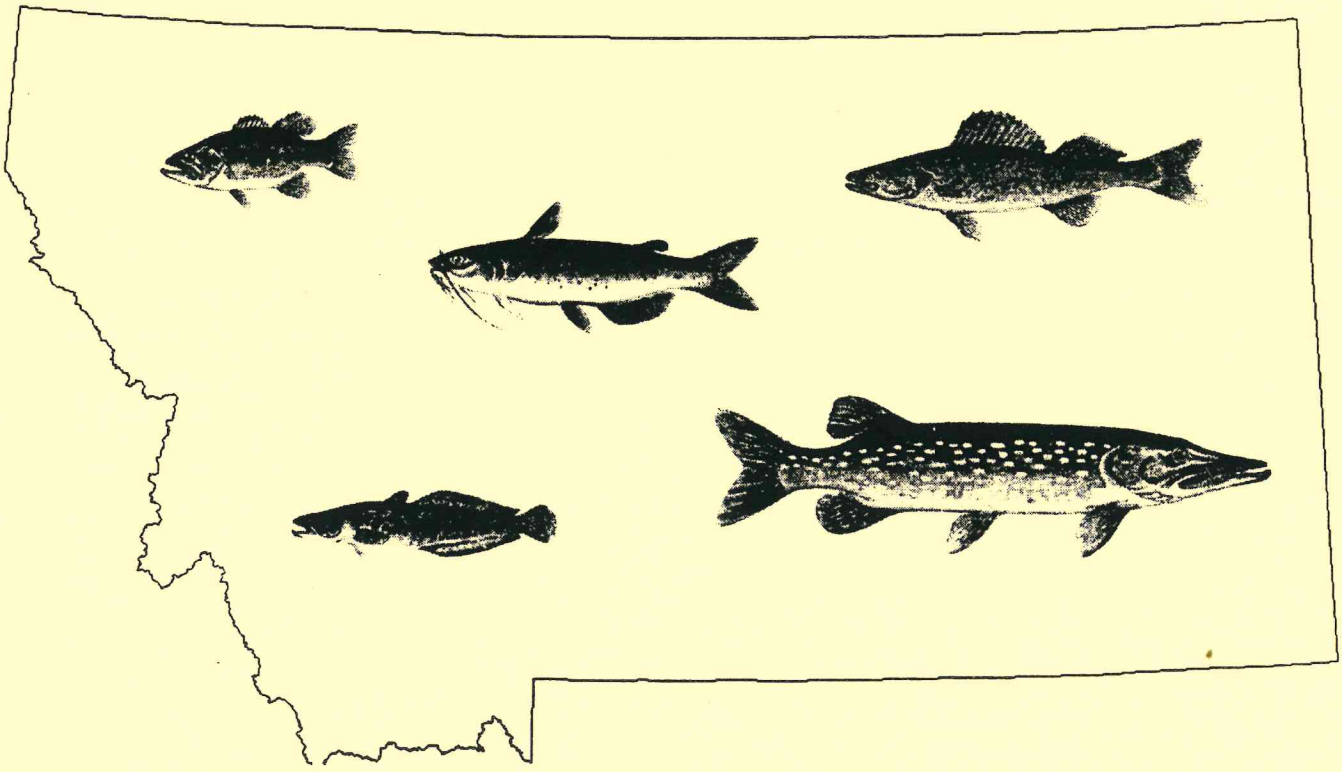
MONTANA WARMWATER FISHERIES

MANAGEMENT PLAN

1997 - 2006



MARCH 1997

Montana Fish, Wildlife & Parks

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Montana Fish, Wildlife & Parks
Fisheries Division
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INTRODUCTION

Warmwater fisheries constitute an important recreational resource in the state of Montana. Interest in warmwater fishing has certainly increased since 1987, when Montana Fish, Wildlife & Parks (FWP) prepared the first statewide warmwater fish management plan. This new management plan is intended to respond to growing interest in warmwater fishing and provide an opportunity for the public to help shape the future management of this resource.

Purpose of Document

This plan is intended to enhance and increase warmwater fishing in Montana by guiding FWP's management of this resource for a 10-year period. The planning process has been designed to include substantial public involvement. The plan provides background information on important issues influencing warmwater fishing. Lastly, this plan includes regional sections where management plans for specific bodies of water are addressed.

This WFMP does not cover waters or species with current management plans. A list of these waters, by region and the time period covered by these plans, is provided in Appendix A. Future management direction of these waters will be reviewed and potentially changed as corresponding management plans expire and new plans are developed.

Based upon the recommendations included in this document, FWP has determined that the adoption of this plan does not constitute a major action of state government significantly affecting the quality of the human environment. Therefore, an environmental review under the Montana Environmental Policy Act (MEPA) is not required. However, several decisions to be made by FWP in the future, including introduction of new fish species and site developments, may require review under MEPA. A determination about the need to conduct environmental reviews on these actions will be made in the future as specific projects are proposed.

Public Involvement Process

On December 14, 1995, the Montana Fish, Wildlife & Parks Commission approved a process illustrated on page 3 for development of a new WFMP. This multi-step process incorporated considerable public involvement and the creation of a Citizen's Advisory Group to further solicit external input. Following is a description of each step in this process:

1. Step 1 included an internal identification of issues, process development, and preparation of regional fisheries summaries. Plans for preparing the new WFMP were approved by the Commission at their December 1995 meeting. A Citizens Advisory

Group, consisting of representatives from throughout the state was recruited to participate in the planning process.

2. An information packet consisting of a 30-page summary of the state's present warmwater fishery and a detailed survey was distributed to approximately 2,000 individuals. Written comments on this overview of warmwater management issues were also collected from the public for a 30-day period.

3. Public comment and survey results (Appendix B) were used to prepare the first draft of the WFMP. This draft was tentatively approved by the Commission at their November, 1996 meeting in Butte.

4. The draft WFMP was distributed to all interested parties for a 45-day review period. The draft plan was also the basis for 18 public meetings conducted throughout the state.

5. Input from written comments and public meetings was incorporated into the final draft of the WFMP.

6. The final draft of the WFMP will be presented to the Commission for approval at their April 1997 meeting in Helena.

Citizen's Advisory Group

The Citizen's Advisory Group plays an important role in the development and implementation of this plan. This 18-member group, which consists of a number of anglers affiliated with organized fishing groups as well as unaffiliated anglers, provides FWP with an angler perspective and also assists in distribution of information to the public. Individuals in this group were also involved in presenting the plan during the 1996 regional public meetings conducted in November and December.

After the final WFMP is approved by the Commission, the Citizen's Advisory Group will be maintained to provide ongoing guidance in the implementation of the plan. Annual meetings of the WFMP Team, consisting of the Citizen's Advisory Group and FWP fisheries professionals, during the 10-year duration of the WFMP are planned to review prioritization and implementation of statewide warmwater management efforts, including stocking, access, site development, and preparation of new fish management plans.

WARMWATER FISH MANAGEMENT PLAN PROCESS

STEPS		COMPLETION DATE
1.	Identify issues; summarize regional fisheries; FWP Commission presentation; develop process; create advisory groups.	2/24/96
2.	Distribute information package to public for written comments.	3/20/96
3.	Summarize public comment; present first draft of plan to FWP Commission; distribute plan to public.	11/8/96
4.	Summarize public comment; conduct public meetings on regional basis.	12/31/96
5.	Incorporate comments into plan; distribute plan to public.	3/24/97
6.	Final FWP Commission approval of plan.	4/4/97

STATEWIDE ISSUES

The purpose of this section is to provide the reader with a broad overview of the issues related to management of warmwater fisheries in Montana. These issues represent historic concerns anglers have had with Montana's warmwater fisheries and also indicate some of the constraints to FWP in management of this resource. An appreciation of these issues also provides background for proposed management included in the section entitled, "Regional Fisheries Management." Additionally, an action plan is provided for several of these issues which lend themselves to a statewide plan.

Special Regulations

Special fishing regulations are usually more restrictive than statewide or district-wide regulations. Some examples of special regulations include various length limits such as minimum, maximum, and slot-limits, reduced bag limits or catch and release regulations, and shortened or closed seasons on specific stretches of rivers or lakes. Special regulations are generally designed for site- or species-specific application and are useful tools for fish management when applied on the basis of sound fisheries science.

The purpose of special regulations is to provide for, and maintain maximum recreational opportunity for the angling public while ensuring the long-term welfare of fisheries resources. Special regulations have been used extensively throughout Montana in recent years to improve fishing for both cold- and warmwater fish populations. Successful application of special regulations at specific sites often leads to public demand for additional regulations on other waters.

It is important to recognize, however, that by managing a certain species with a special regulation, the entire fish community may be impacted. For example, if a minimum length limit is applied to a walleye population in a reservoir where over-harvest of small walleye has been a problem, an eventual increase in the number of small walleyes would be expected. This growth in walleye numbers would increase predation on prey species in the reservoir and eventually might reduce their abundance. Some of these prey species might be sportfish such as yellow perch or crappie that are also sought by anglers. Hence, increasing walleye numbers might negatively affect panfishing in this example. Also, by reducing the density of prey available other predacious sportfish such as largemouth bass and northern pike may be negatively impacted.

