitors include sensitivity to light, temperature, and toxic chemicals.

- Regarding Skookum Creek, the third year report states the fecal pollution problem "appears to be related to animal keeping practices".

As stated earlier, we are not certain of the source of the fecal contamination. Field observations taken at the time of sampling noted evidence of livestock directly accessing the stream. Further sampling would be necessary to determine specific sources. The management plan has been revised to indicate the need for additional sampling.

- The newspaper article is very upsetting to local cattlemen because we've been working hard to keep our cattle out of the stream and we're not happy about being blamed for the pollution.

Ecology apologizes for any inconveniences resulting from the report and the newspaper article. It was not the intent of the study to point the finger at anyone. The focus was to better define sub-basin water quality based on sampling results found in 1988. Ecology supports all efforts to keep animal wastes out of streams. Any efforts over the last 2 years by cattlemen to better manage their animals would not be recognized in this report because the survey the newspaper article referred to was conducted during the summer of 1990.

- I've been working on a committee and we've got a dairy discharge permit plan coming out; we're trying to work on our problems. You've done a lot of damage by putting blame on us.

As mentioned earlier, Ecology has written a letter to the editor of the Newport Miner in hopes of clarifying information which may have been misrepresented in the newspaper article advertising the public workshop.

- I'd like to propose that after the field season, you agency folks and your committee, and the Idaho people, come over to Skookum Creek. We'd like to show you around the creek and discuss our livestock management practices.

**Thank you for the invitation; if the committee is able, we'd like to take you up on the offer.**

- I strongly support management of animal keeping practices and fencing of the riparian zones in tributaries to the Pend Oreille River. The Kalispel Tribe is currently applying for grant money to fund construction of some riparian fences. I have also been working with the Pend Oreille Conservation District to educate private landowners of the importance of animal keeping practices and proper fencing.

**Part of the management plan identifies the need for development and implementation of best management practices (BMPs). The formation of a local Watershed Management Committee would provide better oversight of plan implementation. The Kalispel Tribe and the Pend Oreille Conservation District would be good candidates for representation on the Watershed Management Committee.**

## WRITTEN COMMENTS

*The following individuals, agencies or groups identified themselves in their written comments to the Steering Committee. The Committee also received comments from four unidentified sources.*

Dick Arkillis, P.E., Director  
Hydro Operations and Power Supply, Public Utility District #1  
Pend Oreille County, Newport, WA

Becky Ashe, Fisheries Biologist  
UCUT Fisheries Center, Eastern Washington University, Cheney, WA

Edward C. Bittner, U.S. Permanent Representative to the U.N.  
Environment Program 1985-86. Sandpoint, ID.

CDR James A. Blake (Ret), Sandpoint, ID

Stephanie Fries, Hope, Idaho

George Hetherington, Butte, MT

Earle A. Hussell, Trout Creek, MT

Hobart G. Jenkins, President  
Bayview Chamber of Commerce, Bayview, ID

Shawn Keogh, Timber Information  
Greater Sandpoint Chamber of Commerce

Robert G. Klatt, Sagle, ID

Gary J. Kuiper, Superintendent  
Coulee Dam National Recreation Area, Coulee Dam, WA

Bill Middleton, Hope, Idaho

Michael T. Pablo, Chairman, Tribal Council  
Confederated Salish and Kootenai Tribes of the Flathead Nation  
Pablo, MT.

Steve Schombel, Trout Unlimited  
Westslope Chapter, Missoula, MT

Richard Sedlak, Technical Director  
The Soap and Detergent Association, New York, NY

Robert M. Tate P.E., Coeur d'Alene, ID

Ruth Watkins, Pend Oreille Director  
Clark Fork-Pend Oreille Coalition, Sandpoint, ID.

Vicki Watson, University of Montana, Missoula

Bruce Zander, Monitoring and Standards Section  
U.S. EPA, Region VIII, Denver, CO

### ***Comments and Responses***

- Page 8 of the draft plan implies that the Total Maximum Daily Load (TMDL) wasteload allocation process has already been implemented for control of nutrient sources in the Clark Fork-Pend Oreille Basin.

**The process described in the report is very much a TMDL process in that instream or intake nutrient targets are established and alternative controls are developed with the instream targets in mind. However, a regulatory wasteload allocation process for nutrient sources has not yet been implemented in the basin, but remains an option. The final management plan has been changed to clarify this.**

- The discussion of water quality criteria for attached algae on page 18 should be reworded for clarity.

**The suggested changes have been incorporated in the final draft.**

- The matrix of Clark Fork River nutrient point source control alternatives omits the highest priority action--seasonal land application of the Missoula sewage effluent.

**This alternative was inadvertently deleted during editing of the draft management plan. It has been replaced in the final plan.**

- Securing long-term protection for instream flows in the Clark Fork River should be the highest priority management alternative, followed by seasonal land application of Missoula wastewater.

**The steering committee ranked both alternatives as high priority items. Relative placement in the matrix of alternatives within a priority category (high, medium, low) was not intended to suggest a preference for one over another.**

- Implementation of nutrient removal for the Butte municipal wastewater should be a medium or low priority action.

It is true that most of Butte's nutrient load is removed in the Warm Springs Treatment Ponds on Silver Bow Creek prior to reaching the Clark Fork. It is also likely that this nutrient loading improves the metals treatment efficiency of the ponds and that reductions in nutrients could increase metals loading to the Clark Fork. However, concentrations of nutrients and ammonia in Silver Bow Creek between the Butte wastewater discharge and the ponds are so high that beneficial water uses will continue to be impaired even if all metals sources are controlled. The Montana draft management plan recommends a cautious approach and the examination of alternatives for reducing nutrients in Silver Bow Creek while maintaining metal treatment efficiency in the ponds. Given the moderate importance of the Butte wastewater as a source of nutrient loading to the Clark Fork River, this alternative has been changed from a high to a medium priority item.

- The Butte municipal wastewater should be seasonally land applied to enhance revegetation efforts in Superfund reclamation sites along Silver Bow Creek.

This suggestion may be a practical alternative and is consistent with our proposal to "implement nutrient removal or alternative disposal methods for Butte municipal wastewater." However, the effect of summer land application on streamflows in Silver Bow Creek and on downstream water rights would have to be carefully examined.

- Controlling groundwater sources of nitrogen loading to the Bitterroot River should be a high priority rather than a medium priority item.

The steering committee has reconsidered their priority rating for this alternative and has changed it to a high priority item. The high cost of implementing this alternative, the magnitude of the project, and the incremental benefits to be expected were considerations in the former rating. However, when the importance of protecting Missoula's municipal groundwater supply from contamination is considered in addition to the existing impacts to surface water quality, a high priority rating is easily justified.

- The alternative to organize wastewater discharge permits on a concurrent, five-year cycle would facilitate basin-wide planning for nutrients but could decrease the level of review for some permit-specific issues (e.g. toxics).

If this alternative is adopted, provisions would be included to insure that each permit received at least as rigorous a review as under the current permit by permit approach. It is not anticipated that all permits would be organized to expire on the

**same day, but perhaps only in the same year. This approach should facilitate basin-wide permit reviews and planning for all issues.**

- **There are a number of planned subdivisions immediately adjacent to the lower Clark Fork River in Sanders County, Montana. Each lot will have an individual septic system and drainfield. Will this concentration of septic tanks adversely affect water quality and do we have adequate existing information to detect future degradation in this area?**

**The location of septic systems and drainfields in relation to surface and groundwater is a criteria in the review of all subdivisions. Septic system distance parameters have been established for seasonal high groundwater, surface waters, and hundred-year floodplains. Additionally, any proposed subdivision of ten lots or larger utilizing on-site sewage disposal requires that a nitrate sensitivity analysis be preformed. All of these measures are intended to protect designated uses of surface and groundwaters from degradation. The Administrative Rules of Montana that deal specifically with these issues are under current departmental review and will probably be modified to afford increased protection to water resources.**

**The Montana Water Quality Bureau maintains a series of long-term water quality monitoring stations throughout the entire length of the Clark Fork River. Information from this program will continue to be available to evaluate water quality trends as influenced by development activities in the lower river basin.**

- **The Section 525 assessment indicated the majority of nitrogen loading to the Clark Fork River originated from nonpoint sources. The primary method of control for nonpoint source pollution is the application of best management practices, or BMP's. It seems obvious that current BMP's are not working and that changes are in order, especially with regard to cattle grazing in riparian areas. We need to get the cows out of the bottoms and reestablish native riparian vegetation which will aid to narrow and deepen tributary channels and reduce nutrient, hydrologic and fishery impacts.**

**The Montana Water Quality Bureau, under it's Nonpoint Source Pollution Control Program, is facilitating a process to examine, refine and/or completely revise as needed the BMPs for grazing to ensure that the recommended BMPs are protecting water quality. A technical committee of agency representatives and private landowners has been established with the ultimate goal of adopting one set of BMPs for all lands in Montana.**

- **Will regulations for control of nutrient sources in the Clark Fork-Pend Oreille Basin be mandatory or voluntary and what agency will have oversight responsibility? Implementation of mandatory BMP's should be strongly considered.**



The State of Montana is proposing to adopt a voluntary approach to nutrient source controls in the Clark Fork River Basin. Should this approach fail to achieve the desired results, as indicated by a continuing monitoring program, a mandatory approach will become necessary. The U.S. EPA and the Montana Department of Health and Environmental Sciences, Water Quality Bureau will have primary oversight responsibility for nutrient controls in the Montana portion of the basin. However, the proposed Tri-State Council will be charged with directing the implementation of the various nutrient control alternatives.

Mandatory BMPs are a subject of much current debate, and one that is beyond the scope of this management plan.

- The Westslope Chapter of Trout Unlimited supports the recommended nutrient control alternatives presented in the draft Clark Fork-Pend Oreille Basin Water Quality Management Plan. Two items of particular interest are the basin-wide phosphate detergent ban and sewage treatment plant improvements. Please keep us informed of continuing developments.

The Westslope Chapter of Trout Unlimited has been added to the Clark Fork-Pend Oreille Basin Water Quality Study mailing list for receipt of the final management plan, meeting notices, and any other mailings. The Westslope Chapter may be a good candidate for representation on the proposed Tri-State Management Council.

- The plan should state clearly and unequivocally what nutrient concentration targets should be for reducing algae in the Clark Fork River. The plan suggests 6  $\mu\text{g/l}$  for soluble phosphorus and 30  $\mu\text{g/l}$  for soluble nitrogen. Based on the saturation levels identified by Dr. Vicki Watson and researchers in British Columbia, the plan should clearly state that in no case should phosphorus ever be over 30  $\mu\text{g/l}$  or nitrogen over 250  $\mu\text{g/l}$  in the river below Missoula. For the upper river, where we're dealing with filamentations algae, the targets should be closer to 6  $\mu\text{g/l}$  for phosphorus and 30  $\mu\text{g/l}$  for nitrogen.

Proposed nutrient target levels in the draft plan are based on ambient summer concentrations in reaches of the Clark Fork that normally do not support nuisance developments of attached algae. The research conducted by Dr. Watson for the Clark Fork-Pend Oreille Basin Water Quality assessment succeeded in establishing "saturation" nutrient concentrations for diatom algae in the Clark Fork River. These values are 30  $\mu\text{g/l}$  for P and 250  $\mu\text{g/l}$  for N and reflect concentrations above which increased algal growth would not be expected with incremental increases in nutrient concentrations. These values are not practical target levels because they are in excess of current ambient concentrations found throughout much of the Clark Fork and because these concentrations are capable of supporting the maximum achievable standing crops of diatom algae. For algae control to be realized, target levels must be appreciably less than the saturation concentrations.

**Nutrient criteria which would protect all beneficial water uses in the Clark Fork Basin and eliminate nuisance algae and related problems such as dissolved oxygen depletion are unavailable at this time. The Montana Department of Health has requested the assistance of a contractor to EPA Region VIII to help us conduct the necessary modeling studies to establish more definitive nutrient criteria for various reaches of the Clark Fork. In the interim, the proposed nutrient target levels of 6  $\mu\text{g/l}$  for P and 30  $\mu\text{g/l}$  for N have been adopted as instream goals in the final management plan.**

- **A basin-wide phosphate detergent ban should be a high priority action item. The methods for carrying out such a ban should be examined by the states. The proposed Tri-State Management Council should consider taking a lead role in some type of tri-state rule-making.**

**The states will examine their legislative and administrative rule-making authority under the Clean Water Act and their respective state water quality statutes with regard to phosphate detergent bans in the Clark Fork-Pend Oreille Basin. Guidance in this area will be provided by the Tri-State Council.**

- **Mandatory nutrient loading allocations for point source dischargers and nonpoint sources should only be developed if voluntary nutrient control measures fail to control nutrient-related water quality problems in the basin.**

**The states favor a voluntary approach to nutrient controls and pollution reduction. Most of the recommended nutrient control alternatives in the management plan are voluntary in nature. However, Montana and Idaho will pursue the development of optional nutrient wasteload allocations so that mandatory controls can be implemented if voluntary measures fail to achieve the desired results.**

- **The agencies should develop a timetable and conditions criteria under which nutrient allocations would be executed.**

**The development of a monitoring program, timetable, and criteria to evaluate the success of nutrient control measures will be the responsibility of the Tri-State Council.**

- **The high priority action item calling for seasonal land application of the Missoula municipal wastewater should be reworded to read "Institute improvements at the Missoula municipal wastewater treatment facility." This would allow for other methods of pollution reduction at the plant should seasonal land application prove unfeasible. Possibilities include combinations of land application with other options such as denitrification technology or alternative disposal sites such as gravel pits and constructed wetlands.**

**This alternative was intended to mean any effluent disposal method other than direct discharge to the Clark Fork River, including rapid infiltration, irrigation usage, discharges to wetlands, etc. Other measures for improving wastewater treatment and effluent quality are recommended under the alternative to "Evaluate and implement additional measures to curb municipal and industrial wastewater nutrient discharges." We have changed the first alternative to read "Implement seasonal land application and/or other improvements at the Missoula municipal wastewater treatment facility" to clarify our intent.**

- **Continued monitoring is a priority and must be designed to tie directly to the priority actions being taken to reduce pollution. A specific plan is needed to show how monitoring will influence the implementation process.**

**The Tri-State Council should place a high priority on designing and implementing a basin-wide water quality trends monitoring network to evaluate the overall success of the monitoring plan. This plan should build upon the monitoring programs that are already in place. Additionally, a more focused implementation and effectiveness monitoring program will need to be put in place to insure that management alternatives are implemented and that they are working. The Council should develop and utilize monitoring feedback loops to guide the implementation process.**

- **The Clark Fork-Pend Oreille Coalition recommends that the list of eight highest priority action items in the three-state management plan be expanded to include:**

- 1) specific changes in the wastewater discharge permit for the Stone Container Corporation kraft mill west of Missoula;**
- 2) additional sewer hookups in unsewered portions of the Missoula Valley;**
- 3) further analysis of opportunities for land application/alternative disposal methods at the Deer Lodge municipal wastewater treatment plant; and**
- 4) identifying and controlling nonpoint sources of pollution in upper Clark Fork tributary drainages.**

**Each of these recommendations was included as a high priority management action in the draft management plan. The "highest priority" short list was intended to serve as a starting point in the implementation process and included only the very highest priorities from each of the three states. The possibility of limited implementation funding was a consideration in the development of the list of highest priorities, as was anticipated costs versus benefits throughout the basin.**

Some of the comments relating to the Stone Container Corporation wastewater discharge permit were not addressed in this management plan. They have been forwarded to the Permits Section Supervisor of the Montana Water Quality Bureau and will be addressed in the forthcoming permit review for this facility. Stone's current permit expires on September 30, 1992.

- There are no scientific references contained in the draft management plan which support the conclusions regarding water quality conditions and the potential effects of management options.

A bibliography containing all pertinent scientific reports was included in the draft management plan. Summaries of all the various project-related studies are included in the individual state management plans. All of the supporting study reports were available at the public meetings or upon request from the steering committee. The three-state management plan was directed at the general public and was not intended to have a scientific format.

- The Soap and Detergent Association opposes the proposed basin-wide phosphate detergent ban on the following grounds: 1) There is no evidence that the elimination of phosphorus from the affected products would result in any water quality improvement in the river basin; 2) phosphate detergent bans are ineffective in improving water quality; and 3) phosphate reductions of 20 percent or greater are required before any measurable change in water quality can occur.

Approximately half of all soluble phosphorus loading to the Clark Fork River originates from wastewater discharges. The phosphate detergent ban which was implemented by the City of Missoula in May 1989 has resulted in a greater than 40 percent reduction in phosphorus loading to the Clark Fork River from the Missoula wastewater treatment plant. Concentrations of phosphorus in the river downstream from this facility have subsequently declined by a large margin. A modeling study conducted by the University of Montana predicted a reduction in algal standing crops in 110 miles of the Clark Fork as a direct result of this action. It seems clear that there have been very tangible water quality benefits associated with the elimination of the sale of phosphate detergents in Missoula. The steering committee will continue to encourage the adoption of similar bans in other basin communities.

- Nitrogen rather than phosphorus is the primary nutrient controlling algal growth in the Clark Fork River.

Studies by the University of Montana suggested that nitrogen limitation, phosphorus limitation or a balance between the two existed for significant periods of time in almost all reaches of the Clark Fork River. It was concluded that management of both N and P could reduce nuisance algal levels and would be

important in protecting reaches without current problems. Furthermore, Idaho researchers have concluded that Pend Oreille Lake is primarily phosphorus-limited. As such, efforts to control phosphorus sources in the Clark Fork River basin will have a direct benefit to Pend Oreille Lake. The Montana Governor's Office, in its 1988 Clark Fork Basin Project Status Report and Action Plan, stated that "Regulatory agencies, industries, municipalities, and public interest groups should work to reduce all forms of nutrient loading to the Clark Fork Basin."

- The potential adverse impacts on fisheries that may result from nutrient controls in the Clark Fork Basin have been overlooked.

This area of concern was addressed in a project-related report entitled "Potential Effects of Nutrient Control Measures in the Clark Fork Basin on Resident Fisheries" (Knudson, 1992). The report concluded there was a low probability of reduced fish production associated with the proposed management actions.

- ... A water quality management plan that does not consider the impact of this planned highway (Sandpoint Bypass) construction is meaningless. The environmental impact from nutrient loading is minor compared to the adverse impact of construction of a bypass across the lake and along Sand Creek.

We admire your commitment to the protection of water quality in Pend Oreille Lake and agree that an action item in Idaho's plan should identify coordination with Idaho Department of Transportation on water quality concerns of the bypass alternatives. However, we regret that you feel our management plan is meaningless. The Clark Fork-Pend Oreille Basin Water Quality Study Steering Committee realized from the beginning that water quality throughout the basin is threatened by a wide range of human activity. Given the budget, however, we had to focus our priorities. In response to the Montana Governors's office report and Idaho resident's concern over increased algal growth on shoreline rocks, the Committee decided to focus on the source and fate of nutrients in the basin. It is the opinion of the Committee that nutrient loading has a major effect on attainment of beneficial uses in the basin. The plan recommends actions which when implemented will abate nutrients throughout the basin.