This example is intended to illustrate how fisheries managers must consider the "big picture" when implementing special regulations. It also shows that on a statewide basis there needs to be a balance to the management of various fish species. That is, all the lakes in Montana should probably not be managed to provide for one type of fishing. Montana anglers are interested in a variety of angling opportunities; therefore, our fisheries should be managed to reflect that diversity in angling interests.

An important aspect of implementing the new WFMP will be to ensure that special regulations are wisely used to provide a diversity of warmwater angling opportunities throughout the state. We hope to accomplish this by examining present regulations and identifying waters where special regulations might be deleted or added. These decisions will be made on the basis of the best possible biological information available and extensive public involvement with the WFMP Team and interested anglers.

In the regional management sections of this plan, several new regulations are proposed for future consideration. Besides these potential changes, the WFMP Team will be considering new regulation proposals on an ongoing basis during the duration of this plan. All fishing regulations are set on a biennial basis by FWP. This multi-step process involves extensive public input and is summarized on the flow chart on page 5.

Illegal Introductions

In recent years, there has been an alarming increase in the illegal stocking of fish throughout Montana. Some notable examples include walleye in Canyon Ferry and Noxon Rapids reservoirs, striped bass in Yellowtail Reservoir, and northern pike in the Clearwater Drainage. In each of these instances, resident fish populations may be adversely impacted over time, resulting in an overall loss of angling opportunities.

Motivation for illegally stocking fish probably comes from the desire to have more opportunities to fish for certain species. It is the responsibility of FWP, however, to carefully plan and implement fish introductions. Entire fish communities and threatened and endangered species in particular, can be irreparably damaged by illegal introductions. These efforts can easily backfire on the perpetrators by damaging fisheries resources, and by reducing public regard for the species being illegally stocked. Furthermore, unintentional introduction and spread of fish disease and undesirable aquatic plants can also occur through illegal stocking.

It is our hope that by carefully providing diverse fishing opportunities throughout Montana, and by educating the public about the risks of illegal stocking, that this environmentally damaging practice will be greatly reduced. Providing input into fisheries management plans such as this revision of the state WFMP is the proper means of suggesting introduction of new fish species. Through this process, public acceptance of proposed introductions and biological consequences can be determined through environmental assessment before an irreversible action is taken.

To further discourage and reduce illegal introduction of fish in Montana, creation of an angler task force, trained to observe and report illegal introductions will be one of the first assignments for the WFMP Team upon implementation of this plan. This task force will be highly publicized to create an awareness of the issue and the presence of a citizen's watch dog group that is motivated to report suspected incidences of illegal stocking.

FWP BIENNIAL FISHING REGULATION PROCESS

STEPS		TIME PERIOD
1.	Internal development of proposed regulatory changes.	Jan. - Apr. of Odd-numbered years
2.	External input sought for proposed regulatory changes.	April - June
3.	Tenative regulations drafted for adoption by FWP Commission	June - Sept.
4.	Public review of tenative regulations.	Sept. - Nov.
5.	FWP Commission adopts final regulations.	Nov.

Increased education efforts to publicize the risks of illegal introductions will also be made, particularly at the elementary and high school level, through FWP's new Angler Education Program. The WFMP Team will work with the Conservation and Education Division of FWP to produce educational media such as videos and press releases that highlight the consequences of illegal introductions. The WFMP Team will also develop an annually updated list of problem areas where illegal introductions are suspected and provide such information to FWP's Enforcement Division.

Finally, the WFMP Team will consider future legislation and administrative rules to more carefully monitor importation of fish into Montana from out-of-state sources. This may include increasing public awareness of fish importation requirements and requiring out-of-state hatcheries to verify evidence of private pond licenses before supplying fish.

Legal Introductions

Stocking of new predator and forage species, when carefully evaluated, can be an important component in management of the state's warmwater resource. Warmwater fish management is still relatively new in Montana, and there are some unmet stocking needs for some of our warmwater fisheries.

Introduction of new predators is exciting to many anglers, but sometimes stocking forage can have as much potential to improve fishing. An important aspect of the new warmwater fish management plan will be to address introduction of predator and forage species. As with implementation of special regulations, we need to strike a balance in how our fisheries are managed. This balance can best be achieved by identifying the interests of the angling public and educating anglers about the biological capabilities of their fisheries.

The regional fish management sections of this plan include some preliminary proposals for action. Furthermore, future considerations for new species introductions will be considered on an annual basis during the duration of this plan (1997-2006) by the WFMP Team. New proposals for species introduction identified by the WFMP Team will also require preparation of environmental assessments as directed by MEPA.

Role of Hatcheries

Hatcheries play an important role in warmwater fish management. Some species such as walleye do not naturally reproduce in certain Montana lakes and reservoirs and must be stocked annually to provide satisfactory densities for anglers. Also, Montana is at the northern edge of the range for several warmwater fish such as crappie, and largemouth bass. Hence, in some years these species may not reproduce and may require supplemental stocking to maintain good fishing.

Besides spawn-taking and stocking of warmwater gamefish, hatcheries are also involved in a variety of other activities such as coldwater sportfish production and native fish recovery. Unfortunately, there is a limit to the number and variety of warmwater fish that our hatchery system can produce for stocking throughout the state. Thus, there is a need to prioritize warmwater production by species and determine how these fish will be allocated throughout the state. This is particularly important since the Miles City Fish Hatchery, which is the only unit producing warmwater fish in the state, is presently operating at or near full capacity.

An overall system review for the entire FWP hatchery system has been completed by a private consulting firm. One of the objectives of this review was to compare present production capabilities to anticipated demands, by species over the next five years. Present and future production needs for warmwater fish as determined by this report are provided in Appendix C. These projections indicate present production of several warmwater sportfish, including walleye and largemouth bass, must be increased to meet future stocking needs.

The 1997 Montana Legislative Session has approved funding of approximately $815,000 to complete previously planned construction of Miles City Fish Hatchery. This funding includes building four new production ponds, a water chilling unit to improve walleye fry production, and extensive replacement of oxidized aluminum plumbing with stainless steel valves and pipes. FWP projects that these improvements will allow for production of additional warmwater fish to meet future stocking needs.

Until expansion of the Miles City Fish Hatchery is completed, the WFMP Team will provide ongoing input on allocation of warmwater fish throughout the state and production priorities by species and site. After hatchery expansion is completed, actual production increases for warmwater fish will be monitored, and the WFMP Team will continue to provide recommendations for meeting warmwater stocking demands, particularly if any shortfalls are still evident.

Habitat Management

Fisheries can be greatly influenced by habitat management practices such as water level manipulation, addition of artificial structures, and in rivers, by protection of stream flows. Fish management is not the only consideration in water use, though, and this use must be meshed with other activities such as irrigation and hydropower production. In preparing the WFMP, problem areas related to habitat management have been identified and addressed on a case-by-case basis. Some issues include water quality and quantity, and lack of suitable structure. Within the regional management sections of this plan, strategies are proposed to improve fisheries in lakes, reservoirs, and streams limited by these problems. These include leasing water rights, negotiating modifications in water releases,

and implementing habitat structure projects. Funding for these projects may be sought through the FWP Future Fisheries Improvement Program.

Habitat management can be costly and time-consuming. From a statewide perspective, we must prioritize our needs in this area. The WFMP will serve as a decision-making tool to guide our habitat improvement efforts.

Native Fish

An important goal of FWP is to preserve the diversity of Montana's wildlife resources. This includes protection and restoration of native fish populations, some of which are also popular warmwater sportfish such as paddlefish, sauger, and sturgeon. Many native species have little or no recreational value, yet it is important to remember that stewardship of these species is a legal mandate and mission for FWP.

Our management of warmwater sportfish must include an appreciation for potentially impacted native species. For example, before we stock a new predator in a reservoir or introduce a prey species, potential impacts to native fish species must be considered. FWP is compelled by its own mission and legal mandates such as the Endangered Species Act to carefully evaluate warmwater sportfish management in relation to native species.

This WFMP includes emphasis on management of native fish to provide angling opportunities. Non-native species certainly figure prominently, but potential impacts to native species are an important issue in future warmwater management planning described in the regional management sections.

Table 1. Status of Select Montana Cool- and Warmwater Sportfish.

Species (common name)	Native	Introduced	Protected Status[1]
largemouth bass		x	GF
smallmouth bass		x	GF
walleye		x	GF
sauger	x		GF
white sturgeon	x		GF;FE; SC
pallid sturgeon	x		GF;FE;SC
shovelnose sturgeon	x		GF
paddlefish	x		GF;SC
burbot	x		GF
channel catfish	x		GF
yellow perch		x	
bluegill		x	
black and white crappie		x	
tiger muskie		x	GF
northern pike	x		GF

Regulating Baitfish Industry

Regulating the private baitfish industry is a vital aspect in protecting Montana's fishery resources. FWP recognizes that anglers rely on the availability of a variety of baits provided by the baitfish industry. However, the collection and sale of baitfish, crayfish, and other types of bait must be carefully regulated to avoid accidental introduction of exotic fish, plants, invertebrates, and diseases.

Over the course of this 10-year plan, the WFMP Team needs to address general and site-specific regulations governing the private and commercial collection, sale, and use of fish, crayfish, and other aquatic organisms for bait. It may be necessary to adopt further regulations governing the baitfish industry to minimize environmental risks. An examination of which types of baits will be permitted in the state's warmwater fisheries is also in order. Finally, we must insure that collection and use of commercial bait is not adversely impacting native species through inadvertent collection of native fish of special concern.

Besides formulating future baitfish regulations, the WFMP Team will also consider means of informing the public on current and proposed rules governing baitfish. The first proposed

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[1] GF = gamefish in Montana statutes; FE = federally listed endangered species; SC = Montana fish of special concern.

project is creating a pamphlet on baitfish rules, regulations, and identification that will be distributed to the public through FWP regional offices.

Private Ponds

Private fish ponds are an important recreational resource in Montana. If not properly regulated and managed, however, these ponds can also create problems for public fisheries. Private fish ponds are potential sources for illegal introductions and introduction of diseases; private fish ponds can also alter downstream water quality and quantity by water withdrawals which affect valuable stream flows.

Applications for private fish pond permits in Montana are increasing. FWP needs to better monitor this activity to protect aquatic resources. Accordingly, FWP is preparing recommendations for improved oversight of private fish ponds. Some issues to be addressed include developing guidance for fish pond owners, whirling disease testing and sources of fish, and inspection and permitting of private fish ponds.

The WFMP Team will review private fish pond recommendations during the span of their plan. Private fish ponds, particularly in eastern Montana, represent a significant proportion of the state's warmwater resource. Even though the state does not directly manage this resource, FWP wants to insure that private fish ponds continue to provide recreational opportunities in a manner that does not impact public fisheries.

Another important private pond issue involves stocking of FWP hatchery fish in private waters to provide public fishing opportunities. FWP policy is that private waters will only be stocked with state fish when public access is provided. The WFMP Team will be involved in future development of a more standardized and accessible process for FWP regions to notify the public of fishing opportunities at private waters that are stocked by FWP.

Fishing Derbies

Fishing derbies are proliferating in Montana. These events run the gamut from instructional clinics for children to walleye and bass tournaments for experienced anglers. Fishing derbies are regulated through an application process managed by FWP. We evaluate these events on factors such as educational opportunities, conflict with other resource uses, and potential impacts to the aquatic resource.

As use of warmwater fisheries expands in Montana, it may be necessary to further refine how derbies and tournaments are conducted at public fisheries. The WFMP Team will review public comment on derbies and participate in formulation of new policies on fishing derbies.

Facility Development and Access

Facility development is also an important aspect of fish management that can greatly enhance the recreational potential of Montana's warmwater fisheries. Boat ramps, docks, roads, parking areas, and fish cleaning stations are facility developments that can greatly increase angler satisfaction. There are, however, dollar and labor costs associated with such developments, and these must be balanced with other needs.

Obtaining angler access through easement, lease and purchase is another means of increasing fishing opportunities. We will attempt to identify areas lacking in facility development and access needs. Individual fisheries managers have opinions about access priorities within their areas of responsibility, but we also need to learn what the angling public feels are the most pressing facility development and access needs.

Developing partnerships with other state, federal, and local agencies, and private interests is another means of improving facility development and access for anglers. These partnerships might include cost-sharing programs where eligible projects receive matching funds from FWP to enhance facilities, multi-agency projects to open more waters to public fishing, and cooperative agreements where FWP provides capital construction costs, and clubs or communities are responsible for operation and maintenance.

Specific proposals for facility development and access are included on a site-by-site basis in the regional fisheries management sections of this plan. Implementation of these proposals will depend on funding, partnerships, and priorities within the region and state. The WFMP Team will help identify necessary proposals and formulate priority projects.

Urban Fishing Opportunities

Many anglers in Montana have expressed an interest in expanding angling opportunities near urban areas, particularly for youth and novice anglers. In response to this demand, FWP has created a new angler education program, "Family Fishing Adventures," to create increased opportunity for Montana families to enjoy the state's fisheries resources by improving angling skills and knowledge, and by reducing barriers to angling participation.

An important goal of this program is to create and improve easily accessible fishing areas for youth and family fishing. These fisheries will be primarily small lakes and reservoirs located in or near urban areas throughout Montana. During the fall of 1996, regional fisheries managers in each region of the state identified potential sites for developing urban fisheries. These specific sites are identified in the regional management sections of this plan. Specific fish management recommendations, such as stocking, site development, and fishing regulations are also identified in the action plans for these waters.

Besides the initial urban waters included in this plan, the WFMP Team will annually review the progress of this program and provide input on future development of additional urban fisheries. Important future management considerations will include creation of diverse multi-species fisheries that provide diverse angling opportunities for novice and experienced anglers.

Law Enforcement

Effective law enforcement efforts are essential to maintenance of quality fisheries. Angler compliance with special regulations and other rules and laws is based, in part, on a law enforcement presence at select waters. Besides ensuring compliance with fishing regulations, law enforcement efforts are integral to the success of virtually all the statewide efforts described in this section.

Many anglers have expressed concern that there is inadequate enforcement at certain waters. To better appreciate FWP law enforcement efforts, there is a need for anglers to understand personnel limitations and other constraints on FWP game wardens. Anglers should be aware that many enforcement efforts are not widely publicized to improve effectiveness. Anglers should also be aware of the need for self-regulation by reporting observed violations to local officers or TIP-MONT.

During implementation of the new WFMP, the WFMP Team will identify "problem" waters where compliance with special regulations and other laws is inadequate. Prioritization of enforcement efforts may help improve fisheries in these situations. Ultimately, law enforcement efforts will be coordinated at the regional level, and the WFMP Team will provide input to the FWP Enforcement Division on identifying “problem” waters and regulations.

REGIONAL FISHERIES MANAGEMENT

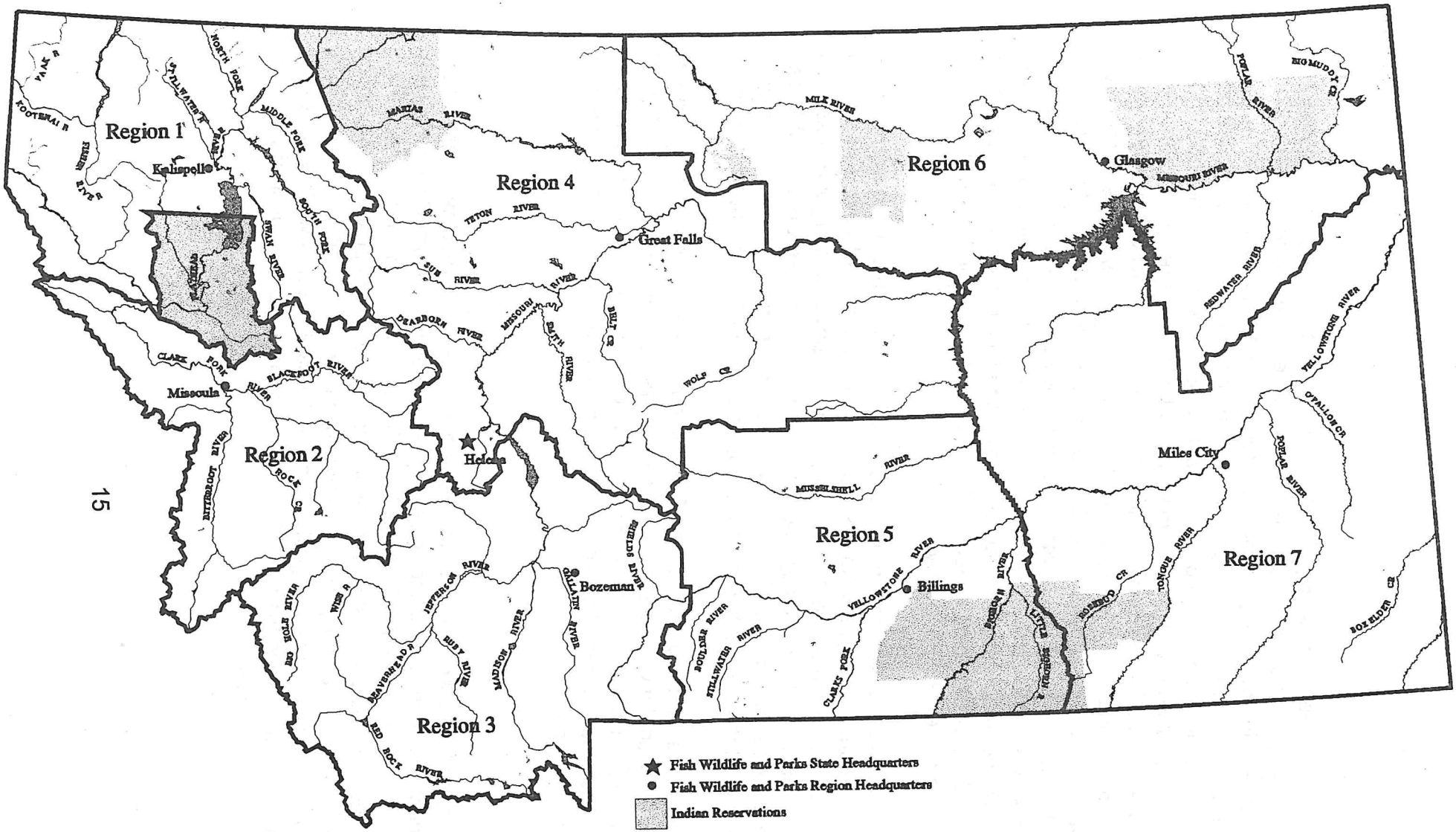
FWP has divided Montana into seven regions to provide for more direct and efficient management of the state's wildlife and fisheries resources. Regional offices are located in Kalispell (R-1), Missoula (R-2), Bozeman (R-3), Great Falls (R-4), Billings (R-5), Glasgow (R-6), and Miles City (R-7). Each region is staffed with a regional fisheries manager and a varying number of biologists and technicians to plan, implement, and monitor fish management activities. The status of each region's warmwater fishery is described below on a species-by-species basis to provide specific information on present management activities such as stocking and special regulations. This general overview is followed by management plans for major waters, including a review of historic issues and proposed action plans.