- ... I am concerned about the lowering of Pend Oreille Lake and the impact on spawning and pollution....

Hydropower development on the inlet and outlet of Pend Oreille Lake is likely the single most important contributor to the decline in sport fish numbers. Idaho Department of Fish and Game speculates that a change in operation policy of Albeni Falls Dam forced kokanee to spawn in sub-optimum conditions. Recently, a petition was initiated to circumvent this problem and allow greater access to the

lake during fall months. Lake level management is a very complicated procedure. It must maximize the benefits from all water uses.

Lower water levels in Pend Oreille Lake would likely have minimal effects on pollution. The Clark Fork River mostly influences lake dynamics. Irrespective of how the river inflow is distributed throughout the lake, net retention of nutrients remains about the same.

- I feel the priority for a stormwater management plan should be increased. Current stormwater discharges into the near shore area would exceed most wastewater treatment plant yearly annual discharges....(EPA) requirements (for permitting stormwater) should be passed to the communities that border the lake.

EPA is currently instituting National Pollutant Discharge Elimination System permits for stormwater discharges from communities over 100,000 in population. This requirement does not strictly adhere to those communities but can be implemented in any community. The need for a County stormwater management plan and accompanying ordinances and enforcement measures to ensure compliance has been realized. This action item has been identified in the tri-state management plan to be of the highest priority and will be one of the first steps taken to reduce nutrients in the basin.

- ... For the past six years, I have been trying to get the Clean Water Coalition to take action on locally generated pollutants (e.g. crank case oil, gasoline) that have been dumped into the lake.... I can not get anyone to do anything about it. I would like your comments on what action would be appropriate when things like this occur.

Idaho's Water Quality Standards and Wastewater Treatment Requirements state that in the case of an unauthorized release of hazardous materials or petroleum products to state waters or to land such that there is a likelihood that it will enter state waters, the responsible persons in charge must stop continuing spills, contain the material, notify DEQ, and collect, remove and dispose of the material in a manner approved by DEQ. The appropriate action would be to notify DEQ.

- ... The report states that "Recreation and tourism are at present mainstays of the local economy." While to some extent that may be true, and certainly both segments of the economy are growing, the timber industry continues to play a strong role in our economy.... If this report is to go out to the public and elected officials, it should be as accurate as possible.

Thank you for bringing this discrepancy to our attention. We strive to be as accurate as possible and will research this further. Our information, as cited in the report, is over a decade old and indicated a decline in employment related to the

**natural resources and a strong increase in service and retail trade jobs. We did not intend to imply that timber industry was not an important component of the local economy but that recreation, tourism, and second home development are growing and will continue to grow.**

- **The activity that offers much benefit to the beneficial uses of ground and surface water is the construction of wastewater treatment plants--especially those using land application of the treated effluent.... My personal philosophy is not that Government should throw money at every concept that might come along. In our case, however, the area is increasingly intensively utilized by people who do not live in the area. It makes sense to me that it is a legitimate expenditure of public funds to help us who are residents to assure that the lake and drinking water of the area remain pure.... the need is still here because many people are moving into the non-urban areas unserved by sewers....**

**Your support of our management action to install centralized sewage treatment systems in developed areas is appreciated. As you probably are aware, this is also a priority for action in the tri-state management plan. When the development of management actions began, the Policy Advisory Committee overwhelmingly supported controlling septic systems to reduce water quality impacts. Federal assistance to help reduce the cost incurred by private citizens will continue to be an important factor. This assistance will have to be evaluated at the time a project is proposed.**

- **... One instance of the challenge facing the Tri-State Management Council is to coordinate the law enforcement efforts of the many agencies involved. Making a list of existing pertinent laws, the agencies and persons responsible for the enforcement of each, and problems in the enforcement of each could be a useful first step. Such a list distributed to all agencies could expedite enforcement....**

**We would like to thank you for your support of a Tri-State Management Council. The specifics you mentioned were also voiced early in the process by the Policy Advisory Committee. There is some information in the Idaho plan which identifies agency authorities. Also, two documents exist which provide more information. These are the Idaho Lake Management Guide and The Citizens Guide to Idaho Water Policy. Compilation of existing information would be the first step of the Council in coordinating enforcement efforts.**

- **... We have great concern that parameters for nutrients could become statutory limits in Lake Pend Oreille. We believe the 5 parts per billion of phosphorus is an unrealistic and arbitrary figure that can not be achieved in the developed bays of the lake. If that figure is allowed to become a ceiling it would preclude development in the few areas that are privately owned.**

**You are correct that 5 ppb total phosphorus near shore was arbitrarily selected. However, the Policy Advisory Committee did not feel it was unrealistic. Target concentrations at which algal growths would not be considered a nuisance were not available. Therefore, this concentration was selected because it represented the total phosphorus concentration in near shore areas which were the desired future condition of the Committee. It should be clarified that 5 ppb is only a target to gauge the attainment of a management goal: to reduce the rate of near shore eutrophication. It is in no way meant to be a statutory limit.**

- **We likewise fear that dependence upon sewers will permit excessive development of both riparian and upland areas which will contribute to a nutrient runoff that will cause those areas to exceed the 5 ppb limit....**

**You are also correct in assuming that increases in urban runoff are often associated with centralized sewage systems. This is because the areas are typically developed to a higher level. This is why we have identified the need for stormwater and erosion control management plans. Like centralized sewage systems, stormwater and erosion control management plans are also tri-state priority actions.**

- **... The use of a rotovator to stir up the milfoil is a poor approach. The milfoil needs to be removed, but there is a better way....**

**Presently, no Eurasian water milfoil exists in Pend Oreille Lake and no large scale aquatic weed control project is recommended. The management actions were in response to the Policy Advisory Committee's concern regarding weed growth in high use areas and near private boat docks. Even though mechanical harvesting is recommended, rotovation is not identified as the preferred alternative.**

- **... The nutrient levels in Lake Pend Oreille are very low and that does not support a significant increase in fish populations. With increased fishing pressure, the lake simply can not produce the number of fish that recreation demands would like to have.... Some balance must be sought between the zero algae proponents and the fishing proponents....**

**The trophic status of the pelagic zone of Pend Oreille Lake has not changed statistically since the early 1950s. During that period sport fish harvests were three to five times current harvest levels. Contrary to your statement, nutrient levels in Pend Oreille Lake do allow increases in fish populations and water quality management goals are supportive of fishery management goals, restoration to past levels of production.**

- **... Clark Fork River loading must be controlled because it has the potential to degrade a stream and drinking water. Whereas the lake does not face that kind of**



pressure, nor is it likely to do so. We do not believe that nutrient load levels set as low as proposed are necessary in the lake and that these levels will preclude future development of private property....

**Pend Oreille Lake does have the potential to decline in water quality. The Clark Fork River contributes the vast majority of inflow into the lake and as such maintenance of open lake water quality is largely dependent upon maintenance or reductions in nutrient concentrations in the Clark Fork River. You are correct in that modeling of open water responses to nutrient loading were relatively insensitive to small to moderate changes in Clark Fork River nutrient loads. However, researchers have shown an ascendancy of green and blue-green algae in the open water. Researchers feel that this could be an indication of increased pelagic productivity.**

- ... Of course, we can not support growth that permits excessive discharges into the lake and we support your call for sewer systems in the denser areas....

**Comment noted.**

- ... We believe that some fill in the lake between 2051 and 2062 MSL for the development of boat basins is acceptable and is probably desirable in order to provide the necessary pump out stations for boaters. The demand for boat slips is growing by leaps and bounds and some accommodation for this recreational potential must be included in your plan....

**We agree that recreational use of the lake is increasing. Our management recommendation to require pumpout stations is directed toward this expectation. Hopefully, an indirect result of implementing this action would be compliance with the no sewage discharge standard; another management action. As for your request to include some provision in the plan for the increased demand for boat slips and docks, the plan is directed toward controlling nutrient sources. We feel the county comprehensive plan would be a better forum.**

- ... The Coalition agrees that education is a key element to the management plan, but we would like to see specific targets set for any education efforts.... the Coalition believes that the education program should be reinforced with ordinances and strong enforcement....

**As originally proposed, numerous management actions had educational components. For example, the Policy Advisory Committee felt it important to educate the lake and watershed users as to the need for stormwater and erosion control plans, the effects of shoreline burning, and about proper lawn fertilizer application rates and methods. These educational components were combined into an educational program. This program is intended to provide the information**

**necessary to support recommended ordinances and to provide a clearinghouse for information to interested and concerned lake and watershed residents.**

- ... We support centralized sewer systems around Pend Oreille Lake. In fact, because sewerage of communities around the lake is occurring, this recommendation is already a priority action. Once the proposed system at Hope and East Hope is underway, the Coalition sees the sewerage of Laclede, Clark Fork, and Trestle Creek as the next targets....
- ... a top priority should be the instigation of strong erosion and stormwater control plans and accompanying ordinances and enforcement measures to ensure compliance....

**Both of these recommendations were included as a priority action in the tri-state management plan. The "highest priority" short list was intended to serve as a starting point in the implementation process and included only the very highest priorities from each of the three states. The possibility of limited implementation funding was a consideration in the development of the list, as was anticipated costs versus benefits throughout the basin.**

## ***Appendix D: Selected News Features and Articles***

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***Articles from Montana, Idaho and Washington newspapers,  
1986 to 1992***

## EPA lake study funded

President Reagan has signed legislation which includes a line item budget for an Environmental Protection Agency study of Lake Pend Oreille, according to Ruth Watkins, Clark Fork Coalition board member.

The legislation, under the HUD and Related Agencies budget, was passed unanimously Friday by Congress, and signed "probably Saturday." It ensures that the EPA will have enough money to study the lake.

A proposal to study the lake was drawn up in 1985 by the U.S. Geological Survey. It calls for a four-year study at a cost of about \$800,000, but it is not known if the EPA will go with that proposal or let it out for bids, Watkins said.

The Clark Fork Coalition is a group of individuals and groups concerned about the water quality in the Clark Fork River system, which includes Lake Pend Oreille. The coalition is based in Missoula and Watkins is the North Idaho board member.

She said she will hopefully be working with the EPA in the process of selecting which proposal is funded, but that the EPA may decide to go with the USGS proposal already on hand.

# Congressmen vow to get water study

Two members of Idaho's congressional delegation have vowed to try again to get approval for a comprehensive study by the Environmental Protection Agency of water quality in the Clark Fork River and Lake Pend Oreille.

Authorization for the study was included in a bill to extend the federal Clean Water Act of 1972, which was vetoed Thursday by President Reagan.

Sen. Steve Symms said Friday that he expects a similar bill with the Lake Pend Oreille amendment will be approved by Congress in early 1987. He said the issue should be resolved by April.

Rep. Larry Craig agreed. He said he would reintroduce legislation to authorize the study as soon as Congress reconvenes in January.

Both Symms and Craig said the president's veto had nothing to do with the Lake Pend Oreille study. Craig said he knew when the bill was passed that the president objected to the \$18 billion allocated nationwide under the bill over an

eight-year period. He said the Reagan administration had recommended a funding level of \$6 million for the bill.

Both Symms and Craig said Congress will try to work out a compromise on the funding for the bill. If a compromise is not possible, Symms said there is enough support for the bill in Congress to override a veto. He noted that the original version was approved unanimously in both the House and the Senate.

Craig said the bill was "well thought out" and included provisions that are important to the quality of water in every state in the nation.

Both Symms and Craig said there should be no objection in Congress to adding the Lake Pend Oreille study to the bill once again.

Neither the Clean Water Act extension nor this year's EPA appropriations bill allocated any specific amount of money for the water-quality study in the Clark Fork River basin and Lake Pend Oreille.

THURSDAY, JANUARY 22, 1987

# Lake study part of approved act

## North Idaho News Network

The Clean Water Act, with instructions for a study of Lake Pend Oreille and the Clark Fork River, and crucial to several North Idaho sewer treatment plants, Wednesday passed the Senate at the \$20 billion funding level over the opposition of Idaho's Steve Symms and five other Republican senators.

The measure passed Wednesday directs that a study be done on possible pollution of Lake Pend Oreille from pulp mills on the Clark Fork River. The industries are suspected of causing the lake to age prematurely.

Symms voted against the act, providing an \$18 billion trust fund to states for construction of sewer treatment plants, favoring instead an amendment that cut the funding to \$12 billion, said Symms' legislative aide Trent Clark.

The remaining \$2 billion in the congressional plan would cover a variety of other features of the clean water program, including administrative costs at EPA and \$400 million to help states study ways to combat non-point source pollution.

The \$20 billion package, having

passed the Senate 93-6 and the House 406-8, now heads to the desk of President Reagan, who has promised to veto as he did last year.

Symms believes the \$20 billion program is too costly, in light of the federal budget deficit, and that the amended version would be approved by the president, thus allowing the programs to proceed more quickly, Clark said.

Sen. James McClure, R-Idaho, voted with the majority in approving the \$20 billion package.

Federal grants under the Clean Water Act have enabled a great deal of construction in northern Idaho over the past five years, said Roger Tinkey, senior water quality engineer with the Idaho Division of Environment in Coeur d'Alene.

North Idaho treatment plant projects currently on the priority list for federal grants are expansions at Coeur d'Alene and Post Falls and new plants at Rathdrum, Hope, East Hope and Bayview. All of the cities are on a lake, a river or over the Rathdrum Aquifer.

Idaho is slated to receive about 1/2 of a percent of the money, or \$59.6 million through 1990.

BONNER COUNTY

DAILY BEE

7/28/87

## EPA study of Clark Fork, lake urged

Idaho Congressman Larry Craig says he wants to know why the Environmental Protection Agency has not yet begun its study of pollution in the Clark Fork River and Lake Pend Oreille.

Craig said the study was mandated in an amendment, which he introduced, to the Clean Water Act. That act was passed by Congress in January.

The First District congressman said the EPA informed him last month that a research plan for the river and lake was under way. Now, he said, he has learned that work has not begun on the project.

In a letter to EPA Denver Administrator Jim Scherer, Craig said: "I view this lack of response by the EPA to be less than satisfactory, and it runs contrary to my amendment that as adopted in the Clean Water Act.

"Since EPA has shown an unwillingness to move expeditiously on their own accord, I am now requesting an in-depth update on the status of the study and the reasons for delay."

Craig said his letter reminded the administrator of "the importance the project holds for the people of Idaho and Montana alike."

A press release by Craig said his amendment addressed the deterioration of water quality in the lake and the river system and provided federal money for a comprehensive study, a report and a public education program.

Because much of the watershed in the system is federally owned, Craig said, the federal government has a responsibility to take the lead in ensuring its water quality.



# EPA visits Lake Pend Oreille

By TED NELSON  
The Daily Bee

Water quality in Lake Pend Oreille and the Clark Fork River is now being studied in Duluth, Minn.

Two biologists from the Environmental Protection Agency's environmental research laboratory in Duluth recently completed a two-week trip to Idaho and Montana to learn all they could about the lake and the river.

According to state officials in Idaho and Montana, the purpose of the visit was to obtain information needed to formulate plans for a much more extensive water-quality study than has yet been conducted in the Clark Fork drainage.

Mike Beckwith of the Idaho Division of Environment office in Coeur d'Alene reported that he spent much of last week with research biologist Bill Sanville and research aquatic biologist Jack Arthur of the EPA Office of Research and Development in Duluth.

"I think they got their eyes opened to the size of this lake and the nature of this area," Beckwith said. "I think they now see why there is the level of concern here that there is."

Sanville and Arthur have now returned to Duluth but were un-

available for comment today.

Beckwith said he took the two federal biologists on a boat tour of the developed and undeveloped shoreline of Lake Pend Oreille and the Pend Oreille River. He said the EPA has computer access to all data already collected on water quality in both rivers and the lake.

Beckwith said he does not believe the EPA intended that the two-week trip would constitute the water-quality study mandated in the 1987 Water Quality Act approved by Congress in January.

In July, Peter Nielsen, executive director of the Clark Fork Coalition, expressed disappointment that plans for these studies had not yet been completed. He said he was concerned that the EPA might use the two-week trip to satisfy the Congressional mandate.

Nielsen met with Sanville and Arthur in Missoula Aug. 27. He said it appears that the biologist's trip was a planning exercise aimed at the development of a comprehensive two or three-year study to be started next summer.

But he added, "I am still concerned that this could be the end of the line if we don't keep working. I think we need to remain ever vigilant to make sure that they

follow through on this."

Loren Bahls of the Montana Water Quality Bureau reported that he met with Sanville and Arthur during the last week of August. He said the biologists spent one day in Helena, one day in Missoula and one day on the Clark Fork River.

Bahls said the EPA officials were given data that had been previously collected during other studies. But he said he was under the impression that the data would be used for planning studies on a much larger scale.

Both Bahls and Beckwith said they are still waiting for more specific information about the scope and estimated cost of the proposed EPA study. They both said the biologists apparently agreed that much more work should be done to determine the causes of pollution in the drainage.

"I talked with them for quite some time about the data gaps and what it would take to fill those gaps," Beckwith said. "We would never let them get away with calling this their study. I think they were just on a reconnaissance mission to find out just what was available here."

Nielsen said two recent develop-

Continued on page 12

PAGE 12—SANDPOINT DAILY BEE—THURS., SEPT. 10, 1987

## Water quality

Continued from page 1

ments have caused him to become more optimistic about the possibilities for a comprehensive study. He said the Region 8 EPA office in Denver recently reported that it has \$102,000 available for water-quality studies on the Clark Fork.

Nielsen noted that the EPA Region 8 includes Montana, but North Idaho is in Region 10, which has headquarters in Seattle.

The Clark Fork Coalition director said he was also glad to see the awarding of a \$77,000 Clean Lakes grant from the EPA to the state of

Idaho for aerial, infrared photography studies of the shoreline of seven North Idaho lakes, including Pend Oreille.

Nielsen said officials from the EPA's Duluth office visited Idaho and Montana in February and said they would have a final proposal or assessment completed by May. Nielsen said he no such report has yet been made public.

In a letter to the Sandpoint Daily Bee dated Aug. 18, EPA Region 10 Administrator Robie G. Russell said the biologists from Duluth would prepare a final report after

their visit, "which will set the stage for a complete assessment of the entire lake and river system."

"Just as you don't begin to build a house without a blueprint," Russell said, "you don't begin a study as important as the Lake Pend Oreille-Clark Fork effort without a carefully planned design."

Russell said the focus of the biologist's work on Lake Pend Oreille "is to identify what the problems on the lake are and where they are coming from."

9/24/87

## Solons unite to urge study of water quality

WASHINGTON (AP) — Six Northwest senators are pushing for a \$415,000 federal appropriation to study water quality in the Idaho Panhandle's Lake Pend Oreille and Clark Fork and Pend Oreille rivers.

Idaho Republicans James McClure and Steve Symms were joined by Republican Dan Evans and Democrat Brock Adams of Washington, and Montana Democrats John Melcher and Max Baucus in signing a letter requesting the funding from Sen. William Proxmire.