REGION ONE

OVERVIEW

Region One, which comprises the northwest corner of the state and is located entirely west of the Continental Divide, contains a variety of warmwater fish populations. Primary drainages supporting lake, reservoir, and river warmwater fisheries include the Clark Fork, Flathead, and Kootenai. Warmwater fisheries management in this region must be carefully balanced with the region's coldwater fisheries and native fish species of special concern including white sturgeon (federally listed endangered species), westslope cutthroat trout, bull trout, interior redband trout, and shorthead sculpin. In several waters, protection and restoration of native species is the primary fisheries management emphasis. Management direction for specific waters is also influenced by prevailing habitat characteristics such as water temperature and flows. In some waters, it may be impractical to manage for coldwater species, for example, if water temperature is too warm or flows are inadequate to ensure successful spawning efforts. If habitat conditions change in specific waters due to new land/water management practices or other factors, FWP will reconsider management emphasis, particularly when native species recovery may be affected.

FWP is presently evaluating interactions of warm- and coolwater fish species. For example, predation on and competition with native species by warmwater fish is currently being studied in several waters. In the future, results of these studies will be considered when proposing new warmwater management initiatives. In most instances, any management actions such as special regulations, stocking, or habitat improvement projects will be preceded by an environmental assessment to avoid conflicts with native species.



MONTANA FWP REGIONS AND MAJOR RIVERS

Black Bass

Largemouth bass are the most widely distributed black bass in Region One and are present in 70 lakes and reservoirs as a result of both legal and illegal introductions. Smallmouth bass are found in only 14 waters. Regional management emphasis is on maintenance of wild, naturally recruiting populations. In general, there are sufficient adult fish and spawning habitat to maintain populations. Female bass produce about 5,000 to 7,000 eggs per pound of body weight. Accordingly, eight waters are regulated with a May 15 - June 30 "season," during which a minimum length limit of 22 inches and a daily bag limit of one fish are imposed to protect spawning fish. In five additional waters, anglers are restricted to harvest of only one bass over 12 inches to maintain adult numbers. Another water, Horseshoe Lake, is managed with a 12 to 16 inch slot-limit to protect spawning smallmouth bass. Spearing is also banned in a number of waters to further protect black bass. Species management efforts aimed at enhancing black bass populations include supplemental stocking in 13 waters to augment natural recruitment and artificial structure plants in 23 waters since 1988 to improve habitat.

Northwest Montana is at the northern range for bass. Bass may take five to seven years to grow to three pounds and heavy harvest can limit the number of large fish without special regulations. Cold summer weather can stop or delay spawning and young bass that do not reach two inches by fall generally would not survive over winter. Cold weather can result in weak year classes or "gaps" in the fisheries. Unfortunately, the same weather affects hatchery production so hatchery fish are often unavailable when needed most.

There is interest in expanding the range of smallmouth bass in Region 1. A generic environmental assessment was completed several years ago but the effort was stopped due to concerns over impacts on native salmonids such as bull trout. Once native trout management priorities are set the region will move ahead with assessing potential smallmouth bass introductions.

Walleye

Walleye have been documented in four waters within the region, presumably as a result of illegal introductions; there are no known established populations. No walleye have been stocked by FWP in Region One and the FWP Commission has implemented a policy which bans management of walleye west of the continental divide due to potential impacts on trout and salmon. Thus, we do not propose to enhance the status of walleye in Region One for the foreseeable future. Any management efforts directed towards walleye in Region One will be aimed at minimizing their density and distribution to avoid conflicts with other gamefish and native species.

Northern Pike

Northern pike are found in nearly 60 waters within the region. These populations are all directly or indirectly the result of illegal introductions as they have never been stocked by FWP within the region. In most of western Montana, northern pike are presently managed with a liberal 15 fish daily bag limit and no minimum length limits to encourage harvest and attempt to reduce population densities. Because northern pike are major predators and can occupy lake and river habitats favored by salmon and trout, their presence can be a major threat to many coldwater sportfish, and bull trout in particular. However, northern pike are increasing in popularity and are the predominant fishery in many waters. Consequently, growing numbers of anglers are asking for more conservative management to enhance select northern pike fisheries.

Burbot (Ling)

Fishable burbot populations occur within Region One in the Kootenai River, lake Koocanusa, and Triangle Pond. This species has a small but ardent following of anglers, and a special regulation closing Lake Koocanusa to burbot fishing from January 15 through February 28 is in effect to protect spawning adults.

Panfish

The primary panfish species in Region One is yellow perch, which occur in approximately 75 major lakes and reservoirs. However, fishable populations of yellow perch containing quality size fish only occur in six waters. Most of the other populations show problems with stunting and/or competition with other fish species. Pumpkinseeds are also present in many waters but generally do not grow large enough to interest anglers. Bluegill and black crappie occur in a few waters, mostly from illegal introductions. Usually these species also exhibit slow growth and small adult size. Finally, catchable-sized black bullheads occur in a few waters within the region and are popular with some anglers. Illegal introductions, stunting, and competition are all problems with black bullheads.

MANAGEMENT PLANS FOR MAJOR WATERS

THOMPSON CHAIN-OF-LAKES

The Thompson Chain-of-Lakes plan is in final stages of approval and will be in effect 1997-2002. The Thompson Chain-of-Lakes consist of 17 interconnected or adjacent lakes halfway between Libby and Kalispell in northwest Montana. The primary warmwater management actions are divided into four groups: (1) Upper, Middle and Lower Thompson Lakes; (2) Rainbow Lake; (3) Horseshoe Lake; and (4) Loon/Little Loon Lakes.

For the first group, management emphasis is on largemouth bass, with population surveys planned to determine need for supplemental stocking and artificial structure enhancement. For Rainbow Lake, primary management plans include stocking largemouth bass, artificial structure enhancement, and evaluating largemouth bass harvest restrictions during the spawning season. Primary management at Horseshoe Lake will include completing an environmental assessment on introduction tiger muskie. At Loon/Little Loon Lakes, largemouth and smallmouth bass populations will be augmented with supplemental stocking, artificial structures will be added, and spawning season harvest restrictions for largemouth bass will be evaluated.

NOXON RAPIDS RESERVOIR

Management Objective

Primary management emphasis to enhance largemouth and smallmouth bass populations with lesser emphasis on northern pike and yellow perch, and balanced with maintenance of native salmonid populations. If habitat changes occur in the future through re-licensing, management emphasis may be directed towards native salmonids.

History/Status

Noxon Rapids is a 38-mile-long impoundment on Clark Fork River built and filled in 1959. The upper 20 miles (above Vermilion River) is slow riverine environment, the lower 18 miles a lake environment. Maximum depth is 175 feet with 8,600 surface acres at full pool. Maximum drawdown is 54 feet. A 1985 agreement limits drawdown to 10 feet annually with a 4 foot drawdown limit and other restrictions during summer. Noxon is a run of the river impoundment and water only takes 1 to 3 weeks to move through the reservoir.

The reservoir area was chemically reclaimed during 1958 prior to impoundment. Since then numerous fish species have been stocked. Salmonids have generally been unsuccessful while introduced smallmouth bass have formed an excellent fishery. Largemouth bass have shown improved growth and numbers since reservoir levels have stabilized. Under the black bass enhancement program, annual use has increased from 800-900 angler-days of fishing in the early 1980's to more than 6,000 angler-days of fishing in the mid-1990's.

Both bass species are found throughout the reservoir with largemouth bass predominate in the lower lake-like portion of the reservoir and smallmouth throughout the reservoir. Northern pike have increased in number since reduced reservoir drawdowns have promoted the growth of weedbeds. Yellow perch are abundant throughout the reservoir but in general are too small to be of interest to anglers. Attempts to establish a burbot fishery appear to have been unsuccessful. Walleyes have been found in the reservoir several times as the result of illegal introductions but do not appear to be self-sustaining at this

time. Special regulations run from May 15 to June 30 and are 1 bass daily, 22" min./5 daily other periods. There are 10 public ramps along the entire reservoir, and one private ramp. There are also numerous campgrounds and day use sites.

Issues

The reservoir drawdowns impact the food base, spawning habitat, and weed growth. Late spring flows can cause late spawning and poor bass recruitment. Limited water retention allows poor thermal stratification which limits the food base and fish growth, resulting in slow growth and limited recruitment in some years. Bass may potentially conflict with native bull trout and westslope cutthroat trout. The reservoir has limited fish structure (habitat). Dam spills, mining, logging, and hazardous substance spills by highway or rail may affect water quality.

If more suitable habitat for bull trout and other native salmonids is created through re-licensing, management of native species will be emphasized. At a minimum Noxon Rapids Reservoir may function as a migration corridor if habitat is improved.

Action Plans

- Priority management for largemouth and smallmouth bass.
- Special regulations as necessary to maintain quality bass fishing and natural reproduction.
- Spot closures as necessary to protect spawning concentrations of bass.
- Formalize reservoir operating schedule through dam relicensing.
- Augment bass year classes with annual stocking to maintain or enhance bass numbers.
- Increase enforcement emphasis.
- Install habitat structures as possible.
- Maintain existing populations of native salmonids and monitor for impacts from warmwater fish.

CABINET GORGE RESERVOIR

Management Objective

Management emphasis on bull trout while managing the present bass fishery.

History/Status

Cabinet Gorge is a 3,400 acre reservoir immediately below Noxon Rapids. It is managed as a reregulating reservoir for Noxon with 4 foot daily fluctuations and a high flushing rate. This greatly curtails the potential for developing any fishery. There are no special regulations. Access includes several public launches and a campground.

Issues

Cabinet Gorge contains one of the stronger bull trout populations in the lower Clark Fork River basin. Reservoir operations severely limit the fishery potential.

Action Plan

- Enhance bull trout population.

THOMPSON FALLS RESERVOIR

Management Objective

To manage as a northern pike fishery with reasonable catch rates and an occasional trophy pike. If habitat changes occur as a result of Noxon Rapids Reservoir re-licensing, management emphasis may be directed towards native salmonids.

History/Status

Thompson Falls Reservoir is the uppermost of three reservoirs on the lower Clark Fork, created by Thompson Falls Dam. Currently owned by Montana Power Company, the reservoir is 1,446 acres at full pool.

Northern pike have populated the reservoir from upstream sources. A few trout, yellow perch, and numerous non-game fish are also present. Reservoir provides seasonally good fishing for northern pike averaging 3-8 pounds with a few fish up to 30 pounds. There are no special regulations. Access is the Wild Goose Boat Launch (Montana Power) Shore.

Issues

Operating Thompson Falls Reservoir for peaking power causes up to 4 feet daily water fluctuations. The fish habitat is limited. If suitable habitat conditions are created as a result of Noxon Rapids Reservoir re-licensing, the reservoir might serve as a migration corridor for bull trout and management emphasis would be reexamined.

Action Plan

Use regulations and enforcement to ensure a stable fishery.
Install fish habitat structure as possible.

FLATHEAD RIVER SLOUGHS (ABOVE FLATHEAD LAKE)

Management Objective

Primary management emphasis will be protection of native bull trout and westslope cutthroat trout, while managing bass and northern pike populations.

History/Status

These are a series of ox-bow sloughs of the Flathead River up to 20 miles upstream of Flathead Lake. The largest sloughs are Church (200 acres), Egan (260 acres), and Fennon (215 acres). Church and Fennon are connected via channel to the Flathead River, whereas Egan Slough contains a culvert connection to the river with a headgate operated during the irrigation season. Fish passage in Egan Slough is seasonally restricted. There are a number of smaller sloughs within this area that also provide fishing. All sloughs contain extensive littoral aquatic vegetation and shoreline cover with associated cattails. Maximum depths approach 30-35 feet. Water elevations within all the sloughs vary with the seasonal elevation of Flathead Lake (10 feet maximum winter drawdown).

Church and Fennon sloughs are good fisheries for largemouth bass, northern pike, and perch. Egan Slough does not presently provide a viable largemouth bass fishery likely due to densities of northern pike and yellow perch. The Flathead River provides a migratory corridor for westslope cutthroat and bull trout between Flathead Lake and headwater spawning and rearing areas. Bull and cutthroat trout may seasonally enter the sloughs during coolwater periods. Possible competition with or predation on native trout species occurs in all of the sloughs due to river connections. A predator study is currently in progress which should provide additional information on interactions between warm and coldwater fish in the river and sloughs. Special regulations at Fennon Slough are 5 bass, only 1 over 12" daily. At Church Slough, from May 15 through June 30, 1 bass, 22" minimum length; 5 bass, only 1 over 12" daily rest of year. Sloughs are open to angling year-round. For access, Church Slough has a county boat ramp. Egan Slough is accessible by landowner permission only. All other sloughs can be entered by boat from the Flathead River although access can be difficult during drawdown periods.

Issues

Angling pressure is growing dramatically and may be impacting bass and pike numbers and average length. Yellow perch populations are stunted. Cool river water temperatures inhibit spawning and recruitment. Water level fluctuations alter habitat seasonally and influence spawning and survival as well as productivity. Northern pike and largemouth bass may conflict with native bull and westslope cutthroat trout.

Action Plan

- Ensure that warmwater management is compatible with bull and westslope cutthroat trout recovery, and adjust management of warmwater species as necessary to protect native salmonids.
- An environmental assessment will be completed prior to any management actions directed towards pike or bass populations.

MCWENNEGER SLOUGH

Management Objective

Manage to provide moderate catch rates and sizes of northern pike and yellow perch. Reintroduce largemouth bass if possible.

History/Status

McWenneger is an oxbow slough of the Flathead River about 24 miles upstream of Flathead Lake. The surface area is 160 acres. McWenneger periodically connects with Flathead River through its wetlands on the southwest end and has rooted submerged vegetation, emergent lily pads plus shoreline cattails. Maximum depth is 30-40 feet.

McWenneger provides good northern pike and fair yellow perch fishing. Black bullheads and pumpkinseeds are stunted. Partial winterkill eliminated a largemouth bass fishery in the past. High pike numbers would probably limit largemouth bass potential. There are no special regulations. The property surrounding the slough, including the existing boat ramp, is private so access is limited, including parking. However, landowners have been cooperative, and there may be some opportunities to improve access.

Issues

Public access is limited. High numbers of fish limit growth rates, lead to stunting.

Action Plan

- Continue to manage as northern pike and yellow perch fishery.
- Improve public access potential.
- Reintroduce largemouth bass.

LAKE MARY RONAN

Management Objective

Enhance the largemouth bass fishery to produce a quality fishery compatible with salmonid management.

History/Status

The lake is located in Lake County about 35 miles southwest of Kalispell. The elevation is 3,700 feet, the surface area is 1,500 acres at full pool and the maximum depth is 47 feet. Littoral areas are moderately to heavily vegetated with potamogeton, cattails and bull-rush. The lake is eutrophic and seasonal oxygen deficits and algal blooms occur. Irrigation interests constructed an earthen dam with a water control structure in the early 1930's. It impounds 12,600 acre-feet at full pool and average fluctuation is about 1.5 feet. The outlet, Ronan Creek, drains into Flathead Lake.

Lake Mary Ronan has been managed primarily as a kokanee fishery since about 1948. It also has a naturally- reproducing rainbow population, and westslope cutthroat are stocked annually. All three species are currently providing a good salmonid fishery. Largemouth bass, along with pumpkinseeds, were introduced between 1931 and 1932. The largemouth bass provide an important opportunity for warmwater angling and are considered an important part of the lake fishery.

Yellow perch were illegally stocked in 1992 and as expected, their population has increased considerably. The catch per net of perch increased from 3 in the fall of 1993 to 31 in the fall of 1994 and down to about 10 in the fall of 1995. There is significant potential for yellow perch to impact the existing fisheries. Other future concerns include further eutrophication from residential development within the drainage. Grazing leases in the drainage also have impacted the habitat and water quality, however, recent lake and tributary fencing projects will benefit. Nearly three-quarters of the shoreline property is owned by Plum Creek Timber Co. and is expected to be sold in the near future. Special regulations are: Open third Saturday in May through last day of February. The bass limit is 1 daily and in possession from third Saturday in May through June 30 with a 22" minimum size, 5 bass daily the rest of the year. Access is a state park and good boat access is located on the eastside. Three private resorts also have good boat launching sites for a fee. Primitive access is located along the south end on Plum Creek Timber Company land. It is scheduled to be sold for development. FWP is trying to purchase another fishing access site in that area.

Issues

Yellow perch will probably impact the lake fisheries. Much of the Plum Creek lands are scheduled to be sold, changing access. Residential development could impact water quality. Largemouth bass recruitment appears to be limited.