The Wisconsin Democrat chairs the Senate Appropriations subcommittee that reviews funding requests for the Environmental Protection Agency. The panel is scheduled to discuss EPA budget proposals for fiscal 1988 on Friday.

"This money is needed so we can diagnose and treat the lake's problems before cleanup becomes a major undertaking," McClure said Wednesday.

The senators asked that

\$315,000 of the money be earmarked for continuation of a study begun earlier this year on nutrient loading and heavy metal concentrations in the lake and Clark Fork River, which drains into the lake.

The money would be in addition to \$77,000 the EPA designated five weeks ago for water quality studies in the lake and river.

The senators urged that another \$100,000 be allocated for study of Eurasian milfoil in the Pend Oreille River, which flows out of Lake Pend Oreille

and cuts across northeastern Washington. The study would involve discovering the source of the aquatic weed and determining ways to remove it from the river.

McClure said Eurasian milfoil is so prolific that it has destroyed more than 80 percent of the Pend Oreille River's sport fishery.

11/5/87

## Clark Fork River study by UM gets funding

MISSOULA — Nuisance algae growths in the Clark Fork River will be studied during the next 14 months under a grant to the University of Montana.

Montana's Department of Health and Environmental Sciences awarded the \$100,000 study grant to determine the cause of the growths in the Clark Fork.

Algae are present in the river naturally, but too much algae can cause unsightly growths, reduce the amount of oxygen dissolved in water, make the water taste and smell bad and snag fishing lines, a news release from the department said.

Excess algae have been a problem in the Clark Fork since discharges of toxic metals to the river first were treated effectively in the early 1970s, the department reported.

The department's Water Quality Bureau will use results of the study to determine whether it will be feasible to reduce algae levels in the river by limiting the discharge of nutrients or by controlling other factors.

The study will run through

December 1988. It will be directed by Dr. Vicki Watson, an associate professor of botany at the university, who has spoken in Sandpoint about the quality of water in the Clark Fork and Lake Pend Oreille.

Dr. Max Bothwell, chief of the aquatic ecology division of the National Hydrology Research Institute in Saskatoon, Saskatchewan, will serve as special consultant for the study.

Researchers will analyze samples of algae collected from 15 river locations and conduct fertilization experiments in artificial streams to be constructed at the Missoula wastewater treatment plant. Watson will develop a model to predict algal growth based on nutrient concentrations and other variables.

Funds for the study were provided by the U.S. Environmental Protection Agency. The Water Quality Bureau will supply necessary river nutrient data to the study through a monitoring project funded by the Montana Legislature in 1987.

## BRIEFS

### Gov also seeks study funding

BOISE (AP) — Gov. Cecil Andrus is seeking the help of Idaho's congressional delegation to win release of \$1 million in federal money earmarked for two water projects critical to the Panhandle.

Andrus told the members of the delegation in a letter sent Monday he was "very disturbed" by the Reagan administration's Office of Management and Budget ignoring congressional intent by withholding \$700,000 for blocking contamination of the Spokane-Rathdrum Prairie Aquifer and \$300,000 for the Clark Fork River-Lake Pend Oreille degradation study.

"Although I fully recognize the need for fiscal restraint in the federal budget, I feel that these two projects are absolutely critical for the protection of the environment in North Idaho at this time," the governor said.

Since the federal money was allocated, Andrus said the state had devoted considerable resources to developing cooperative work plans with Washington and Montana on the two projects.

Protection of the aquifer is critical to a third of a million people in the Panhandle and eastern Washington, he said, while moving to curb water quality degradation in Lake Pend Oreille is imperative as development of the Clark Fork drainage intensifies.

"I am extremely reluctant to allow these (state) resources to have been wasted by being unable to implement these programs," the governor said.

**Sale of**

BONNER COUNTY  
DAILY BEE

5/4/88

## Chaney: Pollution of lake disgraceful

By MALCOLM HALL  
The Daily Bee

An angry Sandpoint Mayor Ron Chaney today said the shoreline of Lake Pend Oreille here is knee-deep in foam and he wants something done about it.

He is so angry he is writing to President Ronald Reagan and Gov. Cecil Andrus to urge release of \$300,000 in federal money earmarked for a water quality study of the Clark Fork and Pend Oreille rivers and the lake.

"We must identify the source of this pollution," said Chaney. "Lake Pend Oreille is the lifeblood of our community. It not only generates a great deal of income through tourism but it is also one of our primary sources of pleasure. To see it polluted is disgraceful."

Chaney said the shoreline on the south side of the city was covered with more than a foot of foam.

The federal money was allocated by Congress this year but is being held up by the Office of Man-

agement and Budget. It is part of \$1 million earmarked to study the river and lake and the Spokane-Rathdrum Prairie Aquifer.

Andrus and the Idaho congressional delegation have been applying pressure for release of the funds to no avail yet. Rep. Larry Craig, R-Idaho, has said he will introduce new legislation for the already approved funding if necessary.

"Although I fully recognize the need for fiscal restraint in the federal budget, I feel these two projects are absolutely critical for the protection of the environment in North Idaho at this time," said the governor.

"Lake Pend Oreille has always been a beautiful, pristine body of water. We must find this source of pollution and only the federal government can help us in this endeavor," said Chaney. "Please release the water quality funds before it's too late."

BONNER COUNTY  
DAILY BEE

5/3/88

# OPINION

## Water-quality funds too important for this

It's been said before and probably will be again, but the point has to be made as many times as possible when it comes to talking the federal government into releasing approved funding for Pend Oreille and Clark Fork water-quality studies: Let our money go.

First, \$300,000 in funding was tied up by the Environmental Protection Agency after people who care about water quality in North Idaho, eastern Washington and western Montana had been told the money would be coming.

Now, it's the Office of Management and Budget that has opted to not release the water-quality study funding.

Our people in Congress — Rep. Larry Craig and Sens. Jim McClure and Steve Symms — agree that that money should be released by the federal government so it can do some good. Gov. Cecil Andrus also has lent his support to the effort to get the money freed up.

Thanks to bureaucrats making decisions after elected officials have mandated it, however, the funding could not do any good this year. It's May, and that's too late to begin meaningful data collecting for this season.

The congressional delegation should be encouraged to keep up the fight to get the funding needed to gather water-

quality data on the Pend Oreille and Clark Fork rivers and Lake Pend Oreille. Too much time has been lost already as these waters become more polluted with each passing day.

Even the EPA has logged onto the support side of the ledger. And if all this wrangling does no good, Craig has promised to introduce new legislation to get the funding.

But he shouldn't have to do that. The funding has been approved. Again: Let our money go. Our water is too precious to be lost over infighting in Washington, D.C.

# Funding salvaged for Lake Pend Oreille study

By Dean Miller  
Staff writer

SANDPOINT — Last week's meeting between the heads of the Environmental Protection Agency and the Office of Management and Budget appears to have salvaged funding for the Lake Pend Oreille/Clark Fork River pollution study.

But a \$700,000 study of pollution in the Rathdrum-Spokane aquifer is still held up and the money may not be freed.

Officials in Washington, D.C., and Idaho said Wednesday that EPA administrator Lee Thomas was able to convince OMB director James C. Miller III to release the

\$300,000 Congress set aside to study algae growth here.

"You've heard it before, the check's in the mail," said Mike Beckwith, the Idaho Division of Environmental Quality staffer who will direct the project here.

Rep. Larry Craig, R-Idaho, said he and Thomas were able to convince Miller that the study was not a "pork barrel" project of interest to a single congressman.

"It is a tri-state issue," said Craig, who pointed out that the study will affect Idaho, Montana and Washington.

"That, plus the fact that it is not an ongoing appropriation, are the reasons they

felt they could pull this water quality study out of the group," he said.

Craig said that because this study was written into the EPA's budget and not simply appended to it, as many special interest projects are, the OMB felt it was a legitimate way to spend EPA money.

The Rathdrum-Spokane aquifer study needs to move ahead in tandem with the Lake Pend Oreille/Clark Fork River project, said Craig, who said he is still lobbying Miller to release those funds.

Beckwith said that most of the study season is already lost, but that some work will get under way, including a study in

which tiles are hung in the lake to see how fast algae grows in different parts of the lake.

An aide to Craig said the congressman spoke with Miller Wednesday morning, when Miller announced the funds would be released.

Congress funded both studies last year, but OMB held up the funds as part of a review of the federal budget.

Thomas went to bat for the two local projects and three others in a meeting last week.

The budget-pinching OMB has been battling with Congress for more than a month

over 246 projects in a number of agencies. At stake is \$6.9 billion.

Miller claims that since the directions for spending the money were in accompanying "committee reports," never formally adopted by Congress, they do not have the force of law.

But Sen. Jim McClure, R-Idaho, said Wednesday that Miller is exercising budgeting powers that administration agency heads do not have.

"I think if Congress has the power of the purse, we ought to insist that they spend the money," said McClure.

THURSDAY, MAY 12, 1988

THE SPOKESMAN-REVIEW

PAGE B1

REGIONAL NEWS

THE NORTH  
IDAHO HANDLE

BUSINESS  
ON PAGE B3

# 3-year study will focus on Pend Oreille, Clark Fork

By Dean Miller

Staff writer

The patient, which lies stretched across three states, will be sampled, poked, prodded and photographed. In three years, researchers hope to have enough information for a diagnosis.

At a standing-room-only meeting Wednesday night, the Clark Fork Coalition and a bevy of scientists laid out for the public their plans for a three-year study of the Clark Fork River, Lake Pend Oreille and the Pend Oreille River.

Armed with \$300,000 in federal grants this year, they are hoping to learn more about what makes algae

grow in the water and slime coat shoreline rocks in the big lake.

In the Pend Oreille River, they will seek the cause of a Eurasian Milfoil plague. In the Clark Fork River, they will keep an eye on how Missoula sewage, heavy-metal mine waste and paper mill waste affect fish and other aquatic life.

"This is the beginning of a lifelong job," said Mike Beckwith, the Division of Environmental Quality limnologist who will oversee the half-dozen agencies studying Lake Pend Oreille. Beckwith told the crowd that after scientists get a better idea what is causing pollution problems in Lake Pend Oreille, the public will be asked to choose a plan to

maintain high water quality here.

About 100 people packed the Edgewater Lodge conference room, which has a wall of windows overlooking the lake.

"Lake Pend Oreille is aging faster than it should due to man's activities; we need to find out what all those activities are," said Ruth Watkins, a Sandpoint woman active in the Clark Fork Coalition's three-year battle to win funding for the study.

Lacking the staff to take on the study of Idaho's largest lake and the rivers that flow into and out of it, Beckwith's agency has contracted with other agencies to compile data on the lake's health and other characteristics.

The U.S. Geological Survey will sample the lake's water at five locations and will keep track of the amount of water and its nutrient content flowing from the following streams: Clark Fork River, Lightning Creek, Rapid Lightning Creek, Pack River, Sand Creek, Priest River, and the Pend Oreille River at Newport.

University of Idaho researchers working under Professor Mike Falter will continue hanging unglazed ceramic tiles in 20 shallow areas of the lake to see where algae grows fastest.

Bonner County's Planning Department will provide researchers with an inventory of how land around the lake is used, said county planner Lorin Morgan.

# DAILY BEE

SERVING BONNER COUNTY FROM SANDPOINT, IDAHO SINCE 1965

**Friday**

**SEPTEMBER 16, 1988**

Vol. XXIII No. 76

## BRIEFS

### Cocolalla man wins lottery

Carl Heidenreich of Cocolalla was announced as the top winner Thursday in the Montana Lottery's Million Dollar Big Spin.

He and his wife Neomi went to Butte Thursday to pick up their check for \$5,000.

Mrs. Heidenreich said said the couple had bought the ticket "somewhere in Montana" when they stopped to get gas while returning from a family reunion in Nebraska.

She said they learned of their windfall a week ago. Amounts \$5,000 and under are not taxed so "we got the whole thing", she said.

Heidenreich indicated much of the money would go for bills since "we've been unemployed for a long time".

Peggy Thurston of Missoula won \$4,000 and Linda Meyer of

## Water quality public forum set

A question and answer session about the upcoming Lake Pend Oreille water quality study will be held at 7:30 p.m. Wednesday in the Edgewater Lodge meeting room.

The meeting is sponsored by the Clark Fork Coalition and Greater Sandpoint Chamber of Commerce.

The three-year water quality study of Lake Pend Oreille will begin next month.

"For the next three years, our lake will be the subject of an intensive study. At Wednesday's meeting the public can find out exactly what the researchers will be looking for, and what they'll do with the data once they get it," coalition member Ruth Watkins said.

The meeting's purpose is to inform people about the study. Information will be provided on what researchers are looking for; what they'll do with gathered information; how the public can get involved; and how the study will affect recreation and people who live in the county.

"We are looking for citizens who are interested in doing some limited technical water quality sampling in the bays of Pend Oreille," Watkins said.

After the study is completed, the public will be given the opportunity to have a say in management of the resource.

The agenda will include:

- A slide show, "Crossroads of a Troubled River", about the issues facing Lake Pend Oreille and the Clark Fork River.

- A lake study overview by project coordinator Mike Beckwith of the Idaho Division of Environmental Quality.

- Goals and roles of agencies involved with the study. Included are Paul Woods, U.S. Geological Survey; Dr. Mike Falter, University of Idaho; Lorin Morgan, Bonner County planner; Bob Camp, Panhandle Health District; and Watkins, Clark Fork Coalition.

- Coalition researcher Bruce Farling also will discuss the Rock Creek mining project in western Montana and what it could mean to Lake Pend Oreille.

"What we have here is an outstanding opportunity. It is essential that the business community and the public at large become involved in this process if we are to have a meaningful effect on the lake's water quality," Watkins said.

The study is funded by federal Clean Water Act money from EPA. Estimated total funding could reach \$400,000. EPA grant money also is being used to study the Clark Fork River in Montana and the Pend Oreille River in Washington.



## NORTH IDAHO ROUNDUP

■ At a standing-room-only meeting Wednesday night, the Clark Fork Coalition and a bevy of scientists laid out for the public their plans for a three-year study of the Clark Fork River, Lake Pend Oreille, and the Pend Oreille River.

Armed with \$300,000 in federal grants this year, they are hoping to learn more about what makes algae grow in the water and slime coat shoreline rocks in the big lake.

In the Pend Oreille River, they will seek the cause of a Eurasian Milfoil plague. In the Clark Fork River, they will keep an eye on how Missoula sewage, heavy metal mine waste, and paper mill waste affect fish and other aquatic life.

"This is the beginning of a life-long job," said Mike Beckwith, the Division of Environmental Quality limnologist who will oversee the half-dozen agencies studying Lake Pend Oreille.

The big lake got about \$152,000 of the \$300,000 set aside for the project this year. Beckwith told the crowd that after scientists get a better idea what is causing pollution problems in lake Pend Oreille, the public will be asked to choose a plan to maintain high water quality here.

If Wednesday's crowd was any indication of public interest, the study will be closely watched and government officials should have little difficulty gathering citizens' opinions on how the lake should be managed.

About 100 people packed the Edgewater Lodge conference room, which has a wall of windows overlooking the lake.

"Lake Pend Oreille is aging faster than it should due to man's activities; we need to find out what all those activities are," said Ruth Watkins, a Sandpoint woman active in the Clark Fork Coalition's three-year battle to win funding for the study.

Researchers will take to the lake in October.

# BONNER COUNTY DAILY BEE

JANUARY 17, 1990

35 CEN

## Funds guarantee lake study completion

By BILL BULEY  
Staff writer

SANDPOINT — A three-year study of local waters should be completed on time in 1991 thanks to a financial present from Uncle Sam.

The Environmental Protection Agency water quality study of Lake Pend Oreille and the Clark Fork and Pend Oreille Rivers will receive \$339,750 for fiscal year 1990, according to Idaho Congressman Larry Craig.

Mandated in an amendment he helped attach to the Clean Water Act passed in January 1987, the comprehensive, tri-state study has

received similar installments in fiscal years 1988 and 1989.

Section 525 of the Clean Water Act requires the EPA to conduct a comprehensive study of the sources of the pollution in Lake Pend Oreille and the Clark Fork River and its tributaries in Idaho, Montana and Washington.

Ruth Watkins, representative of the Clark Fork Coalition and local water quality advocate, said the funds will bring about the completion of the three-year study begun in 1988.

"This chunk of money will complete the final year of the study," she said. "We knew all along it was

going to get the money to finish it up — we were all expecting it."

But according to Craig, the funds were not easy to come by. Even after Congress passed the Clean Water Act with the amendment, Idaho Senator Jim McClure and Craig had to convince the White House to release fiscal year 1988's portion.

The Clark Fork Coalition has been participating on the technical and policy advisory committees during the lengthy study.

Watkins said the "whole idea (of the study) is to find out the amount of nutrients going to the system and where they're coming from"

to develop a water management plan.

She noted the results of the study, along with public input, will comprise the completed management plan for the three states.

Watkins said water quality agencies from the three states — the Department of Ecology from Washington, the Division of Environmental Quality from Idaho, and a Montana water quality department have "meshed together well" on the project.

A United States Geological Survey team and the University of Idaho are the two main organizations "out on the water doing the

sampling," according to Watkins.

She said officials from the Bonner County Planning Department, Eastern Washington University and the Panhandle Health District are performing studies on grounds surrounding the waters.

"Idahoans realize one of our most important resources — water — spans state boards," Craig said. "And when it comes to water coming in from, and leaving Idaho, we must work with both neighboring states and the federal government to maintain its quality."

Craig says he expects the results of the comprehensive study to be

See FUNDS, page 6

## FUNDS

CONTINUED from page 1

complete and presented to Congress by late 1991.

"A comprehensive look at the problem is necessary so we can avoid patchwork solutions to regional water quality problems," he said. "Idaho, Montana, Washington, the EPA and other federal and local entities must move as quickly as possible to implement long term solutions."

4/7/91

## Pend Oreille Lake nutrient loading studied

By MIKE McLEAN  
Staff writer

SANDPOINT — A U.S. Geological Survey study indicates that most of the phosphorous and nitrogen nutrient loading in Lake Pend Oreille comes from the Pend Oreille River, but other sources may contribute to nutrient loading at a rate higher than previously thought.

Paul Woods of the USGS presented findings of a study model Friday at a joint meeting of the technical and policy advisory committees of the Lake Pend Oreille Study Project.

The model breaks the Pend Oreille Basin into three segments;

the deep southern portion, the shallow north portion, and Pend Oreille River from the lake outlet to Albeni Falls Dam near Priest River.

The model shows the river and the north segments would be affected most by increased or decreased nutrient loading.

While lake water quality is still rated good — especially in the open portions of the lakes, higher proportions of nutrients are present in shallow bay areas.

Lake Pend Oreille has been determined to be sensitive to phosphorous loading. Nutrient loading, if unchecked, could lead to explosive growth of plant life and degradation of water quality.

"Historically the thought was

since the Clark Fork supplies 90 percent of the water, that was the source of nutrient loading," said Ruth Watkins of the Clark Fork Coalition. But about a third of all phosphorous loading comes from sources other than the Clark Fork. "So we may have to look for a solution ourselves and not just look to Montana."

Watkins said nutrient loading is prevalent around shore areas, especially in developed areas.

The committees requested more detailed information from the USGS concerning near-shore areas.

"The information has been collected," she said. "They need to get it in a usable form."

Waters of the Clark Fork are

### Traces of copper found in lake fish

Idaho Department of Fish and Game and the Division of Environmental Quality are looking into a possible abnormality found in five Lake Pend Oreille fish.

A tissue study of the fish found a high amount of copper when compared to the tissue samples of fish taken from other lakes.

The issue was discussed in Sandpoint Friday at a joint meeting of the technical and policy advisory committees.

While the copper level was within safe limits, committee members requested the IFG look into the matter to see if it is an indication of possible future water quality problems.

improving according to Gary Ingman, environmental specialist for the Montana Water Quality Bureau.

5/1/91

# Study reveals Pend Oreille is really two lakes

By CAROLINE LOBSINGER  
Staff writer

SANDPOINT — Lake Pend Oreille is more than it seems at first glance. In fact, a recent study shows the lake really has two separate identities.

The initial study of the lake, completed last year, shows that Lake Pend Oreille is really two different lakes, said Ruth Watkins of the Clark Fork Coalition. Watkins is the chair of the Idaho policy committee, which is studying the lake.



Ruth Watkins

The report on the Clark Fork/Pend Oreille Basin was recently released by the Environmental Protection Agency. It details efforts by groups and agencies in Washington, Idaho and Montana to preserve the 60,000-square-mile basin.

Lake Pend Oreille is not only a open, deep water lake, it is also a shallow, near-shore bay, Watkins said.

The shallow, near-shore areas of the lake are highly degraded and show signs of high use.

"That's evidenced by the algae we see there and the heavy weed growth," she said.

The areas where the lake is the most affected are also the areas where there's been the most development.

"I think we can draw some conclusions from that," she said. "The more development there is, the more the area is affected and we see more impact on the water quality."

While the near-shore areas of the lake show signs of high use,

the deep sections of the lake are in good shape, Watkins said.

"The open waters are really in very good shape and are of very high quality," she added.

The information gathered by the policy committee and the various agencies involved in the project is being feed into a computer simulation program by the U.S. Geological Survey. The simulations will help the group determine what could be done to preserve the basin.

See LAKES, Page 12

## Lakes

Continued from Page 1

The agency has completed 8-10 surveys of the open, deep water areas of the lake and has to complete any of the shallow, near-shore sections, Watkins said.

Watkins said she would like to see a lot more simulations done on the shallow, near-shore areas. The remaining simulations could be completed by late spring or early summer.

"I feel the simulations for the near-shore areas are the ones

most likely to give us the direction we need to come up with a lake management plan," she said.

The management plan needs to be developed and approved by the public before the end of the year, she said.

The goal of the Idaho policy committee is to develop a twofold approach to a lake management plan.

"We want to maintain the high quality water we're seeing in the open waters and at the same time we need to make every effort to improve the degraded conditions

# Sewage plants staining river

By **SHERRY DEVLIN**  
of the Missoulian

Sewage treatment plants in Missoula, Deer Lodge and Butte are the biggest sources of the pollution that strangles the Clark Fork River with algae each summer, a state water quality specialist said Thursday.

Gary Ingman said a three-year study of nutrient pollution along 320 miles of the Clark Fork — from Butte to Idaho's Lake Pend Oreille — traced the river-greening algae to phosphorus and nitrogen discharged by the sewer plants.

Other polluters included Stone Container Corp.'s pulp mill at Frenchtown and the many farms and ranches along the Clark Fork and its tributaries.

In worst shape is the upper river from Warm Springs to Missoula, where Ingman said heavy growths of algae likely are caused by a combination of high sewage loads (from Butte and Deer Lodge), agricultural runoff and low stream flows (from irrigation).

Ingman's research, presented to an evening meeting of the Clark Fork Coalition, was part of a \$1-million, three-state effort to pinpoint sources of phosphorus and nitrogen in the Clark Fork River basin. It will be included in a draft management plan for the basin to be released early next year.

## River

(continued)

While Missoula's sewer plant remains the largest single source of phosphorus and nitrogen in the Clark Fork, Ingman applauded a local phosphate detergent ban for reducing the plant's phosphorus discharges by 44 percent.

Missoula banned phosphate detergents in May 1989; Superior and Albion have similar restrictions.

Because phosphorus is dissolved in water and not tied to soil particles, it encourages the rapid growth of algae in the river. When the algae decomposes, it uses oxygen needed by fish.

The result, Ingman said, is a river that often "turns green from bank to bank in the summer," when stream flows are low and algae growth is quick. It smells, kills fish and is a menace to fishermen and floaters.

Downstream, the worry is that nutrients will flow into Lake Pend Oreille and ruin its transparent water quality, Ingman said. The lake is now algae-free.

Thus, Ingman's preliminary recommendations:

- Enact bans on the sale of phosphate detergents in Butte and Deer Lodge.

- Establish a consistent and aggressive policy within the state Water Quality Bureau that prohibits new or enlarged sources of nutrient pollution along the Clark Fork.

- Encourage cities, including Missoula, to consider new ways to reduce nutrient pollution — such as irrigating and fertilizing fields with sewage effluent.

- Control the agricultural sources contributing nutrients to

# INDEPENDENT RECORD

Helena, MT 59601

(Daily 13,200)(Sun. 13,760)

NOV 24 1991

SUPERIOR CLIPPING SERVICE

Billings, MT 59105-0789

## Cities sewage greens Clark Fork ■

MISSOULA (AP) — Sewage treatment plants in Missoula, Deer Lodge and Butte are the biggest sources of the pollution that strangle the Clark Fork River with algae each summer, a state water quality specialist says.

Gary Ingman said a three-year study of nutrient pollution along 320 miles of the Clark Fork — from Butte to Idaho's Lake Pend Oreille — traced the river-greening algae to phosphorus and nitrogen discharged by the sewer plants.

# MONTANA STANDARD

Butte, MT 59701

(Daily 17,500)(Sun. 17,800)

NOV 24 1991

SUPERIOR CLIPPING SERVICE  
Billings, MT 59105-0789

# GREAT FALLS TRIBUNE

Great Falls, MT 59403

(Daily 33,964)(Sun. 40,955)

NOV 24 1991

SUPERIOR CLIPPING SERVICE

Billings, MT 59105-0789

## Sewage plants clog Clark Fork

MISSOULA (AP) — Sewage treatment plants in Missoula, Deer Lodge and Butte are the biggest sources of the pollution that strangle the Clark Fork River with algae each summer, a state water quality specialist says.

Gary Ingman said a three-year study of nutrient pollution along 320 miles of the Clark Fork — from Butte to Idaho's Lake Pend Oreille — traced the river-greening algae to phosphorus and nitrogen discharged by the sewer plants.

Other polluters included Stone Container Corp.'s pulp mill at Frenchtown and the many farms and ranches along the Clark Fork and its tributaries.

In worst shape is the upper river from Warm Springs to Missoula, where Ingman said heavy growths of algae likely are caused by a combination of high sewage loads from Butte and Deer Lodge, agricultural runoff and low stream flows because of irrigation.

Ingman's research, presented to an evening meeting of the Clark Fork Coalition Thursday, was part of a \$1 million, three-state effort to pinpoint sources of phosphorous and nitrogen in the Clark Fork River basin. It will be included in a draft management plan for the basin to be released early next year.

## Sewage plants tagged as big polluters

MISSOULA (AP) — Sewage treatment plants in Missoula, Deer Lodge and Butte are the biggest sources of the pollution that strangle the Clark Fork River with algae each summer, a state water quality specialist says.

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miles of the river traced the algae to phosphorus and nitrogen discharged by the sewer plants.

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# BILLINGS GAZETTE

Billings, MT 59103

(Daily 56,554)(Sun. 59,452)

NOV 25 1991

SUPERIOR CLIPPING SERVICE

Billings, MT 59105-0789

## Sewage plants blamed for clogging Clark Fork

HELENA (AP) — Sewage treatment plants in Missoula, Deer Lodge and Butte are the biggest sources of the pollution that strangle the Clark Fork River with algae each summer, a state water quality specialist says.

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miles of the Clark Fork — from Butte to Idaho's Lake Pend Oreille — traced the river-greening algae to phosphorus and nitrogen discharged by the sewer plants.

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tributaries.

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# **BONNER COUNTY DAILY BEE**

VOL. 26 NO. 162

SUNDAY, DECEMBER 8, 1991

ONE DOLLAR

## **Pend Oreille Lake workshops Dec. 18**

**SANDPOINT** — Informational workshops on a proposed list of Pend Oreille Lake management alternatives have been scheduled for Wednesday, Dec. 18 at the Athol Elementary School Library, and Thursday, Dec. 19 at the Federal Building off Dover Highway in Sandpoint.

The workshops will begin at 7 p.m. Residents of the Pend Oreille Lake watershed and/or all interested citizens are encouraged to attend one of these meetings.

The workshops are sponsored by the Idaho Division of Environmental Quality (DEQ). The purpose is to present the final results of studies from the three year Lake Pend Oreille Project, and importantly, to elicit public response and comments on man-

agement alternatives which could be applied within the lake watershed to protect and preserve the quality of Pend Oreille Lake.

Public input from the meetings will be incorporated into the development and implementation of a Lake Management Plan.

The list of management alternatives focus on public education, guidelines, and enforceable regulations to control lake pollutants within the following areas: Road construction; forest practices; agriculture; fertilizer use; septic systems; stormwater; boat use; shoreline burning; metals toxicity; construction; development density; point source.

For any questions regarding the workshops call Glen Rothrock, DEQ, Coeur d'Alene, 667-3524.

## Guest Opinion

# 'Prescription' coming for our patient, Lake Pend Oreille

By RUTH WATKINS

Consider for a moment this scenario: a patient goes to the doctor for help with an ailment; after a full examination, the prognosis is good, but the doctor prescribes some remedies to ease the patient's symptoms and to prevent future problems.

Now imagine this patient as a body of water — Lake Pend Oreille, to be exact — which has been examined from one end to the other over the last few years by state and federal researchers. These "doctors" have declared our "patient's" open waters to be in good health. However, signs of degradation have been found in the lake's nearshore areas, in the form of a heavy algae, weeds and scum. So a prescription has been written to maintain the patient's good health and to help improve the trouble spots.

Who has a say in how the prescription will read? You do!

In mid-December, the state Division of Environmental Quality (DEQ) will hold public workshops to unveil the "prescription" — the long-awaited Lake Pend Oreille Management Plan. The importance of this plan cannot be overstated: if properly written and enforced, it will be a powerful tool for protecting the lake for ourselves and future generations.

So what is this lake management plan? The plan is a document that will set specific measures for controlling polluting activities in the lake's watershed. The plan will address such things as septic

systems, erosion, stormwater, fertilizers, development, construction and forest and agricultural practices. While community education will play a key role in carrying out the plan, certain control measures in the plan will be adopted by local governments and will be enforceable.

A sampling of the options possible for our lakes prescription include:

- setting specific guidelines for road construction, general construction, setbacks, fertilizer use, boat use and other high-impact activities;
- improving requirements for dense development;
- inspecting septic systems on a mandatory basis in lakeshore and streamside areas;
- developing county-wide erosion and stormwater ordinances;
- providing tax incentives for improved agricultural practices in sensitive areas.

DEQ, with the help of an advisory committee comprised of local organizations, citizens and elected officials, has put together a draft plan and wants your opinions. Mark your calendar now and help do your part to protect Lake Pend Oreille for future generations. Attend the workshop nearest you:

Wednesday, Dec. 18, 7-9 p.m., Athol Elementary School Library;

Thursday, Dec. 19, 7-9 p.m., Federal Bldg., Sandpoint.

*Ruth Watkins is Pend Oreille Director for the Clark Fork-Pend Oreille Coalition.*



# Water quality plan ignores state borders

## Focuses on needs of Lake Pend Oreille system

By CAROLINE LOBSINGER  
Staff writer

**SANDPOINT** — The most unique part of the Clark Fork-Pend Oreille Basin Management Plan is how the plan hopes to improve water quality in the tri-state area.

"I think we're really onto something here," said Ruth Watkins, Pend Oreille director of the Clark Fork-Pend Oreille Coalition. "It's a good plan because it looks at (the basin) as a system."

The approach attempts to ignore the boundaries of the three states which encompass the system, Watkins said. Instead, it focuses on the needs of the system and coordinates what needs to be done to improve water quality.

The basin-wide plan was recently completed by agencies and groups in the three states. Public hearings are scheduled for mid-July to gather public testimony on the plan.

Hearings are: July 13, Deer Lodge Community Center, 416 Cottonwood, Deer Lodge, Mont.; July 14, Holiday Inn Parkside, 200 South Pattee, Missoula, Mont.; July 15, Federal Building, Highway 2, Sandpoint; July 16, Newport Fire Hall, W. 309 2nd Ave., Newport, Wash.

**The basin-wide plan was recently completed by agencies and groups in the three states.**

### Coalition study sets goals

Based on state findings and recommendations, the steering committee of the Clark Fork-Pend Oreille Basin Water Quality Study recommended the following water quality management goals and objectives for the basin:

**Goal:**

Restore and protect designated beneficial water uses basin-wide.

**Objectives:**

- Control nuisance algae in the

**See GOALS, Page 8**

All workshops will start with a review period for maps, reading materials and displays at 6:30 p.m. Discussion will be heard from 7-9:30 p.m.

The Clark Fork-Pend Oreille Basin Management Plan began as a response to the concerns and complaints about the growing presence of weeds and algae in the Clark Fork-Pend Oreille Basin. Following the complaints, Congress directed the Environmental Protection Agency to conduct a comprehensive water quality study in the basin.

The basin encompasses 26,000 square miles of land and waters in Idaho, Montana and Washington. The Clark Fork River begins near Butte, Mont., and flows into Lake Pend Oreille in Idaho. The lake is the source of the Pend Oreille River in north-eastern Washington.

Each state took responsibility for identifying research objectives within its boundaries and recommending

**See PLAN, Page 8**

## Plan

**Continued from Page 1**

state-specific management actions that would meet the basin-wide study objectives.

The main objectives of the

study were to characterize water quality problems, identify pollution sources and recommend actions for protecting and restoring water quality throughout the basin.

In order to restore the basin, a

number of measures were proposed in the plans to reduce nutrient concentrations in the Clark Fork River, reduce local sources of nutrients around Lake Pend Oreille and control milfoil infestations in the Pend Oreille

River.

Condition of the lake depends on the area discussed, Watkins said. The same is true of the system as a whole.

## Goals

**Continued from Page 1**

Clark Fork River by reducing nutrient concentrations.

- Protect Lake Pend Oreille open water quality by maintaining or reducing current rates of nutrient loading from the

Clark Fork River.

- Reduce the degradation of nearshore water quality in Lake Pend Oreille by reducing local nutrient sources.

- Improve Pend Oreille River water quality through macrophyte management and tributary non-point source controls.

**Actions:**

The recommended management actions range from mechanical harvesting of aquatic weeds, comprehensive public education programs, control of agricultural and residential non-point sources, revised permit limits on point sources and developing and enforcing local zoning and storm-water ordinances.

# Public gets first look at proposal to protect three-state waterway

By Julie Titone  
Staff writer

After three years of study, the Environmental Protection Agency will unveil a draft management plan to protect the water quality of the Clark Fork-Pend Oreille Basin.

A series of public workshops scheduled this month is a benchmark in efforts to protect the three-state waterway from pollution.

For activists like Ruth Watkins — who five years ago began fighting for money to pay for the study — this is a time to rest up before going back to Congress in search of more funds to put the plan into action.

"There's a new Clean Water Act coming up. I understand we've already got language in there to continue with the project," said the Sandpoint staff member of the Clark Fork-Pend Oreille Coalition.

"If the act passes with that language intact, she said, 'then we have to start another campaign to raise money for implementation.'"

The study was prompted by concern over the growing presence of algae and weeds in the waterways of the 26,000-square-mile basin. The Clark Fork River begins near Butte, Mont., and flows into Idaho's Lake Pend Oreille. The lake is the source of the Pend Oreille River in Northeastern Washington.

Workshops to describe the draft

management plan and accept public comment are scheduled for Monday at the Deer Lodge (Mont.) Community Center, Tuesday at the Holiday Inn Parkside in Missoula, July 15 at the Federal Building in Sandpoint, and July 16 at the Newport Fire Hall. Each will begin at 7 p.m.

The plan recommends many actions. Among them: mechanical harvesting of aquatic weeds, comprehensive public education programs, revised permit limits on sources of pollution; developing and enforcing local zoning and stormwater ordinances; control of agricultural and residential pollution.

One priority that may be controversial, Watkins said, is installing sewers to serve new developments and to replace septic tanks in lakeside communities.

The plan also calls for instituting phosphate detergent bans in any communities that don't already have them. Phosphates are nutrients that promote weed and algae growth.

The main recommendation is establishment of a tri-state council that will implement the management plan.

"I like the way EPA is trying to look at the entire river-lake-river system as a system," Watkins said. "They're not trying to chop it up, saying this is Montana's problem, this is Idaho's problem, this is Washington's problem."

## Guest opinion

# EPA wants to hear opinions on how to manage lake

■ **When:** 7 p.m., Wednesday  
■ **Where:** Federal Building

By RUTH WATKINS

On July 15, the Environmental Protection Agency is coming to Sandpoint with a mission.

After five years of studying and theorizing over the Clark Fork River, Lake Pend Oreille and the Pend Oreille River, EPA is finally ready to unveil a basinwide plan for reducing nutrient pollution in the Clark Fork/Pend Oreille watershed of western Montana, northern Idaho and eastern Washington. A draft of this plan will be presented in Sandpoint, as in other basin communities, giving area residents an unprecedented opportunity to help shape first-hand, a strategy for improving water quality.

Here's our chance to voice our ideas on how to reduce the pollution of Lake Pend Oreille. Excessive nutrients come to the lake from a variety of sources: from upstream industrial dischargers like the Frenchtown pulp mill; from sewage plants like the Missoula facility that alone provides over half the nutrients coming to the lake from the river; and — let's not forget! — from local activities around the lake itself.

Why should we care about nutrients? Because nutrients stimulate the growth of algae and weeds, which in abundance can choke the lake's bays. Too much algae and weed growth makes the lake less appealing for recreational use and can adversely affect aquatic life by rob-

bing the water of life-sustaining oxygen.

So now's the time to speak up. At the workshop, representatives from the three states' water quality agencies will explain their part in the plan for dealing with nutrient pollution. Luckily, the plan takes a basinwide approach, so that each state is not just operating in its own little world. For instance, Montana has developed recommendations that control nuisance levels of algae in the Clark Fork River and reduce the nutrient pollution that the river dumps into Lake Pend Oreille. Idaho plans to work with Montana to reduce the river's nutrient pollution, but will also emphasize controlling local nutrient sources. Washington will stress control of Eurasian milfoil, the aggressive aquatic weed that is marching up the Pend Oreille River toward the lake, and will also seek to reduce sources of pollution in that river's tributaries.