Action Plan

- Enhance bass populations to level compatible with salmonid fishery.
- Use hatchery plants as needed to augment largemouth bass recruitment.
- Attempt to reduce yellow perch population to minimize competition.
- Enhance structure for largemouth bass feeding and security habitat.
- Evaluate more restrictive regulations if necessary to maintain quality fishing and natural reproduction.

SMITH LAKE

Management Objective

Manage primarily as a yellow perch fishery with good catch rates for medium to large fish.

History/Status

The lake is located about seven miles west of Kalispell in Smith Valley. Surface area is 440 acres with a maximum depth of about 15 feet. Ashley Creek flows through what was once all part of a larger lake system including wetlands and the current lake area extending for about six miles. Most of the area is flooded during spring runoff. Much of the current lake surface is covered with extensive bull-rush, cattail, and lily pads. The bottom is covered with submergent vegetation, pondweed, common elodea, water-marigold, water milfoil, and duckweed. Motorboat operation is often difficult due to vegetation density. Low stream velocities characterize the lake inflow and outflow.

Smith Lake provides an important recreational yellow perch fishery during mid to late summer and early winter. Year class survival and competition influences average sizes in the catch. Smith also has some rainbow, brook trout, and mountain whitefish. A portion of the lake is operated as a waterfowl production area by the U.S. Fish and Wildlife Service. The lake contained a largemouth bass fishery in the past that was eliminated by winterkill.

Habitat risks include water loss to the Smith Lake area from urban residential development and agricultural practices. There are no special regulations. This site has a good state fishing access site, but it can flood during spring runoff.

Issues

Heavy harvest may be reducing the number of larger yellow perch. Water levels conflict with surrounding agricultural use. There have been proposals to lower the lake level.

Action Plan

- Manage as yellow perch fishery. Consider options to provide larger average size in the creel.
- Reintroduce largemouth bass.

LOWER STILLWATER LAKE

Management Objective

Manage primarily as a northern pike fishery with moderate numbers of 3-10 pound pike.

History/Status

The lake has a surface area of 248 acres and a maximum depth of 52 feet. Its annual fluctuation is 1 to 2 feet. The inlet and outlet is the Stillwater River. A rock and log dam at the outlet raises the lake elevation about 4 feet. Much of the shoreline is timbered with conifers and significant littoral areas prevail. The east side is paralleled by Highway 93. The north end is used as a log pond by American Timber Company's sawmill.

The lake was historically an extension of a coolwater salmonid fishery in the Flathead and Stillwater River drainages. The most numerous fishable species are currently quality-sized northern pike and yellow perch, which are generally small. The Stillwater River downstream from the lakes is impacted by high sediments and high water temperatures and supports primarily northern pike and squaw fish.

The lake is a corridor and potential habitat for bull trout and westslope cutthroat trout. A waterfall between Upper and Lower Stillwater Lakes and the dam on Upper Stillwater Lake probably prevents the upstream movement of fish. Pike predation and competition with prolific yellow perch negatively impact salmonids. Lake trout have either been illegally introduced or emigrated into the lake and constitute another added predator to the system.

Habitat risks include urban development, mill contamination, and rail and highway substance contamination. Special regulations are open to spearing or gigging of northern pike and nongame fish through the ice only. Much of the lake is surrounded by state land, but the only good boat access site is privately-owned by the Stillwater Bar. Access is by permission only.

Issues

The number of larger pike has declined. Access is limited and perch are small.

Action Plan

- Manage for present warmwater fishery.
- Implement more restrictive regulations as desired to attempt to increase size of northern pike. The lower lake could be used in a paired experiment with the upper lake to evaluate the impact of regulations.
- Attempt to improve access.

UPPER STILLWATER LAKE

Management Objective

Manage for protection of native bull and westslope cutthroat trout, while managing the existing northern pike fishery.

History/Status

The lake has a surface area of 630 acres and a maximum depth of 74 feet. It fluctuates 1 to 2 feet annually. The Stillwater River is it's main inlet and outlet. The river runs into the north end and out the middle of the west side. The shoreline is timbered by conifers and a railroad track parallels the east side. Shallow littoral shorelines predominate.

The lake is part of the Stillwater and Flathead river drainages. Historically, native gamefish species were bull trout, westslope cutthroat trout and mountain whitefish. It is currently utilized primarily by northern pike and lake trout anglers. The yellow perch are generally small.

The lake is a corridor and can serve as habitat for bull and westslope cutthroat trout. Northern pike and lake trout predation and competition with numerous perch are negative impacts to salmonids.

Habitat risks include urban development and highway or rail hazardous substance spills. Special regulations are open to spearing or gigging of northern pike or nongame fish through the ice only. For access, there is a Forest Service campground and boat launching site on the north end.

Issues

The number of larger northern pike is decreasing. Yellow perch are small. Bull and westslope cutthroat trout have been impacted.

Action Plan

- Ensure that warmwater management is compatible with bull and westslope cutthroat trout recovery and adjust management of northern pike as necessary.
- An environmental assessment will be completed prior to implementing any management actions directed towards northern pike to minimize conflicts with native salmonids.

ABBOTT, ECHO, PETERSON LAKES

Management Objective

Manage for a high-quality largemouth bass fishery with high numbers of bass and a reasonable proportion of large bass over 3 pounds. Lesser emphasis on maintaining a northern pike fishery.

History/Status

These three lakes are connected by a high-water channel during most years. Echo Lake is the highest at 3,008 elevation, which then discharges into Abbot and Peterson lakes. Echo Lake is the largest containing 725 surface acres. The lake has numerous lobes and bays with an average depth of about 25 feet and a maximum depth of 78 feet. Only about 150 acres contain water greater than 35 feet in depth. Abbot and Peterson lakes comprise about 150 acres combined, and are connected by a channel. Abbot and Peterson lakes also average about 25 feet and maximum depths are less than 40 feet. Echo Creek and Krause Creek provide intermittent tributary inflow into Echo Lake. Additional inflow is provided by groundwater. Echo Lake discharges into Abbot and Peterson lakes. No surface outlet provides any discharge from either Abbot or Peterson lakes. The shoreline of all three lakes is almost exclusively private. Homes and cottages dominate the shoreline on Echo, where development is not as great as on Abbot and Peterson lakes. Water quality may be degrading in all three lakes due to urban development and use. Dissolved oxygen deficiencies exist during certain summer and winter months. Algal blooms occur more often, and partial spring fish kills have been documented in littoral areas.

All three lakes are managed to produce self-sustaining warmwater fisheries for largemouth bass, northern pike and yellow perch. A recent effort to develop a two-story fishery for trout and largemouth bass is underway in Echo Lake. Rainbow trout and kokanee were experimentally stocked and their success is under evaluation. Additional largemouth bass

were stocked in 1992 (Peterson) and 1993-94 (Echo) to provide genetic diversity to the largemouth that were originally acquired from a very small gene pool. Echo Lake, Abbot and Peterson lakes provide some of the best warmwater fish habitat and fisheries in the region. The reason for this is the early lake warming that provides for early spawning, good first year growth and subsequent overwinter survival. Due to the regional latitude, these conditions are rare in northwest Montana waters.

Water quality and quantity are factors influencing warmwater species survival. All three lakes produce the strongest year classes when water levels are high in the spring and climatic conditions constant and favorable. Yellow perch dominate the biomass in the lakes and tend to be stunted and overpopulated and, therefore, compete with other warmwater gamefish. Conflicting interests in species management have led to recent experiments with salmonid stocking. Public priorities are becoming increasingly controversial.

Residential shoreline development and alteration is negatively influencing warmwater fish habitat. Once plentiful woody cover and natural shorelines are being landscaped and altered for homesite. Water quality appears to be steadily declining due to high residential density and associated impacts (sewage, runoff, etc.). Fluctuating lake levels are influencing survival of warmwater species. All three lakes carry the same special regulations during open water: 5 bass daily and in possession, only 1 may exceed 12". May 15-June 30: 1 bass daily and in possession, 22" minimum. Abbot, Peterson and Echo are closed to spearing, except Echo is open to spearing and gigging of nongame fish and northern pike through the ice. Presently only two public accesses exist on Echo Lake: one county boat ramp on the northwest end and a DNRC access ramp and day use site in a northern bay. The Farmer's Union Campground provides some access but its future is uncertain. Abbot and Peterson lakes have no shoreline public access. During higher water levels, a small boat can pass down the outlet from Echo Lake into Abbot and Peterson lakes.

Issues

Yellow perch are overabundant and impact other fisheries. Poor spring weather and low lake levels impact bass and pike spawning and recruitment. Public access is poor. Angling use and harvest is high. Boating use is high and there are conflicts between recreationists. Fish habitat, particularly shoreline habitat, is limited and declining. Bass densities have declined in recent years. Water quality is poor and may be declining. Northern pike have decreased greatly in recent years and may compete with largemouth bass.

Action Plan

- Continue to manage for the wild, self-sustaining warmwater fishery with emphasis on largemouth bass.
- Continue to add structure for habitat enhancement in cooperation with local bass clubs.