Put simply, EPA has compiled a three-state plan to help facilitate an upstream state's pollution-reducing efforts to benefit a downstream state. This is a concept worthy of our attention.

As moderator of the workshop, EPA wants to hear our opinions on the management strategies and will incorporate our ideas into the final plan and the report going to Congress this fall. Come to the workshop and have some say on the future health of the lake.

The Wednesday workshop will begin at 7 p.m. at the Federal Building.

*Watkins is the Pend Oreille director of the Clark Fork/Pend Oreille Coalition.*

**MISSOULIAN EDITORIAL**

# A statewide ban is better

Montanans can do just fine without phosphate detergents

**A**uthorities from three states and the U.S. Environmental Protection Agency want to broaden local bans on phosphate detergents in an effort to reduce the flow of nutrients that promote the growth of algae in the Clark Fork River and Lake Pend Orielle. It's a fine idea, as far as it goes.

But why stop with a basinwide phosphate ban? Given the plentiful supply of economical and effective alternatives to phosphate detergents, why not do away with phosphate detergents altogether?

Rather than tackle the problem on a piecemeal basis, one city or one county at a time, the ban on phosphate detergents ought to be made statewide, at least.

Some producers of phosphate detergents argue that phosphate-free detergents are more expensive, less effective at cleaning and don't reduce pollution much anyway. However, experience has proved such claims unfounded.

Requiring consumers to buy phosphate-free detergents has cut the amount of phosphorus the

city's sewage treatment plant spews into the Clark Fork River by about 40 percent — without causing an epidemic of ring around the collar. Kalispell's switch to phosphate-free detergents also has substantially reduced the amount of algae-promoting phosphorus flowing into Flathead Lake. If there's been any increase in cost, it's been so slight we haven't noticed it at the checkout counter. Even if there were a significantly higher cost, it would most certainly be cheaper (not to mention more logical) than installing facilities necessary to remove phosphorus from sewage.

Phosphates in detergent end up in rivers, lakes or ground water when you pour them down the drain. Normal sewage treatment doesn't remove much phosphorus from the waste stream. Phosphorus acts as a fertilizer for plants, which is why it stimulates algae growth. Huge blooms of algae not only are unsightly, but they also affect a river or lake's ability to support other aquatic life.

Localized experiments with phosphate bans in several western Montana communities have confirmed what 40 percent of the nation already knew from firsthand experience — banning phosphate detergents is a cheap, easy and effective means of reducing pollution. What more could we ask for? Let's apply what we've learned.

## Montana

# Study says phosphate detergent ban needed in Western Montana

MISSOULA (AP) — State and federal officials in Montana, Idaho and Washington are pushing for a ban on phosphate detergents in the 26,000-square-mile Clark Fork-Pend Oreille watershed.

A new study by the states and the Environmental Protection Agency found sewage treatment plants in Missoula, Deer Lodge and Butte as the biggest sources of algae-producing nutrient pollution in the Clark Fork River.

Nutrients, including phosphorus and nitrogen, are stimulating the growth of algae that chokes the water and uses oxygen needed by fish, according to the report.

Missoula's 1989 ban on the sale of phosphate detergents has been a success, the tri-state report says. Phosphorus pollution from the city's sewage treatment plant has dropped by 40 percent.

Superior and Albion in Montana also have bans on phosphate detergents.

The success has prompted a recommendation that the phosphate detergent ban go basinwide, from the Clark Fork River's headwaters in Butte to Lake Pend Oreille in Idaho and the Pend Oreille River in northeastern Washington.

Also proposed are seasonal land

application of wastewater from the Missoula sewage treatment plant, centralized sewer systems for developed areas on Lake Pend Oreille, and a tri-state watershed management council.

"The problems have been identified. Now let's solve them," said C.B. Pearson, executive director of the Clark Fork-Pend Oreille Coalition.

The new study includes several surprising — and troubling — findings, said Bruce Farling, conservation director at the Clark Fork-Pend Oreille Coalition.

The lower Bitterroot River, for example, gets half its nitrogen from groundwater seepage in the Missou-

la area. The nitrogen is pollution from leaky septic tanks in the Missoula Valley, Farling said.

Relative to their size, upper Clark Fork and Flathead river tributaries also contribute high concentrations of nutrients to the river. The tributaries are polluted by ranching, agriculture, mining and timber.

Farling said the study emphasizes that "Idahoans also aren't taking care of their lakeshore. Leaky septic tanks and poor landscaping and construction practices are having an impact at Lake Pend Oreille," he said.

Sandpoint, Idaho, and its lake are booming, "and that's hard on water quality," said Farling.

Stone Container Corp. near Missoula is the good news in the just-released report. The company's pulp mill "has steadily reduced the nutrient content of its wastewater discharge over the past six years," the report says.

Farling said the Clark Fork-Pend Oreille Coalition will work for financing to act on the report's findings.

"We want to work with ranchers to promote better grazing habits," he said. "We want to talk about more sophisticated technology at the Missoula sewage plant. We want to talk about phosphate bans. But we need a few nickels to get the ball rolling."

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# Basin-wide phosphate ban sought

## Watkins: Measure already working in North Idaho

By staff and  
The Associated Press

MISSOULA — State and federal officials in Montana, Idaho and Washington are pushing for a ban on phosphate detergents in the 26,000-square-mile Clark Fork-Pend Oreille watershed.

A ban is already in effect in the North Idaho portion of the watershed.

A new study by the states and the Environmental Protection Agency found sewage treatment plants in Missoula, Deer Lodge and Butte as the biggest sources of algae-producing nutrient pollution in the Clark Fork River.

Phosphate detergent bans in Bonner and Kootenai counties and a ban that keeps distributors from selling phosphate

detergents in Spokane County has helped reduce nutrient loading to North Idaho lakes, said Ruth Watkins, Pend Oreille director for the Clark Fork-Pend Oreille Coalition.

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River in northeastern Washington.

Also proposed are seasonal land application of wastewater from the Missoula sewage treatment plant, centralized sewer systems for developed areas on Lake Pend Oreille, and a tri-state watershed management council.

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# EPA brings basin plan to Sandpoint

## Most pleased with agency's goals to protect water quality

By Kevin Keating  
Staff writer

**SANDPOINT** — Community sewer systems for river and lakeshore developments, a three-state phosphate ban and harvesting aquatic weeds are all part of an EPA plan to protect water quality in the Clark Fork-Pend Oreille Basin.

The plan, a result of three years of studies on the Clark Fork River, Lake Pend Oreille and the Pend Oreille River, was unveiled in Sandpoint Wednesday for public opinion.

About 50 residents attended the meeting, and most were pleased with the plan to preserve the 22,000-square-mile basin that winds through Montana, Idaho and Washington.

"I think on the whole it's a good document," said Ruth Watkins director of the Sandpoint Clark Fork-Pend Oreille Coalition, a water-quality watchdog group. "The key is looking at the whole system and not segmenting it up by states."

One resident, however, was disap-

pointed with the small turnout and another was skeptical that new regulations will be enforced.

"A lot of these ideas are already on the books but are not being enforced now," he said.

Judith Leckrone, an EPA official from Seattle disagreed. She said the plan is practical and can and will be enforced by local or federal agencies.

The EPA's eight goals include an extensive public education program and formation of a tri-state management council. The council would oversee and enforce the recommendations and set up a water quality monitoring network to see if the plan is working.

"Education is an important part," Watkins said. "We can't just tell people they have to do this, this and this. The public needs to understand the problems and then the solutions will become more acceptable."

One important goal is to require new developments on the water to use central sewer systems.

"We have areas around the lake

with high density developments, like Hope, East Hope and Clark Fork where everyone is still using septic," Watkins said.

The septic tanks leach into the water and promote weed and algae growth. The Idaho portion of the plan suggests a county ordinance to require community wastewater treatment systems be in place before shoreline areas can be developed.

Other recommendations in the three-state plan include controlling eurasian milfoil, an aquatic weed that has choked the Pend Oreille River on the Washington side of the Albeni Falls Dam.

The plan suggests mechanically harvesting the weed and researching other ways to control it.

A three-state phosphate ban is also a high priority. Most communities have already banned phosphates except for Butte, Mont., near the headwaters of the Clark Fork River.

Public comments on the EPA plan will be taken until Aug. 30.

# BONNER COUNTY DAILY BEE

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## Heavy metal, bypass top lake concerns

By CAROLINE LOBSINGER  
Staff writer

**SANDPOINT** — Questions about how a proposed Highway 95 bypass would impact Lake Pend Oreille highlighted concerns of how to protect the entire watershed during discussion of the Clark Fork-Pend Oreille Basin water quality study Wednesday.

Heavy metal sediment in the lake, near shore water quality and impact of development in the watershed were brought out as concern during the two-hour meeting. More than 50 people attended the meeting hosted by the Environmental Protection Agency on the tri-state study.

See LAKE, Page 10

### Coalition proposal:

The Clark Fork-Pend Oreille Basin water quality study is among a growing basin-wide approach to water quality improvement. Below is a breakdown of the proposal.

#### Goal:

Restore and protect designated beneficial water uses basin-wide.

#### Objectives:

- Control nuisance algae in the Clark Fork River by reducing nutrient concentrations.

See PROPOSAL, Page 10



—Daily Bee file photo

Bill Middleton, a volunteer with the Lake Pend Oreille Project, collects water samples last summer.



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## Lake

Continued from Page 1

Residents said the impact of the bypass if it goes through Sand Creek from environmental damage would be worse than impact from nutrient loading and other problems studied in the report. The outcome could affect "the whole future of the lake," said one resident.

EPA representative Judith Leckrone told residents the concern could be included as a priority in the study. That would require the Idaho Transportation Department work closely with the Division of Environmental Quality.

DEQ representative Brian Hoelscher said the agency had responded to any requests by the ITD for input into the proposed bypass. However, they were asked only for concerns on the Sand Creek route and not any proposed alternatives, he said.

Possible heavy metal deposits in Lake Pend Oreille also drew

concern as several residents questioned whether any studies had been done to determine what levels, if any, exist in the lake. Residents said recent studies on near shore areas in Lake Cocur d'Alene had discovered heavy metal concentrations.

Heavy metal concentrations were not included because of the expense, said Ruth Watkins, local director of the Clark Fork-Lake Pend Oreille Coalition. Study for the matter is expensive and the decision was made to concentrate on getting the most items covered.

"We couldn't do the study with the money we had," she said.

With several different sources of water between the headwaters of the basin and Lake Pend Oreille, it's unlikely the concentration is very high, said Gary Ingman of the Montana Water Quality Bureau.

Development near the lake is a problem, residents said. The results can be seen in septic tank leaching, oiling of dirt roads near the lake and an increasing number of timber sales in the region.

"Decreased intensity of land use is the only way" to solve the problem, said resident David Sawyer.

The meeting is the third of four meetings planned by the EPA to gather input on the proposed study. Meeting have already been held in Montana and the fourth is scheduled for today in Newport.

The study takes a basin-wide approach to trying to solve water quality problems in the Clark Fork River, Lake Pend Oreille and the Pend Oreille River.

The three states involved — Idaho, Washington and Montana — took responsibility for identifying research objectives within its boundaries and recommending state-specific management actions that would meet the basin-wide study objectives.

The main objectives of the study were to characterize water quality problems, identify pollution sources and recommend actions for protecting and restoring water quality throughout the basin.

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## Proposal

Continued from Page 1

- Protect Lake Pend Oreille open water quality by maintaining or reducing current rates of nutrient loading from the Clark Fork River.

- Reduce the degradation of nearshore water quality in Lake Pend Oreille by reducing local nutrient sources.

- Improve Pend Oreille River water quality through macrophyte management and tributary non-point source controls.

### **Actions:**

The recommended management actions range from mechanical harvesting of aquatic weeds, comprehensive public education programs, control of agricultural and residential non-point sources, revised permit limits on point sources and

developing and enforcing local zoning and storm-water ordinances.

### **Priorities:**

- Convene a Tri-State Management Council of federal, state and county agencies to implement recommendations.

- Establish a basin-wide phosphate detergent ban.

- Establish numeric nutrient loading targets.

- Develop and maintain programs to educate the public on their role in protecting water quality.

- Control Eurasian water milfoil through education, rotovation and research.

- Install centralized sewer systems for developed areas on Lake Pend Oreille.

- Institute seasonal land application at the Missoula municipal wastewater treatment facility.

- Establish a water quality monitoring network to monitor

effectiveness and trends.

# EPA brings basin plan to Sandpoint

## Most pleased with agency's goals to protect water quality

by Kevin Keating  
staff writer

**SANDPOINT** — Community sewer systems for river and lakeshore developments, a three-state phosphate ban and harvesting aquatic weeds are all part of an EPA plan to protect water quality in the Clark Fork-Pend Oreille Basin.

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with high density developments, like Hope, East Hope and Clark Fork where everyone is still using septic," Watkins said.

The septic tanks leach into the water and promote weed and algae growth. The Idaho portion of the plan suggests a county ordinance to require community wastewater treatment systems be in place before shoreline areas can be developed.

Other recommendations in the three-state plan include controlling Eurasian milfoil, an aquatic weed that has choked the Pend Oreille River on the Washington side of the Albeni Falls Dam.

The plan suggests mechanically harvesting the weed and researching other ways to control it.

A three-state phosphate ban is also a high priority. Most communities have already banned phosphates except for Butte, Mont., near the headwaters of the Clark Fork River.

Public comments on the EPA plan will be taken until Aug. 30.

# Conservationist praises timber firms for logging work

By Julie Titone  
Staff writer

A North Idaho conservationist known for his criticism of logging practices is praising the work of two companies in the Little North Fork of the Clearwater River drainage.

Mark Solomon of Moscow belongs to a committee that came up with a list of logging rules specifically to protect the river, which the state has designated a "stream segment of concern." Last Friday committee members visited three sites there: two operations on land owned by Plum Creek Timber Co., and one by DAW Forest Products on land managed by the Idaho Department of Fish and Game.

"DAW did a rather excellent job," Solomon said.

"There has been a marked improvement in Plum Creek's timber practices on those two pieces of ground," he added.

The Fish and Game land is within the Snow Peak Wildlife Management Area. As part of a complex land trade in which the state acquired land from Plum Creek, DAW ended up with rights to remove about half the volume of the old-growth timber from one 640-acre section.

Please see **LOGGING: B2**

## Anaconda Area

# Quality of Clark Fork water

## Reducing Butte's Metro Sewer discharge considered

Basinwide ban  
on high-phosphorous  
detergents among  
ideas mentioned

By Peter Chapin  
Standard Staff Writer

DEER LODGE — Modifying sewage disposal in Butte and agricultural practices in the Deer Lodge area are included in 20 recommendations proposed by the state Department of Health and Environmental Science for controlling algae in the Clark Fork River.

Representatives of the Environmental Protection Agency, the state Health Department and its counterparts in Idaho and Washington conducted a public meeting Monday in Deer Lodge to discuss and take comments on a study for cleaning the Clark Fork-Pend Oreille watershed.

About a dozen people attended the meeting.

### Plan by next fall

Reports from the three states will be consolidated into a management plan by September 1993, along with public comments taken through Aug. 3.

Excessive nutrients — nitrogen and phosphorus — fed into the Clark Fork is blamed for its algae problem, which in turn contributes to similar problems in Lake Pend Oreille, Idaho.

Gary Ingman of the state Health Department's Water Quality Bureau outlined 20 recommendations made by the department that followed three years of study on the Clark Fork River Basin, from Deer Lodge to the Idaho state line, to determine the types and sources of nutrients that produce nuisance algae each summer.

### Clogs, oxygen, algae

Complaints about the algae that started in the early 1970s include clogged intakes, oxygen depletion that threatens fish, and the nuisance of algae when it rots as the river level falls.

Recommendations are divided into point source controls — those pertaining to specific sources of concentrated nutrient loading — and nonpoint controls, involving generalized sources of contamination.

### Disposal methods

One of the recommended point source controls is to consider reducing nutrients from the Butte Metro wastewater discharge into Silver Bow Creek, or to consider alternative disposal methods.

According to the study, Butte wastewater, which is responsible for as much as half of the streamflow of Silver Bow Creek, is responsible for the creek's high concentrations of nutrients.

Although the Warm Springs treatment ponds remove much of those nutrients, the study says discharge from the ponds "still constitutes a significant source of nutrient loading to the upper Clark Fork."

### Problem foreseen

Contamination from mine waste currently controls algae levels in Silver Bow Creek, but when the creek is reclaimed under the Superfund program, algae growth is expected to become a big problem.

Complicating the problem, those nutrients are believed to be important in the ponds' effectiveness in removing metal contaminants from the water. Immediate elimination of those nutrients might therefore increase toxic levels released from the ponds.

### Wastewater irrigation

Another recommendation on treating municipal wastewater is to consider summer land application — using the wastewater for agricultural irrigation when the algae problem is most acute.

Wastewater is responsible for about 40 percent of the nutrients found in the upper and middle Clark Fork, the study says, with Deer Lodge and Missoula being the main contributors.

Land application of Deer Lodge's discharges from July through September could cut nutrients in the upper Clark Fork by up to 30 percent.

### Cost would be high

But because of the community's small population, the cost of land application could be significant, the study points out. Such a project in Missoula would increase sewer rates by an estimated 31 percent.

A basinwide ban on the sale of high-phosphorus laundry detergents is another proposal. A ban in Butte and Deer Lodge could cut phosphorus levels by 10 percent, Ingman said. He said the majority of states already ban the substance, and a nationwide ban appears imminent.

Other recommended point-source controls are:

- To encourage municipalities and industry to evaluate additional means for reducing wastewater discharges.
- To enforce an aggressive nutrient-loading policy for new or enlarged discharge sources.
- To adopt a basinwide discharge permitting policy on a five-year cycle rather than permitting at scattered times, as is the present practice. Having all permits due at the same time would allow for a more comprehensive environmental review.
- To require nutrient monitoring as a condition of all wastewater discharge permits.
- To evaluate nutrient loading rates from groundwater seepage from Missoula's Stone Container Co.

- To conduct a nutrient waste-load allocation study in the basin, which would determine the maximum amount of nutrients allowable from each area.

- To protect instream flows in the river and key tributaries to provide sufficient dilution of wastewater discharges.

Nonpoint source control recommendations include reducing nitrogen sources in creeks around the Deer Lodge area and altering agricultural practices in the Gold Creek drainage to reduce phosphorus sources.

### Nonpoint plan advised

The lead recommendation, however, concerns funding a nonpoint source management plan for the basin, realizing that there are limited resources for all of the state's management plans, limiting even further funding likely for Clark Fork management.

The study says that the Dempsey, Lost, Mill, Willow and Racetrack creeks contribute excessively high concentrations of nitrogen to the basin compared to other streams. Ingman suggested that crop fertilization may be a contributing factor.

Funding for further studies into that problem are recommended.

### High phosphorus

High amounts of phosphorus from the Gold Creek area are attributed to natural deposits that are aggravated by irrigation and cattle damage.

According to University of Montana studies, "Irrigation dewatering of lower Gold Creek appeared to enhance the inflow of phosphorus-rich groundwater into the dewatered channel. Erosion by cattle and irrigation practices in Gold Creek tributaries (Griffen and Blum creeks) were also found to be contributing factors."

Several recommendations already have been made, the study says, and should be explored in greater detail.

Other recommendations are:

- To evaluate nitrogen sources in Fish and Trout creeks and the Bull River, which feed into the lower Clark Fork.

- To encourage tribal and Soil Conservation Service cooperation in controlling nutrient loading into the lower Flathead River tributaries.

- To continue the city sewage project in the Missoula area to reduce septic tank contamination.

- To continue studies in the

Blackfoot River drainage.

- To secure long-term funding for use of the Blackfoot River and Clark Fork Basin Geographic Information Systems (computer databases) to help control nonpoint source pollution.

- To use existing Clark Fork River Basin studies (the Section 525 project) to build support for implementing nonpoint source reclamation demonstration projects in key drainages.

## Agricultural issues addressed at meeting

Questions and comments by those attending the public meeting about Clark Fork River Basin water quality study centered on agriculture.

One concern pertained to the effect the water quality plan would have on irrigation practices in the Upper Clark Fork area.

Gary Ingman of the state Department of Health and Environmental Sciences said the control of water use is one consideration. More water remaining in the Clark Fork means more dilution of nitrogen and phosphorus contaminants.

He said the 1995 Legislature will be asked to act on a dewatering plan, which would be preceded by numerous public meetings next winter.

There was criticism about the lack of representatives of agriculture — those who own the water rights — or of the timber and mining industries involved in the study.

Ingman said he has presented information to agricultural groups. To the concern about agriculture's role in increasing nitrogen concentrations in the Deer Lodge-area tributaries, it was pointed out that the high cost of fertilizer requires that farmers and ranchers make the most efficient use of fertilizer, and that there is unlikely to be enough excess to contaminate the streams.

A related comment questioned the practice of saving fish at the expense of cattle. Ingman said he believes there can be both — improved fish habitat without infringing on cattle production.

The small attendance at Monday's meeting was mentioned as a sign of local apathy about the Clark Fork water study.

Ingman replied that his department has received scores of letters complaining about the algae problem, which also creates water quality violations.

# Why not total phosphate-soap ban?

Excerpted from the Missoulian

**A**uthorities from three states and the U.S. Environmental Protection Agency want to broaden local bans on phosphate detergents in an effort to reduce the flow of nutrients that promote the growth of algae in the Clark Fork River and Lake Pend Orielle. It's a fine idea, as far as it goes.

But why stop with a basinwide phosphate ban? Given the plentiful supply of economical and effective alternatives to phosphate detergents, why not do away with phosphate detergents altogether?

Rather than tackle the problem on a piecemeal basis, one city or one county at a time, the ban on phosphate detergents ought to be made statewide, at least.

## MONTANA EDITORS SAY

Some producers of phosphate detergents argue that phosphate-free detergents are more expensive, less effective at cleaning and don't reduce pollution much anyway. However, experience has proven such claims are unfounded.

Requiring consumers to buy phosphate-free detergents has cut the amount of phosphorous the city's sewage treatment plant spews into the Clark Fork River by about 40 percent — without cause an epidemic of ring around the collar. Kallispell's switch to phosphate-free detergents also has substantially reduced the amount of

algae-promoting phosphorous flowing into Flat-head Lake.

If there's been any increase in cost, it has been so slight we haven't noticed it at the check-out counter. Even if there were a significantly higher cost, it would most certainly be cheaper (not to mention more logical) than installing facilities necessary to remove phosphorous from sewage.

Localized experiments with phosphate bans in several western Montana communities have confirmed what 40 percent of the nation already knew from firsthand experience — banning phosphate detergents is a cheap, easy and effective means of reducing pollution. What more could we ask for? Let's apply what we've learned.

## Headlines missed boat with management plan

The important ground breaking Clark Fork-Pend Oreille Basin Water Quality Management Plan, in draft form, was presented by representatives of Idaho, Montana, Washington, and the EPA at a public workshop in Sandpoint on July 15. Both the Spokesman Review and the Daily Bee headlined the workshop in July 16 editions in ways that seem detrimental to public understanding of the complexities and challenges involved.

For example, the sub-heading in the Spokesman Review read, "Most pleased with agency's goals to protect water quality." I heard no displeasure whatsoever with the goals. All who spoke seemed quite serious in their support for the goals. Information from the research and possible problems in the plan's implementation were discussed. After all, the meeting was a workshop. This is a remarkable tri-state plan that documents problems from pollution sources and recommends actions for protecting and restoring water quality in the basin. Providing coordination and continuity of the work of the many agencies, public interest groups, and citizens in three states is a tremendous challenge.

One instance of the challenge facing the proposed Tri-State Management Council is to coordinate the law enforcement efforts of the many agencies involved. Making a list of existing pertinent laws, the agencies and persons responsible for the enforcement of each, and problems in the enforcement of each could be a useful first step. Such a list distributed to all agencies could expedite enforcement. In Mountain in the Clouds, Bruce Brown chronicles Washington state's lack of enforcement of environmental laws as they affect salmon, regardless of plans and mitigation

efforts, and the sorry result. Likewise, to be effective, the Tri-State Management Council needs to promote workable enforcement practices and influences.

A second example of detriment to public understanding is the Daily Bee headline, "Heavy metal bypass top lake concerns." One person did suggest strongly that both routing and construction of the Sandpoint truck bypass could affect Lake Pend Oreille water quality. Presenters agreed that the Idaho Transportation Department work should be coordinated with that of the Management Council. This was only one concern of many.

I brought up the need for monitoring of heavy metals, which the plan does also. It has not been a top concern. The studies so far have emphasized nutrient loading and rightly so, given the limited funds available for studies. However, the heavy metals issue does show how easily something considered of secondary importance can get lost in the complexities of coordinating work and providing continuity. Three of the four presenters have been involved in the project for only about a year and none seemed aware of the Idaho DEQ Status Report No. 90 which concludes, "Clark Fork River inflow (to Lake Pend Oreille) contains (at least at times) levels of cadmium, copper and zinc which exceed EPA aquatic biota toxicity criteria and warrants further study."

In short, let us not minimize the difficulties of such complex studies, planning, and implementation. So far, those involved have performed amazingly well, given our training as specialists rather than as people with broad and deep knowledge, given the low level of funding, and given the maze of agencies and policies involved. It is not impossible to progress under such conditions. The diverse countries around the Mediterranean Sea have succeeded in overcoming

their divisions to increase the quality of that sea. We in the Clark Fork-Pend Oreille Basin can too. However, press treatment of the matter with melodramatic, erroneous headlines doesn't help.

BILL MIDDLETON  
Hope

# Domestic animals adding to river pollution

NEWPORT—Domestic animals are being blamed for polluting creeks feeding into the Pend Oreille River, particularly in the Skookum Creek area of central Pend Oreille County.

That was one finding of a three-state water quality study coordinated by the Environmental Protection Agency (EPA).

A public meeting will be held at 7 p.m. July 16, at the Newport Fire Hall to take public comment on the management plans that were developed from that study.

The added nutrients from domestic animal manure contribute to the milfoil problem on the river, said Pend Oreille Soil and Water Conservation District Manager Helen Keane.

"Nutrient loadings from these creeks are a food source for the milfoil," she said. Testing in the Skookum Creek showed that 87 percent of the fecal coliform that enters the mainstream Pend Oreille River comes from there.

Erosion may also result from keeping domestic animals near creeks. This results in siltation, or the filling in of streams with dirt from the banks. This causes the stream beds to rise and the water to spill out of its natural flow areas, flooding the surrounding land.

The Soil and Water Conservation District has been recommended as the agency to work with landowners to correct the problem.

"Basically, we act as a buffer zone between landowners and the gov-

ernment regulating agencies," she said.

The Pend Oreille Soil and Water Conservation District can help landowners find the best way to protect the streams, said Keane. These mainly involve identifying potential funding sources for things like fencing and alternative water supplies, she said.

"(Corrective measures in) The Skookum Creek area will be completely funded," she said. The district wants to work with landowners to protect the water resources and doesn't want to deny property own-

ers the use of their water rights, she said.

"We're not asking that they not use their water resources, only that they use them wisely," said Keane. "It is important for landowners to get first hand information themselves, rather than relying on hearsay. I strongly urge them to attend this meeting."

Representatives from the Environmental Protection Agency, the Department of Ecology and other government agencies will be present at the July 16 meeting.

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## LETTERS

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### Phosphate ban is long overdue

I agree wholeheartedly with your recent editorial endorsing a statewide ban on the sale of phosphate detergents. Not only is this an idea whose time has come, its trip around the political block in Montana began quite some while ago.

In 1979 the House passed and the Senate then killed a bill outlawing the sale of phosphate detergents anywhere in Montana. Two years later, an essentially identical proposal was introduced and defeated in the House. In both sessions, industry representatives were aligned against environmentalists in opposition, including spokesmen for detergent manufacturers from as far away as New York state, and were instrumental in blocking the very legislation proposed by your editorial.

In '85, believing that a piecemeal approach to the problems of eutrofication was preferable to resurrecting only to see killed all over again a more ambitious bill, environmentalists proposed and the Legislature approved the local-option approach that is currently on the books.

"Why not do away with phosphate detergents altogether?" Indeed. It was a good idea 13 years ago, and if anything it has grown more compelling since then, as the clogging of our waterways and the relative success of phosphate bans in a number of western Montana counties have shown.

But the history of anti-phosphate legislation in Montana is only a subtle illustration of the hazards connected with a toe-in-the-water approach to protecting its natural resources. The integrity of our environment is the heritage and the lifeblood of all Montanans. I'm sure that we can allow it to be assaulted and degraded for commercial purposes for another 13 years or so, while we continue to swaddle it in Band-Aids, but by the year 2005 even Pulitzer Prize-winning ideas may not be enough to repair the damage.

— Michael H. Keedy,  
P.O. Box 839, Kalispell

## Article said to be misleading

To the Editor:

Several weeks ago, your paper was sent an announcement of public workshops concerning a draft water quality management plan for the Clark Fork-Pend Oreille Basin. Shortly afterward, an article appeared in The Miner to advertise the July 16 workshop in Newport. While I appreciated your paper's help in spreading the word of our project, I felt that the accompanying

article was misleading with its emphasis on "domestic animals adding to river pollution."

Ecology's three-year study of the Pend Oreille River and its tributaries identified several water quality problems in the drainage, foremost of which was the proliferation of Eurasian water milfoil in the mainstream river. In fact, the major water quality issue throughout the three-state Clark Fork-Pend Oreille Basin was nuisance growths of aquatic plants, including algae. Moreover, most of the recommendations in the draft management plan were targeted at controlling excessive plant growth in the basin.

Within Washington's part of the drainage, we also found evidence of moderate fecal bacteria pollution on some tributary streams. Land use activities near our sampling sites led us to believe that livestock were a likely source of the bacteria, but other sources may well include wildlife and failing septic systems. In the draft management plan, we recommended that the Pend Oreille Conservation District conduct further investigations on the problem streams. As a result of public input at the workshop, we will modify this recommendation to specify that additional bacteria samples be collected to better identify potential sources of fecal pollution.

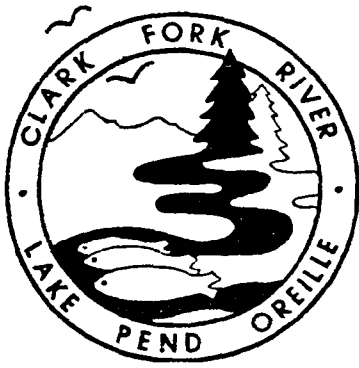
I was disappointed that The Miner did not send a reporter to cover the workshop in Newport. More than 30 local residents turned out to listen to presentations by the three states and the U. S. Environmental Protection Agency. We received lots of suggestions on the management plan from the audience, and will consider these carefully as we prepare the final plan for presentation to Congress in October 1992. If any

of your readers missed the workshop but would still like to review the draft plan, I encourage them to contact me at 7171 Cleanwater Lane, Building 8, P. O. Box 47710, Olympia, Wa. 98504-7710.

—Will Kendra  
Watershed Assessments Section  
Department of Ecology  
Olympia

***Articles from Currents, published by the Clark Fork-Pend Oreille  
Coalition, 1989 to 1992***





# Clark Fork Coalition CURRENTS

OCTOBER 1989

## Nutrient Pollution Ties Us Together

**T**his special issue of *Currents* focuses on the most pervasive water quality problems in the Clark Fork - Pend Oreille basin - nutrient pollution, algae growth and eutrophication. They are common to all three basin states, and tie the Coalition together more than other pollution issues.

The dictionary defines a **nutrient** as "something that nourishes, especially a nourishing ingredient in a food." Conjures up pictures of good health and sounds down right wholesome, doesn't it? So why then is the Clark Fork Coalition fussing about nutrients?

Like many good things, too much nutrients can cause problems. In rivers and lakes, the nutrients nitrogen and phosphorus stimulate the growth of aquatic plants and algae. When too much phosphorus or nitrogen gets into water bodies excessive and often uncontrollable plant growth results. Parts of the Clark Fork, Lake Pend Oreille and the Pend Oreille River are overgrown with dense mats of algae and weeds that damage water quality, recreation, aesthetics, and even fish habitat. Shorelines are covered with rotting green slime, causing rank odors and making swimming unpleasant. Heavy plant growth depletes dissolved oxygen in the water, endangering fish. Nutrients spur eutrophication, a process in which plants are over-fertilized, causing lakes to age rapidly and fill with sediments and marshy vegetation.

The Coalition has made nutrient pollution a priority issue since 1986, when we negotiated with the Frenchtown pulp mill to limit discharges to the Clark Fork River. The control of nutrients in our river basin is complex because the sources are widespread. Nutrients enter the lake and river from many sources throughout the watershed. Thus our activities on land directly influence water quality.

We can begin controlling nutrients in our own backyards by changing our use of detergents and properly caring for septic systems. Outside our back yards, the solutions are more complex. Pollution also comes from sewage plants, industries, mines, farmland, logging roads and runoff from city streets and storm sewers. Research, education, planning, and people are needed to control these sources and protect water quality. The fact that our basin lies within the jurisdiction of three states, two EPA regional offices and myriad local governments, further complicates solutions.

Bringing solutions together under one plan is called watershed management. Luckily, in the Clark Fork - Pend Oreille basin such a plan is in the works. Congress amended the Clean Water Act in 1986 by calling for a comprehensive evaluation of pollution in the basin. It should lead to a long-term plan for protecting the river and lake.

We are approaching a turning point in nutrient control in the basin. It is up to each of us to understand the problems and their solutions. And that's why we've produced this special newsletter. Examine the status of nutrient pollution and research in the basin and find out what you can do to help protect the Clark Fork River, Lake Pend Oreille and the Pend Oreille River!

Progress in Montana	pg. 4
Lake study begins	pg. 6
Milfoil Clogs River	pg. 8
Phosphate ban works!	pg. 10

## Nutrient pollution picture improving

### State pinpoints pollution sources

If you think the pulp mill is to blame for all of the river's problems, the results of a study of pollution along the Clark Fork River may change your thinking.

The real polluters are you and I. The study shows the pulp mill was not the largest single source of phosphorus and nitrogen pollution in the river during the last half of 1988. In fact, the mill ranked fourth among polluters, behind sewage discharges from Missoula, Butte and Deer Lodge. Its human waste. You and I and our neighbors appear to be the majority of the problem. There is no longer an easy scapegoat.

The State of Montana began to take a hard look at the Clark Fork's nutrient pollution and algae growth problems in 1988 when it received its first grant from the EPA for the Section 525 Clean Water Act studies. The Water Quality Bureau monitored all of the major sources of phosphorus and nitrogen pollution from Butte to Pend Oreille, ranked them and began to prepare a nutrient budget for the Montana portion of the basin. The results are enlightening and extremely valuable for protecting water quality in the Clark Fork and Lake Pend Oreille. Key findings include:

- Ten dischargers, including Missoula, Butte, and Deer Lodge, accounted for 79 percent of the bio-available phosphorus and 48 percent of the bioavailable nitrogen in the river during the last half of 1988, a low river flow period. Bio-available nutrients are dissolved in water, rather than tied to soil particles, and are of the most concern because they can feed rapid plant growth.

- The remainder of the nutrients came from diffuse sources, such as agricultural and forest land runoff, septic tanks, natural sources and point-sources on tributary streams. Runoff pollutants were probably underestimated during this study because of low stream flow, which resulted in less soil erosion in the watershed.

- The Missoula, Butte, and Deer Lodge sewage plants and Stone Container's pulp mill made up about 98 percent of the nutrient loading from point source discharges in the entire river basin.

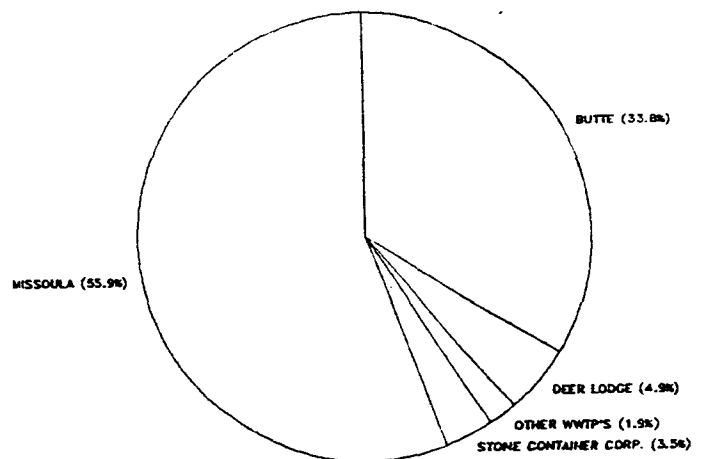
- The largest source was Missoula's sewage plant, accounting for 56 percent of the bio-available phosphorus and 53 percent of the bio-available nitrogen. Butte's sewage plant was the second largest source, followed by Deer Lodge and Stone Container. (see pie chart).

- The study was done before passage of Missoula's

phosphate detergent ban, which will significantly reduce the largest phosphorus source in the basin. It was also done when Stone could not discharge much waste due to low flows. Future results will show Stone to be a larger part of the problem, but its pollution will probably remain below levels for Butte and Missoula.

- The upper river from Butte to Missoula was in the worst shape, plagued by heavy growths of algae. The upper river's problems may be a result of high sewage loads, small stream size, and diffuse sources of sediments and nutrients.

POINT SOURCES OF BIOAVAILABLE PHOSPHORUS  
PERCENT CONTRIBUTION BY SOURCE



- The Flathead River contributed more nutrients than any other tributary in the basin. In fact, the Flathead's phosphorus loading ranked only behind Missoula and Butte. The Flathead adds many pounds of nutrients to the Clark Fork, but its large flow dilutes the pollutants. Hence the Flathead, and the lower Clark Fork, are fairly free of heavy algae blooms.