- Strictly enforce present regulations.
- Evaluate trout/salmon success, continue or discontinue stocking.
- Stock largemouth bass as necessary to augment weak year classes and enhance bass densities. Evaluate the contribution of hatchery plants to the fishery.
- Consider more restrictive regulations if necessary to maintain quality fishing and natural reproduction.
- Work with DNRC to improve public access.
- Eliminate winter pike-spearing in Echo Lake.
- Attempt to reduce numbers of yellow perch.
- Maintain a high enforcement profile.

HORSESHOE LAKE

Management Objective

Manage as a quality smallmouth bass fishery in a secluded, low-intensity setting.

History/Status

Horseshoe Lake is a 35 acre lake south of Ferndale in the northern Swan Valley. Maximum depth is approximately 31 feet with an average depth of 10-15 feet. Smallmouth bass are the predominant warmwater gamefish. Forage species are pumpkinseed sunfish and crayfish. Lake levels are dependent on groundwater as no surface tributaries exist.

Horseshoe Lake historically contained trophy-sized smallmouths. Increased pressure and drought conditions during certain years made fish vulnerable to overharvest. Structure limitations may exist and water levels influence recruitment and vulnerability. Structure improvements have been made by FWP and private clubs. Water levels periodically influence recruitment, survival and angler vulnerability. Shoreline development is occurring on a portion of the lake. A slot limit exists on Horseshoe for bass where 5 under 12" or 4 under 12" and 1 over 16" are allowed daily. The lake is also closed to spearing. The majority of the Horseshoe Lake perimeter is privately owned; however, FWP owns 25 acres on the northwest end. A road easement and unimproved site is presently available for public use.

Action Plan

- Continue management for a self-sustaining smallmouth bass fishery.
- Stock smallmouth bass when available.
- Continue habitat improvement.
- Continue management for a self-sustaining smallmouth bass fishery.
- Stock smallmouth bass when available and as needed to augment weak year classes.
- Continue habitat improvement with local bass clubs.

- Make minor improvements to the access to improve safety, parking, and facilitate low intensity use.

LOON LAKE

Management Objective

Primary emphasis on maintaining a good largemouth bass fishery with an opportunity to catch smallmouth bass.

History Status

Loon Lake is a 45-acre lake 2.5 miles south of Ferndale with a maximum depth of 54 feet and average depth of approximately 30 feet. The lake level is maintained through groundwater with no surface inlets or outlets. Loon Lake presently contains smallmouth bass, largemouth bass, yellow perch and pumpkinseed sunfish.

Loon Lake was chemically treated in 1959 to eliminate rough fish and stocked with westslope cutthroat. Management for cutthroat trout continued until 1964 when warmwater species reappeared, presumably through illegal introduction. Since the mid 1960's Loon Lake has been managed as a wild self-sustaining warmwater fishery. In 1996, Loon Lake is scheduled for stocking with rainbow trout to explore the possibility of creating a put-and-take trophy fishery for rainbow in addition to maintaining the warmwater fishery. Special regulations are Loon Lake is closed to spearing to protect warmwater species. FWP owns a small access on the north end of Loon Lake. A turnaround is provided as well as an unimproved launch site best suited for carry-on or small boats.

Issues

Largemouth bass may be limiting smallmouth bass. Overall bass habitat is generally limited.

Action Plan

- Manage to maintain or enhance the existing bass fishery.
- Enhance bass habitat as possible.
- Manage for trophy trout if compatible with the warmwater fishery.

SWAN LAKE

Management Objective

Primary emphasis on protection of bull trout and other native salmonids, while managing northern pike to minimize impacts to native species.

History/Status

Swan Lake is a 2,680-acre lake located in northwest Montana situated approximately 20 miles south of Bigfork. Maximum depth of Swan Lake approaches 140 feet with mean depth of about 50 feet. Littoral habitat favorable to warmwater species is limited and found primarily on the southern and northern shores. The Swan River flows directly into Swan Lake influencing exchange, temperatures, and water levels which fluctuate about three feet annually. Northern pike are the principal warmwater species sought by anglers. A 1995 creel survey estimated 932 northern pike were harvested. Growth rates for northern pike in Swan Lake are good and some harvested fish have been known to exceed 30 pounds. Downstream from the lake, Bigfork Dam creates an upstream barrier to fish from Flathead Lake.

Historically, Swan Lake was limited to two native gamefish species, westslope cutthroat and bull trout. These fish ascend the Swan River for spawning and rearing and return to the lake to grow and mature. Management emphasis within the Swan Drainage is directed toward native bull trout. Bull trout are maintaining a healthy and increasing population within the Swan, however, cutthroat trout numbers are limited. Habitat degradation and competition with non-native rainbow and brook trout are factors in the cutthroat decline. Northern pike were first detected in Swan Lake during the late 1970's and resulted from illegal introductions. Since that time, their numbers have increased and a considerable northern pike fishery exists. Largemouth bass and yellow perch were established before northern pike but declined greatly after the pike introduction. In 1988, 19 pike stomachs were sampled. One pike contained a kokanee and one contained a bull trout. The rest of the fish consumed were perch and peamouth. Attempts at special regulations for northern pike failed during fish regulation hearings during the 1980's, with most individuals favoring liberal northern pike limits to benefit native species. Special regulations include a spearing closure on Swan Lake. Presently access is limited to one public site on the southeast end of the lake. The site is operated by the USFS and contains a good ramp, parking and day use area, with adjacent campground.

Issues

Angling pressure and northern pike harvest is increasing dramatically, leading to a decline in their density and average size. Pike may be in conflict with bull trout and westslope cutthroat.

Action Plan

- Evaluate the interaction between northern pike and native salmonids.
- An environmental assessment will be completed prior to any management actions directed towards northern pike.
- Attempt to secure access on the north half of the lake.

WHITEFISH LAKE

Management Objective

Emphasize protection of bull and westslope cutthroat trout, while managing for a low density northern pike fishery.

History/Status

Whitefish Lake is an oligotrophic lake located near the town of Whitefish, Montana. The major inlet is Swift Creek and the outlet the Whitefish River. The surface elevation is 2,995 feet and the surface area is 3,350 acres. Average annual vertical fluctuation is 3.5 feet. The maximum depth is 222 feet and about 80 percent of the area is over 100 feet deep. The littoral zone comprises about 10 percent of the surface area over a generally steep shoreline.

The best warmwater fish habitat is on the north end in Lazy Creek Bay and on the south end just below the outlet. Northern pike are the most sought after warmwater species. They were illegally planted in the mid 1970's and the population has since stabilized. Northern pike are heavily fished and this has reduced pike numbers and size. Their average catch per net ranges from ½ to 1 ½ fish per net since 1979. The lake produces some large pike from 15 to 30 pounds, however, the majority range from 3 to 5 pounds. Yellow perch and pumpkinseed populations are stunted and largemouth bass are uncommon. Lake trout and lake whitefish are the most abundant gamefish species. Bull trout are considered rare and westslope cutthroat trout are stocked annually, but produce a limited fishery. FWP is currently managing for these coldwater species along with northern pike. Lake trout are generally small (2-5 pounds), cutthroat fishing is poor and lake whitefish have limited popularity. Many anglers and residents remain generally unsatisfied with the current lake fishery. Chemical spills into the lake from railroad derailments also threaten the lake water quality and are also a threat to lake habitat. Residential development is extensive along the shoreline. There are no special regulations. There is a state park on the southwest end and the city of Whitefish beach has a boat access on the southeast end. There is a county access for small boats on the north end of Lazy Creek.

Issues

Northern pike are decreasing in numbers and size, yet still may conflict with bull trout and cutthroat.

Action Plan

- Management priority for native salmonids.
- Work with Flathead County to improve access at north end.

ALVORD LAKE

Management Objective

Manage as a warmwater fishery with priority for largemouth bass at present or enhanced levels.

History/Status

The lake is located about 1.5 miles north of Troy, Montana. It has a maximum depth of 48 feet. A dike and gate in the outlet has increased the surface area from 36 to 72 acres. The surrounding country is mountainous and about 70 to 80 percent timbered by conifers. It has some shoreline vegetation and grassland. The outlet flows into Slee Lake and the Kootenai River; coontail, potomogeton and lilies are abundant. FWP is managing it as a largemouth bass and yellow perch fishery.

Because it is spring fed and drains into two smaller lakes it wasn't considered a good candidate for fish eradication and restocking. Illegal fish plants could further jeopardize the current fishery.

Plum Creek Timber Company has about 1/4 mile of shoreline on the east side. It may be developed in the future. Special regulations from May 15 through June 30: 1 bass daily and in possession with a 22" minimum size. No limit or restrictions on perch. Access is through Forest Service access and there is an improved boat launch site.

Action Plan

- Continue managing for present, self-sustaining warmwater fishery.
- Augment with plants as necessary to maintain good bass densities.
- Implement further restrictive regulations as necessary to maintain or enhance largemouth bass densities.