- The Clark Fork River carried about 11 tons of bio-available phosphorus and 90 tons of bio-available nitrogen into Idaho during the last six months of 1988. We don't know what percentage of the lake's total load this is because the state of Idaho has not yet completed its study of local pollution sources.

The Bureau's will continue the study through June, 1990. When it's done the results will be a solid foundation for our efforts to regulate Montana's pollution sources and protect the river and Lake Pend Oreille.

- PN



## Pulp mill review shows progress

As required by the permit we negotiated with Stone Container in 1986, the pulp mill's permit is going through a "mid-term review" in 1989. State-issued permits normally run for five years. One of the key subjects of the review is progress toward permit conditions for reductions in phosphorus and nitrogen.

According to a September report issued by the Montana Water Quality Bureau, Stone has made impressive reductions in nutrient pollution since 1985, and the pulp mill now accounts for only two percent of the nutrients that the Clark Fork carries into Lake Pend Oreille.

Based on data collected by state employees, the amount of phosphorus in Stone's wastewater has been reduced more than six-fold since 1984, and nitrogen has been reduced nearly four-fold. (see bar graph).

In 1984-85, the mill's discharge contributed about 10 percent of the total nitrogen and 15 percent of the total phosphorus in the river below the mill. By 1989, Stone's contribution had been reduced to only 2 percent of the river's nitrogen and 4 percent of its phosphorus.

In 1984-85 the mill's discharge was responsible for 5 percent of the total nitrogen and 14 percent of the total phosphorus in the river at the Idaho border. By 1989 that had been reduced to only about 2 percent for both phosphorus and nitrogen.

## University Study Shows Importance of Controlling Nutrients

Another study, by Dr. Vicki Watson of the University of Montana, looked at algae growth and accumulation in the river to see if cutting back nutrient pollution could cause major reductions in algae.

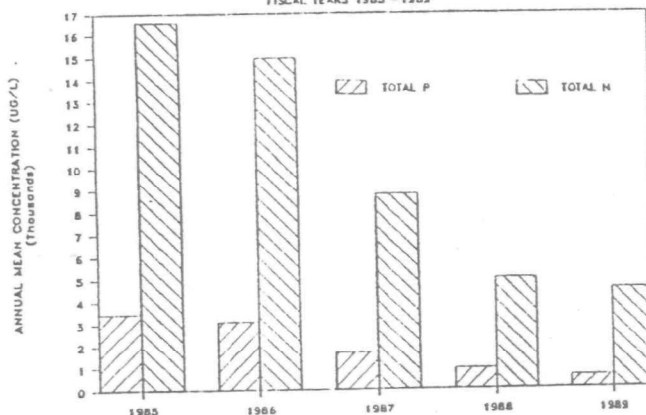
This important study was needed because some specialists suspected that the river already carried much higher levels of nutrients than algae need to grow, therefore pollution sources might never be reduced enough to make a dent in the river's considerable algae crop. The project also studied whether phosphorus or nitrogen was the most important factor controlling algae growth.

Watson measured the effects of different nutrient levels on algae growth rates and accumulation, using

Gary Ingman and Mark Kerr, authors of the bureau's report, wrote, "Stone's efforts when coupled with other actions, such as a recently implemented phosphorus detergent ban in Missoula County and new nonpoint source pollution control programs, would be expected to have long-term significance toward maintaining or improving the lake's (Pend Oreille) water quality."

A public meeting will be held in Missoula on the mid-term review later this year. Subjects covered will include state color standard violations, possible impacts of chemicals in the mill's new color removal process, pond and dike stability, the national dioxin study for paper mills, and new bio-monitoring requirements.

STONE DISCHARGE NUTRIENT CONCENTRATION  
FISCAL YEARS 1985-1989



artificial streams in the river. Her conclusions include:

- Phosphorus and nitrogen reductions could result in reductions in algae accumulations in the river.
- Phosphorus and nitrogen were both important in limiting algae in various parts of the river, and both nutrients should be controlled to achieve the greatest reduction. Since many plants can "fix" atmospheric nitrogen for their own use, nitrogen control would be less effective.
- Phosphorus is more easily controlled than nitrogen, particularly at point sources such as sewage plants. If initial control efforts focus on phosphorus, that nutrient will become less abundant for plants and its role in controlling algae growth will be more important.

- PN

## Pend Oreille study to end with management plan

The Lake Pend Oreille portion of the tri-state pollution study got rolling in 1989. Unlike Montana, where studies began in 1988, Idaho has not yet produced any significant results. But the state Water Quality Bureau has received extra EPA funds to develop an ambitious lake management plan once the studies are complete, and the agency has started an unusual program to give the public a strong voice in determining the lake's future.

The State of Idaho received a \$150,500 grant from the EPA for Section 525 Clean Water Act studies in 1988, and another \$114,000 in 1989. But due to delays in getting the funds through the Reagan Administration's Office of Management and Budget, 1988 funds were not received in time to begin work before the spring runoff season. So the bulk of the studies were postponed until last spring, when researchers from the Water Quality Bureau, U.S. Geological Survey, University of Idaho and others began collecting information needed to protect the lake's water quality.

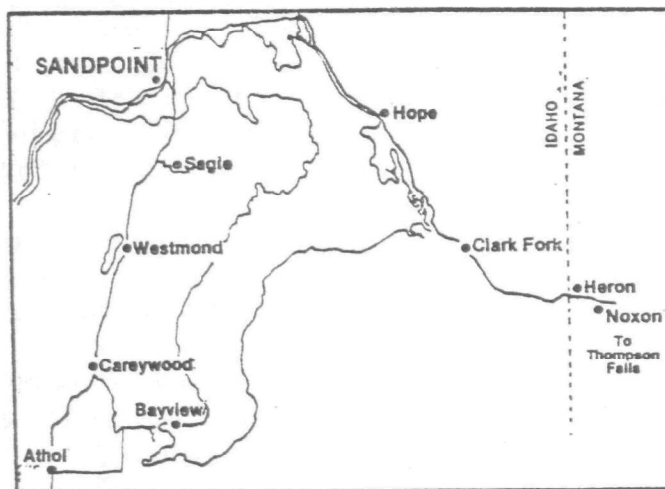
Researchers are now back at their desks putting the first year's results into reports that will be available this winter. Meanwhile, the state has formed two unusual advisory committees to guide the lake study and management plan. This can be done in Idaho because the state received a \$75,000 "Clean Lakes" grant from the EPA to use the study results to prepare a management plan to protect the lake's quality. The Coalition is now active in the two groups, known as the Technical and Policy Advisory Committees. The committees allow the public to track the study and shape the recommendations that result. We're the only basin-wide interest group on the committees, and our job is to make sure the agencies in all three states work together to solve an interstate water quality problem.

The objectives of the Lake Pend Oreille study are to:

- Collect information about the lake's physical, chemical and biological status;
- Identify pollution sources to the lake, including the Clark Fork River;
- Determine which pollution sources are causing

the most problems;

- Use a computer model to see how the lake would benefit from controlling various pollution sources;
- List management alternatives to protect water quality;
- Select a long-term water quality management plan for the lake (here's where the public comes in!)

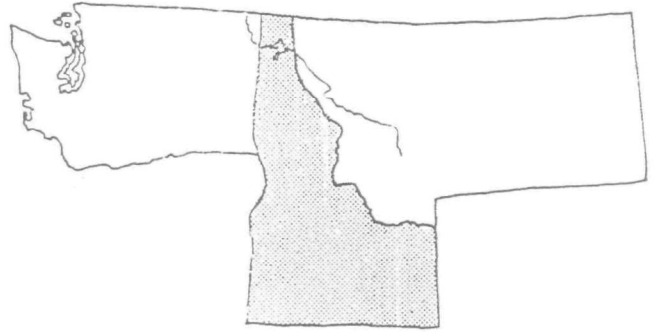


Several groups and agencies are involved in the lake study.

The Idaho Water Quality Bureau is reviewing all existing studies on the lake so researchers will have some idea of historic conditions. Until the mid-1980s only limited testing was done in the deep, open waters of the lake. Since Pend Oreille is so large and deep this sampling never detected significant changes in water quality. But in the mid-1980s researchers from the University of Idaho looked more carefully at water quality near the lake's shoreline. These studies found that algae and plant growth was much greater than expected for a large lake such as Pend Oreille. Flow data from the Clark Fork River profoundly effected the lake's water quality: 287 tons of suspended sediments enter the lake every day, on average, from this source according to research by the U.S. Geological Survey. Researchers also discovered that amounts of phosphorus entering the lake from the river was significantly LESS than that leaving at Albeni Falls, meaning that local pollution is also harming the lake.

Gathering this background has been but a small





step along the lake study road. During the past year researchers have been working on other tasks, including:

- Open Water Testing: From Oct. 88-Oct. 89 the US Geological Survey sampled water quality 13 times at five sites.
- Near-shore testing and attached algae studies: A University of Idaho team sampled algae and water quality at 17 lake sites.
- Volunteer monitoring: This project, under Coalition direction, includes eight volunteers who sample water clarity at 14 sites. Results indicate the clearest water is found at the southern end of lake, near Bayview and Idlewilde Bay.
- Fishery analysis: The Idaho Fish and Game Dept. will evaluate the fishery this winter, and will analyze fish tissue for heavy metals and organic chemicals.
- Land-use surveys: Bonner County will complete several types of land use surveys in the Pend Oreille watershed. Eastern Washington University will prepare a socio-economic report. And Panhandle Health District will inventory septic systems around the lake. Satellite and high-altitude photographs of the watershed were taken this summer by EPA, and they will be compared to photos taken in 1985 to see how land uses have changed.
- Tributary Monitoring: The Geological Survey is monitoring six tributaries to assess their contribution of pollutants to the lake.

Results from the first year of study will be presented to the Technical and Policy Advisory Committees in January, 1990. The Coalition will hold its annual convention in Sandpoint in March, 1989, including a full day conference to present the results of studies in Montana, Idaho and Washington.

For more information or to receive future coalition newsletters on the studies please contact Peter at 406-542-0539 or Ruth at 208-263-0347.

- RW AND PN

### Idaho has best plan to involve public

Of the three states conducting studies in the Clark Fork/Pend Oreille basin, only the Idaho project has developed a Policy Advisory Committee and a Technical Advisory Committee. The Coalition is represented on both committees. The Policy group is comprised of representatives from local agencies, governments and organizations with an interest in keeping tabs on the lake study. Later in the study project (1991) the committee will be asked to draw up its own version of a lake management plan. At that time, familiarity with the study and lake water quality issues will enable this group to come up with a well thought out plan for the future health of Lake Pend Oreille - a plan which will, in turn, be scrutinized by the public.

Members of this committee include:

- Ruth Watkins, Clark Fork Coalition
- Bob Klatt, Bonner County Shoreline Owners
- Jim Watkins, Lake Pend Oreille Idaho Club
- Jonathan Coe, Sandpoint Chamber Commerce
- Paul Vogel, Idaho Conservation League
- Ron Chaney, Mayor of Sandpoint
- Clark Cowley, Mayor of Clark Fork
- Elona Yaryan, Mayor of East Hope
- Rep. Jim Stoicheff, State Legislature
- Sen. Karen Cooke, State Senate
- Ron Campbell, Bonner Cty. Planning
- Tom Baker, Idaho Transportation Dept.
- Rick Cummins, Idaho Parks and Recr.
- Bob Haynes, Idaho Dept. of Water Resources
- Warren McFall, EPA, Boise
- Randy Shroll, Idaho Dept. of Commerce
- Mike Smith, Idaho Mining Assoc.
- Joe Hinson, Intermountain Forest Industry Ass.
- Dave Suhr, Idaho Assc. Commerce and Industry
- Dave Williamson, Kootenai Cty. Commission
- Leonard Kucera, Idaho Assc. Soil Conservation Districts

# WASHINGTON

## River studies focus on Milfoil

Or the Continuing Saga of the Plant  
that Ate the Pend Oreille

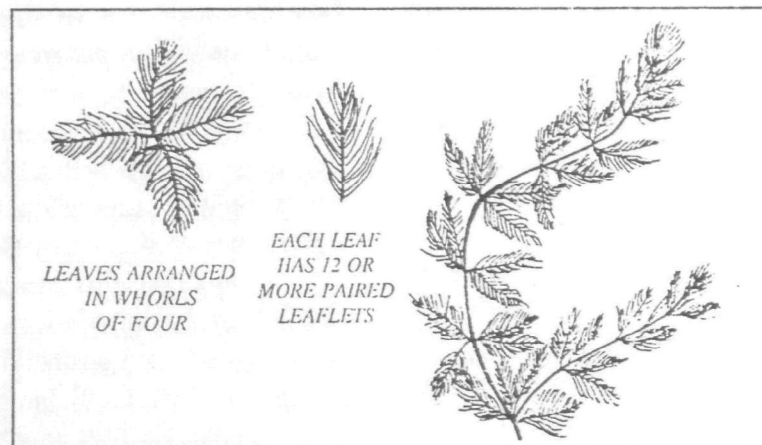
**E**urasian milfoil is an aggressive, non-native aquatic weed. The Washington Dept. of Ecology is studying Eurasian milfoil on the Pend Oreille River between Albeni Falls Dam and Box Canyon as part of the tri-state studies of water pollution. Why is one plant getting so much attention? Because milfoil grows and spreads rapidly in rivers and lakes. It forms dense weed beds, interferes with swimming, boating, fishing, and degrades fish habitat and water quality. Fifty miles of the Pend Oreille River are infested with heavy growths of Eurasian milfoil and the weed is rapidly moving upstream towards the upper Pend Oreille River and Lake Pend Oreille.

The Pend Oreille River is very large, but it is also shallow. It provides an ideal environment for Eurasian milfoil. 200 acres of the river were infested in 1984 and that grew to 956 acres in 1988.

The Washington Department of Ecology is looking at how milfoil impacts water quality. It is known that milfoil is responsible for increased pH and dissolved gases, and reduced dissolved oxygen during the summer growing season, even to the extent of violating state standards.

The 1989 study has also looked at ways milfoil affects fish habitat in the river. Researchers cut paths through dense weed beds with huge aquatic tillers and studied how these clearings affected fish movement and productivity.

Next year the state will coordinate with two other river studies: one by the University of Idaho for Pend Oreille County and the other by Eastern Washington University for the Upper Columbia United Tribes.



It is important to note that once a river or lake is infested with milfoil, **THERE IS NO FEASIBLE WAY TO ERADICATE IT.** Studies on the river are simply a tool to determine how best to manage and control the weed. Control methods generally include tilling of the weed beds, dredging, screening the bottom with black mats to prohibit plant growth, and sometimes chemical use. According to authorities on the milfoil problem, prevention or Eurasian Milfoil. The only chance is to keep it from becoming established in non-infested waters.

### MILFOIL WATCHERS

It is frightening to think that just one small stem or root broken from a milfoil plant and carried to a new body

of water by a boat or birds can re-root and start a new colony.

Recognizing the potential threat this weed poses to Lake Pend Oreille and the upper Pend Oreille River, the Coalition will start a milfoil education program in 1990 which will include pamphlets, articles, and public service announcements to alert residents, boaters, marina owners, and other water users to milfoil prevention.

The Coalition will also start a Milfoil Watchers Program next year to train volunteers to identify Eurasian milfoil and report any sightings of the plant in the river or lake. When Eurasian milfoil sightings are verified, scuba divers can come in to pull out the weeds before they get firmly established. These volunteers will also help educate lake users about weeds. If you are interested in taking a role in preventing the spread of milfoil and being trained as a Milfoil Watcher, contact Ruth (208-263-0347).

- RW



# Clark Fork Coalition CURRENTS

September 1991

## Study recommends action to protect Clark Fork and Pend Oreille

by Peter Nielsen

Proposals to reduce pollution from waste dischargers, phosphate detergents and polluted tributary streams are among the important recommendations found in the Montana Water Quality Bureau's recent interim report on nutrient pollution in the Clark Fork River basin.

The report is an important step in an effort that began in the mid-1980s to reduce nutrient pollution in the Clark Fork-Lake Pend Oreille basin.

Montana began closely scrutinizing nutrient pollution and algal growth in the Clark Fork in 1988 after EPA, under the authority of Section 525 of 1987's Clean Water Act amendments, awarded the state its first grant to study the river's woes. This marked the beginning of a \$1 million effort to pinpoint nutrient sources in the river basin and prepare management plans for the Clark Fork, as well as for Lake Pend Oreille and the Pend Oreille River in Idaho and Washington (see Ruth Watkins' story, this issue). The study follows years of complaints to the bureau from a public that insisted the Clark Fork be clean instead of clogged with pollution-related foam and algae. The public's concern has been highlighted by Coalition-sparked campaigns to push agencies and lawmakers to reduce nutrient pollution in the river.

Among the successes, besides lobbying Congress for the Section 525 study money: seeing to it that the state issued a discharge permit to Stone Container's pulp mill that significantly reduced phosphorus and nitrogen dumping, and prodding local governments to ban the sale of phosphate detergents in Missoula, Alberton and Superior.

Since 1988, the bureau has been investigating nutrient pollution sources along 320 miles of the Clark Fork from Butte to Pend Oreille. The effort has been

aided by the dedication of water quality specialist Gary Ingman, who authored this year's report. He sometimes spent seven days a week on the Clark Fork and its tributaries, taking water samples and watching for problems.

In early 1992, a draft management plan for the entire Clark Fork River drainage will be completed, after state agencies and EPA coordinate similar plans that will be developed for the Pend Oreille watershed in Idaho and Washington. Montana is the first of the three states to issue a report that makes recommendations for interim management.

### Key findings of the report include:

- Ten dischargers, including Missoula, Butte, Deer Lodge and the Stone Container pulp mill, accounted for 48 percent of the phosphorus and 26 percent of the nitrogen available for biological production in the river in 1989 and 1990. Bioavailable nutrients are dissolved in water and not tied to soil particles, thus they can promote rapid plant (i.e. algae) growth. Decomposition of the plants depletes oxygen needed by fish.

*continued on page eleven*

Wetlands ax proposed	p. 2
Hope gets bucks	p. 3
Lake study results	p. 3
Stone permit eyed	p. 8

## *River study . . . continued from page one*

•The remainder of the nutrients came from diffuse sources, such as agricultural and forest land runoff, septic tanks, natural sources and tributary point sources. Tributaries that contribute unusually high amounts of nutrients to the Clark Fork include Gold, Lost, Racetrack, and Dempsey Creeks on the upper river; Mission and Crow Creeks, and the Little Bitterroot River on the Flathead Reservation; and Fish Creek and Bull River on the middle and lower river.

•The Missoula, Butte and Deer Lodge sewage plants and the Stone Container mill contribute about 99 percent of the nutrients from all point-source dischargers along the river.

•The upper river from Warm Springs Ponds to Missoula was in the worst shape, plagued by heavy growths of algae that may be caused by a combination of high sewage loads, irrigation-caused low stream flows and pollution from tributaries.

•Phosphate detergent bans in Missoula and other river communities, nutrient pollution reductions at the Stone Container pulp mill, and steadier streamflows helped improve water quality in the river in 1990.

These findings and the high public interest in restoring the river prompted the bureau to make interim management recommendations. They could be expanded in the final 1992 report. They include:

1. Establish within the Water Quality Bureau a consistent and aggressive policy of nondegradation with respect to nutrient pollution from new or enlarged

point sources along the river.

2. Implement bans on the sale of phosphate detergents in Butte and Deer Lodge.

3. Encourage cities and industry to evaluate and take steps that reduce nutrient pollution, including irrigating and fertilizing hay fields with sewage effluent.

4. Control the sources contributing nutrients to lower Flathead River tributaries, including Mission and Crow Creeks and the Little Bitterroot River.

5. Control pollution sources in Lost, Dempsey, Racetrack, Flint and Warm Springs Creeks.

6. Continue evaluating and, if possible, control nutrient sources on Gold Creek.

7. Control sources of nitrogen pollution on Fish Creek and Bull River.

8. Protect in-stream flows in the river and its tributaries to provide dilution for wastewater discharges.

9. Carefully evaluate the nutrient pollution from groundwater seepage at the Stone Container pulp mill.

10. Continue long-term nutrient monitoring in the watershed.

Water quality specialist Ingman said the recommendations represent reasonable, common sense and low-cost approaches that can be taken as first steps to protect the river and Lake Pend Oreille. "We'll have a better idea of what additional steps are needed when the final project report is complete next year," Ingman said.

If water quality doesn't improve markedly with the interim steps, he said it's possible more expensive options may be needed including advanced wastewater treatment at sewage plants and industry, as well as a process that allocates allowable nutrient wastes among sources basin-wide.

—PN

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## *Wetlands . . . continued from page two*

like a duck it needs somewhere to live. Don't let politicians and developers destroy wetlands.

It's critical that you write the EPA today and tell them to reject the revisions because they are not scientifically based and will cause the loss of valuable wildlife habitat, pollution control and flood protection. Write President Bush and remind him of his pledge. Contact your Congressional delegation and tell them not to support a weakened wetlands policy (Several bills are now floating in Congress to do just that. More on them next issue.) Tell them how valuable wetlands

are to the economy and way of life around Pend Oreille and along the Clark Fork.

Send comments on the proposed manual changes to:

**Gregory Peck, Chief**

**Wetlands and Aquatic Resources**

**Regulatory Branch**

**Mail Code (A-104)**

**U.S. Environmental Protection Agency**

**404 M Street N.E.**

**Washington, D.C. 20036**

— Bruce Farling



## Lake study says local sources also pollute

The federally funded Lake Pend Oreille study hasn't uncovered major surprises about lake water quality, but results indicate that the Clark Fork River is not the only culprit contributing to declining water quality of the lake's near-shore areas. The time has come for lakeshore communities to examine just how they contribute to lake pollution.

The Clark Fork River supplies the lake with 90 percent of its water and nearly 75 percent of its incoming nutrients. The lake study indicates that these nutrients from Montana mostly affect the deep, open waters of the lake where water quality remains high.

Meanwhile, the lake's near-shore areas are experiencing increased weed and algal growth, in some areas at an alarming rate. The study has linked this degradation to pollution sources in the lake's immediate watershed, including septic systems and fertilized developed areas. Urban runoff and erosion caused by land-use activities are also polluting the lake. The study shows that the sections of the lake with the most degraded conditions are those next to developed areas such as Hope and Bayview.

This information clearly shows that the focus for protecting Lake Pend Oreille needs to shift more towards preventing local pollution.

This doesn't mean we should forget about the

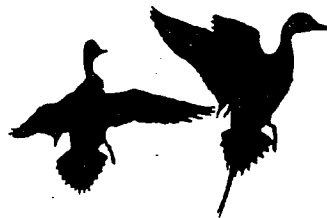
river. Its influence on the lake is tremendous and therefore Montana must send only the cleanest water to Idaho. But Pend Oreille residents must now also look closer at their own backyards.

Midway through the lake study, a policy advisory committee representing citizens' groups, agencies and elected officials, established this management goal for the lake: Maintain the quality of the deep open waters and improve that of the near-shore areas. To achieve this, the committee and Idaho Division of Environmental Quality have begun developing a plan to protect the lake.

Its approach is two-fold: Establish limits on the amount of nutrients allowed into the lake from the Clark Fork River, and minimize impacts from local activities through education and enforceable ordinances. Consideration will be given to measures that reduce pollution from septic systems, fertilizer use, construction, storm-water run-off, roads, boat use, and forest and agricultural practices. Issues involving development density and wetlands protection will also be addressed.

As an active member of the advisory committee, the Coalition will be encouraging strong measures that reduce river pollution and local impacts. A draft management plan will be available for public scrutiny and meetings on its scheduled in lake communities this winter.

— RW



## Hope in Hope: Sewer bucks available

Good news has finally arrived for the Hope sewer project. At a Sept. 18 meeting, the Ellisport Bay sewer district board learned that the state's Water Pollution Control Account has \$14.8 million it hadn't originally counted on. Some of that money is now available for the Hope sewer project. The state will contribute \$3.1 million of the fund, in the form of a low-interest loan and a supplemental grant, to

finance roughly 80 percent of the cost for collection, treatment and disposal of all sewage from Hope and East Hope. An additional \$710,000 will have to be raised through local funding. The sewer board will hold a public hearing in October to explain local funding options and to take public comment on how to raise the money. Contact Ruth at 263-0347.

— RW

## Lake Plan workshops scheduled

Lake area residents should attend important December workshops sponsored by the Idaho Division of Environmental Quality on its long-awaited protection plan for Lake Pend Oreille. The importance of the plan cannot be overstated: If properly designed and enforced, it could be a powerful tool for protecting Lake Pend Oreille today and into the future.

Because results of the plan will only be as good as the plan itself, the Coalition is pushing for strong pollution prevention measures, public education and enforcement of water quality regulations. The Coalition supports the following options developed by the DEQ and the policy advisory committee:

- amend zoning ordinances to decrease development in environmentally sensitive areas and allow dense development in more acceptable areas where centralized sewer systems are required;
- make mandatory inspections of septic systems in lakeshore and streamside areas;
- increase the allowable distances from water for new construction and septic systems;
- establish best management practices for road construction, general construction, fertilizer use and other high-impact activities;

- develop countywide erosion and stormwater control ordinances;
- restrict boat use in shallow water;
- hold Montana to specific amounts of nutrients allowed to enter the lake from the Clark Fork River;
- increase enforcement of the Idaho Forest Practices Act;
- increase the amount of review Idaho gives mining proposals in the Clark Fork-Pend Oreille watershed;
- provide tax incentives for farmers who protect riparian areas.

To help ensure the plan is a solid conservation document, we urge Coalition members in the Pend Oreille area to become involved in lake protection planning. At the workshops, DEQ will explain the plan and take comments. After that, the lake study committee will help the agency shape the final plan, which will then be the focus for public hearings in 1992.

Attend the workshop nearest you!

Wednesday, Dec. 18, 7-9 p.m., Athol Elementary School Library, Highway 95 South, Athol.

Thursday, Dec. 19, 7-9 p.m., Federal Building Meeting Room, Dover Highway, Sandpoint.

-RW

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## Coalition aims to protect Alberton Gorge

The Coalition has begun an ambitious project to protect the Alberton Gorge, a stretch of the Clark Fork that includes 16 miles of the river's most challenging rapids and beautiful canyon scenery.

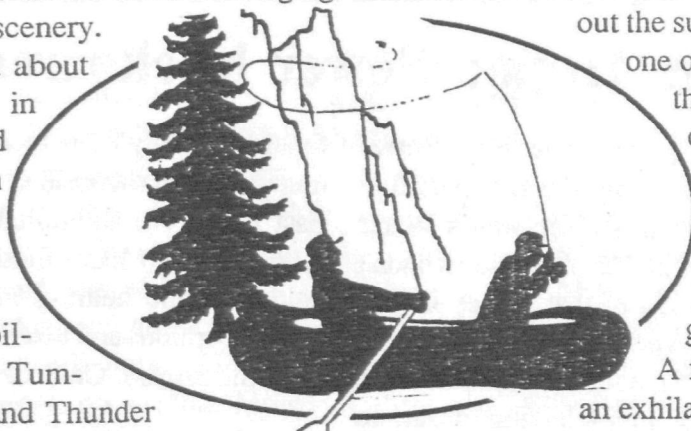
The gorge is located about 40 miles west of Missoula in Mineral County. It is isolated from roads and most human intrusions, and is popular with anglers, campers, rafters and kayakers. The river flows through a narrow canyon, boiling up in challenging rapids: Tumbleweed, Fang, Boat-eater and Thunder Rock. It is the only stretch of whitewater left on the Clark Fork, which had once featured the powerful rapids of

Cabinet Gorge, now drowned by a dam constructed in the 1950s by the Washington Water and Power Company. Because the lower Clark Fork has healthy flows through-

out the summer, the gorge has become one of the few whitewater areas in the state where people can count on sufficient water to float a boat in August. In fact, the gorge often has enough water in late summer to drench most whitewater raft passengers.

A float trip through the gorge is an exhilarating and enchanting experience enjoyed by thousands of visitors every year. But

*continued on page six*





# CURRENTS

## Clark Fork — Pend Oreille Coalition

March 1992

### Lake shore joins list of polluting culprits Study finds development spawns algae

by Ruth Watkins

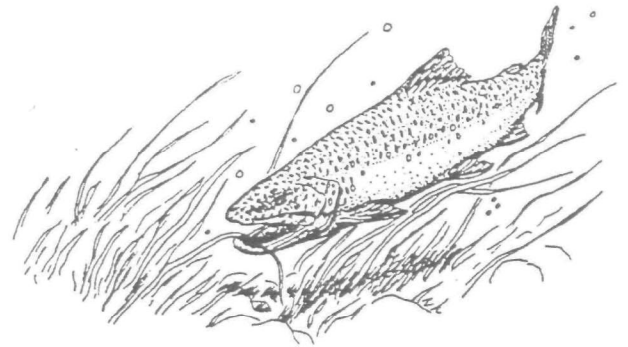
When I started working on Lake Pend Oreille water quality issues six years ago, most of my time was focused on eliminating pollution coming down the Clark Fork River from sources such as the Frenchtown pulp mill and Missoula sewage treatment plant. Like most folks around the lake, I assumed Montana's negligence was responsible for the increased weed and algal growth in Pend Oreille. Surely, I thought, if we cleaned up the river Idaho's largest lake would be in better shape. After all, the Clark Fork supplies Pend Oreille with 90 percent of its water, making it the obvious cause of the lake's woes.

But the lake study funded by the federal government between 1988-91 has revealed other culprits.

The study indicates that the deep open waters of the lake, where the Clark Fork's in-flow has the most influence, have maintained a consistent high quality for the last 40 years. Mike Falter, of the University of Idaho's lake research team, says water quality measurements found in the open water do not account for the vigorous populations of algae, weeds, bacteria and slime found in the lake's near-shore areas. After studying algae near developed and undeveloped areas around the lake's edge, Falter found that deteriorated near-shore areas of the lake were often next to highly developed property or in the bays with most human activity.

This tells us it is time to stop blaming Montana for all of Pend Oreille's woes and begin accepting more responsibility for what we residents are doing to the lake.

But where do we start? A critical first stop is the doors of local government. It's clear that counties will be instrumental in lake quality decisions. In fact, it's no



accident that the Lake Pend Oreille Management Plan, produced by the 3-year study and authored by Idaho's Division of Environmental Quality, names Bonner County as the key player needed for the plan to succeed. Because the county can institute rules to protect water quality, it is the logical body to create and enforce land-use planning activities such as stormwater and erosion control strategies, wetlands mapping, development-density

*continued on page five*

Damage claim study extended	p. 3
Dumps no more	p. 4
Schweitzer slop	p. 7
Conference news	Insert

## Lake...continued from page one

planning and lake protection ordinances.

The opportunity for Bonner County to assume a leadership role in lake protection is opportune because it will rewrite its comprehensive plan this year. As the blueprint for countywide land-use planning, the plan could and should target water quality protection as a top priority. Planning and zoning can be the engine that drives many of the pollution-reduction measures recommended in the lake study, such as tightening controls on septic systems, containing stormwater runoff, requiring erosion control mea-

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*We would be wise to think about how much, where and what kind of growth is compatible with a clean lake*

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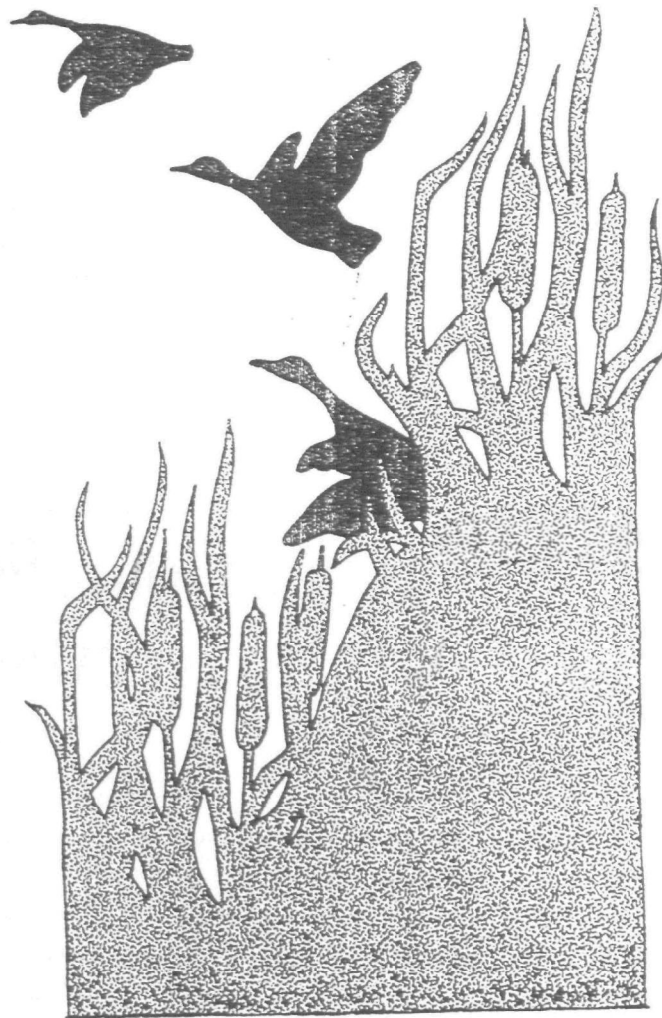
sures for road construction and developing conservation guidelines for densely developed areas.

We could, for example, better manage wastewater by requiring areas of dense development (such as the burgeoning communities on the Pend Oreille River or bumper-to-bumper RV parks at Trestle Creek) to use community sewer systems. In critical areas with less density, periodic monitoring of septic systems could help detect pollution before it severely damages water quality.

A fundamental question with important implications for water quality is how to deal with growth. Specifically, how much, where and what kind. Attracted by north Idaho's high quality of life, people are moving to the Pend Oreille watershed in droves. More people means more development and more pressure on water resources.

Development produces more asphalt and concrete, and therefore more hardened surfaces to funnel polluted stormwater into streams and the lake. Residential and commercial development causes erosion, increasing sediment and nutrient pollution. Development also eats up open space, wetlands and other important natural areas that contribute to the area's attractiveness and help filter polluted runoff. Development means more septic systems, and more potential nutrient pollution to groundwater and the lake.

We would be wise to think about how much,



where and what kind of growth is compatible with a clean lake at the same time a new comprehensive plan is developed.

With lake study results now almost complete, Bonner County pondering a comprehensive plan rewrite and growth issues coming to the forefront around Lake Pend Oreille, the theme for the Coalition's 1992 annual conference will be how lake protection and land use planning can work together. We hope the April 11 Sandpoint gathering encourages lake-area residents, planners, realtors and developers to find common ground on which to build a future that ensures we don't love this wonderful lake to death.

Does the attention on local land uses mean we forget about the Clark Fork River's impact on the lake? Definitely not. The river is a very real polluter to the lake. Recognizing that, the lake management plan recommends limiting the nutrients the river dumps into the lake. The lake plan, in fact, will be coordinated with a study plan being developed for reducing nutrient pollution of the Clark Fork. The culmination of the river and lake studies, we hope, will prod Idahoans to pollute their backyard less and remind Montana that its pollution problems can also be Idaho's.



# Lake plan headed in right direction

December workshops exploring management options for protecting Lake Pend Oreille netted mostly positive public responses, sending a message to Idaho's Division of Environmental Quality (DEQ) and its advisory committee that the lake plan is heading in the right direction.

The plan, the result of several years of study and funded through the last authorization of the federal Clean Water Act, will be submitted to EPA in late January. It contains more than 40 options for protecting the lake from pollution contributors such as septic drainfields, stormwater runoff, road construction, boats, logging, agriculture and Clark Fork River point sources. Control measures being mulled range from increased public education and local ordinances to special zoning and tax incentives.

Implementation of these measures may be partially funded through the federal Clean Lakes Program. Before these funds can be applied for, however, DEQ is required to develop specific limits on nutrients (such as phosphorus and nitrogen) in the lake. These limits will restrict the amount of nutrients allowed to enter the lake from the Clark Fork River. DEQ also hopes to set similar limits for nutrients coming from the bay areas around the lake.

Meanwhile, a three-state management plan that covers the entire Clark Fork/Pend Oreille watershed is in the works and will be ready for public review in June. This larger plan incorporates the lake plan plus control measures for the Clark Fork and Pend Oreille rivers. After public review, the final plan will be presented to Congress for its blessing.

— RW



## Fear of Mining

### New video shows why mining alarms communities

An unfortunate consequence of mining in the West is that it often pits neighbor against neighbor, or community against community. More often than not those fearful of the social and economic upheaval posed by the short-term promises of metals mining remain silent, fearful of being bashed by local mining boosters. But that's not the case in Cooke City, Montana, where most residents oppose Canadian-based Noranda Minerals' proposal to mine gold in an open pit near the tourism-based community.

In a new video, *Undermining Yellowstone*, local residents express their fears how the mining will affect community solidarity, Yellowstone Park and local wildlife and water quality. Produced by World Wide Film Expedition, an independent Missoula film company, this 21-minute vignette on the environmental and social risks of large-scale gold mining could — if not should — have been made in any of the many communities in the West facing the consequences of the new gold rush.

In the case of this proposal, community interest extends beyond Cooke City, though. It includes the millions of Americans who should be worried about how this mine — proposed for a site that will be practically impossible to reclaim and which already produces pollution from historical mining — will affect the surrounding environment. At risk are Yellowstone Park, its grizzly population and water quality in the Stillwater River and the Wild and Scenic Clark's Fork of the Yellowstone.

Though the production quality of the video is a little rough because of a small budget, its message is big. And important.

*Undermining Yellowstone* is available from World Wide Film Expedition, Box 7391, Missoula, MT 59807. The cost is \$10, loaners are available for \$3. Proceeds will go to the Beartooth Alliance, a grass-roots organization in Cooke City opposed to irresponsible mining. Contact them: Box 1141, Cooke City, MT 59020.