BULL LAKE

Management Objective

Maintain the unique downstream spawning bull trout population in the lake, while managing the existing largemouth bass population.

History/Status

Bull Lake has a surface area of 1,250 acres and a maximum depth of 64 feet. Average depth is 36 feet and the volume is 36,138 acre-feet. Ross Creek is the major inlet and Lake Creek, the outlet, flows over a power dam near the mouth and into the Kootenai River. The north basin is about 601 surface acres and is good shallow habitat for yellow perch, pumkinseeds and largemouth bass. It has an abundance of aquatic vegetation.

The lake is full of nongame fish, including peamouth, squawfish, suckers, perch and pumpkinseeds. Attempts to control them in the past were unsuccessful. It is currently providing a largemouth bass fishery, however, habitat is limited. One hundred thousand kokanee are being stocked annually. They are going in as 2" rather than swim-up fry to reduce predation. Attempts to introduce westslope cutthroat failed because of competition and predation. Kamloops rainbow are experimentally stocked. The lake has a bull trout population which migrate annually downstream in Lake Creek and then migrate upstream into Keeler Creek for spawning.

There has been difficulty in producing a viable fishery in Bull Lake. Illegal introductions pose a threat as well as forestry practices, residential development and toxic substance spills. There are no special regulations. For access, two improved boat launching sites are on Forest Service grounds.

Issues

Large numbers of nongame fish make it difficult to establish sport fisheries and fish habitat is limited. Bull Lake bull trout fishery is unique and there could be conflicts with warmwater management.

Action Plan

- Evaluate interactions between bull trout and warmwater species, and modify warmwater management, if necessary, to avoid conflict with bull trout recovery.
- Investigate control methods for nongame fish.

ISLAND LAKE

Management Objective

Management emphasis for largemouth bass while attempting to improve the yellow perch fishery.

History/Status

The lake is located west of Kalispell with a surface area of 225 acres and a maximum depth of 50 feet. The immediate shore is 80-90 percent grassland and the remainder timbered and/or brushy. Aquatic vegetation is comprised of coontail, potomogetan, sedger, rushes, lilies and is abundant. Its inlet and outlets are Island Creek, a tributary of the Fisher River.

Island Lake is being managed as a largemouth bass, yellow perch fishery. It also produces some brook and rainbow trout.

Illegal planting of other exotics is a concern. Plum Creek owns much of the surrounding lands which is presently for sale.

Further eutrophication from development is the greatest habitat risk. There are no special regulations. For access, Creek Timber Company launches are the current access areas to the lake. The land is up for sale.

Issues

Land sales may close public access. Yellow perch are stunted, overabundant.

Action Plan

- Continue managing as a bass, perch fishery.
- Attempt to secure public access.
- Attempt to reduce perch abundance.

MURPHY LAKE

Management Objective

Manage primarily as a largemouth bass fishery while attempting to provide opportunity for large northern pike.

History/Status

Murphy Lake has 163 surface acres and a maximum depth of 26 feet. It is located near Fortine in the Tobacco River Drainage. Littoral areas are heavily vegetated with cattails, bullrush and potomogeton. Highway 93 borders the west side and Murphy Lake Ranger Station is located at the northwest end. It is timbered by conifers and brush on most of the shoreline.

The lake has a population of largemouth bass and prolific yellow perch and pumpkinseeds are abundant. Other species are pike, suckers and northern squawfish. Attempts have been made to improve the largemouth bass habitat and increase their competitive advantages with other species. In recent years cribs, stump clusters, tree bales and single stumps were installed.

Illegal introductions of perch and pike during the 1980's complicates largemouth bass management. If largemouth bass enhancement efforts have limited success, the lake may have poor quality fishing for a greater variety of fish species. The lake has produced trophy sized largemouth bass and northern pike. There are no special regulations. For access, a Forest Service campground and improved boat launch are located on the northeast end.

Issues

Yellow perch are overabundant, stunted, and impact sport fisheries. Largemouth bass and northern pike may compete with each other. There are conflicts with increasing boat use.

Action Plan

- If largemouth bass enhancement fails and perch and northern pike stunt, chemical rehabilitation may be considered. The estimated cost for such a project was $11,000 in 1989.
- Attempt to increase largemouth bass and pike populations with habitat enhancement.
- Attempt to increase largemouth bass through transplants and/or plants.
- Consider special regulations to increase quality fishing and natural reproduction.
- Consider motorboat regulations.

RATTLEBONE LAKE

Management Objective

Manage as a largemouth bass fishery and attempt to increase average size of fish.

History/Status

The lake area is 9 surface acres and the maximum depth is 33 feet. It is located about one mile south of Dickey Lake in the Trego area. It is a eutrophic, heavily vegetated lake surrounded by wetlands on both ends. The surrounding area is timbered by conifers on both sides and has moderately steep slopes.

The lake has a largemouth bass fishery with numerous small pumpkinseeds. The largemouth bass are numerous and some stunting may be occurring. There are no special regulations. There is a public access through Forest Service land. The road follows a power line for the last two miles and is very rough. The Forest Service has a handicap fishing access development on the lake, with a trail, parking area and a small deck extending over a part of the southwest side. Boat launch is difficult except for carry-on.

Action Plan

- Continue management as a largemouth bass fishery.
- Liberalize limits in an attempt to increase largemouth bass growth.
- Use Rattlebone as a source for largemouth bass transplants.

SAVAGE LAKE

Management Objective

Manage as a warmwater fishery with emphasis on largemouth bass.

History/Status

Savage Lake surface area is 79 acres and the maximum depth is 65 feet. The outlet has a culvert ditched into Falls Creek. The lake has an abundance of aquatic vegetation. The west shoreline is dominated by private residences.

The lake is providing a largemouth bass and yellow perch fishery. It produces some quality-size largemouth bass for this area.

Illegal introduction of another species is a concern. The east side of the lake is owned by Plum Creek Timber Company and they may plan to sell it in the future. There are no special regulations. There is a good boat access site owned by the county on the west side, cooperatively maintained with FWP assistance.

Issues

Use and fishing pressure are increasing. Conflicts with increasing boat use.

Action Plan

- Continue management as a warmwater fishery with emphasis on largemouth bass.
- Consider stocking and/or special regulations to maintain largemouth bass densities and natural reproduction.
- Consider motorboat restrictions.

REGION TWO

Region Two fisheries have historically been dominated by coldwater species and such streams as the Bitterroot, Blackfoot, and Rock Creek are well known for their trout fishing. Select warmwater species such as largemouth bass were stocked in the region decades ago by FWP and generally have not prospered in most of the relatively cool waters within the region. In recent years, Region Two has also been victimized by several illegal fish introductions, most notably northern pike in the Clearwater chain of lakes.

Fisheries management emphasis will continue to be placed on trout in Region Two. In the Clearwater drainage, our efforts will be directed at reducing pike and walleye numbers and at reducing detrimental effects of pike on trout and salmon populations to the extent possible. Northern pike were illegally introduced in Upsata Lake where largemouth bass were the primary management focus. We will continue to manage Upsata for bass and do what we can to reduce the effects of northern pike on that population. We remain open to new opportunities to develop viable warmwater fisheries where they will not come in conflict with trout management.

OVERVIEW

Black Bass

Largemouth bass are the only black bass in the region and are present in several rivers, lakes, and ponds as a result of several legal and illegal introductions. River populations of this species are of poor angling quality due to minimal growth and reproductive success associated with coldwater habitat. Fishing for largemouth bass is slightly better in some lakes and ponds within the region which provide more suitable conditions for warmwater fish. Due to the effects of coldwater on growth and survival, supplemental stocking is probably necessary to enhance this fishery. Therefore, we are proposing to request an allocation of 50,000 largemouth bass annually for stocking the Clearwater chain as needed. Probably the best fishery in the region is Upsata Lake, where largemouth bass are protected with a catch and release regulation. Other than this special regulation, there are no special management efforts directed toward largemouth bass within Region Two.

Walleye

Walleye were not known to exist in Region Two until 1993, when two fish were caught in Salmon Lake; subsequently, one walleye was taken through the ice at Placid Lake in 1995. No walleye have been collected yet in gill-netting surveys in these or other regional waters, but it is probably only a matter of time before they appear in the catch. These fish are evidently the result of illegal introductions as no walleye have been stocked by FWP in recent times within the region. No special management efforts are presently planned for

walleye in Region Two, and if any populations become established, it will be FWP policy to employ any practical means to minimize their abundance.

Northern Pike

Northern pike were discovered in the mid-1970's in a private pond in Lolo and a backwater of the Bitterroot River near Stevensville, and until recently this was believed to be the extent of their distribution within the region. However, in the early 1990's FWP began receiving reports of northern pike in the Clearwater chain of lakes and Upsata Lake. Since then, significant northern pike populations have developed in Salmon, Inez, and Upsata Lakes, and less dense populations are found in Seeley, Alva, and Placid Lakes.

All of these populations are also the result of illegal introductions, and in the case of the Clearwater drainage, several native species are threatened by expanding pike populations. Primary regional northern pike management is presently aimed at determining the status of these emerging northern pike populations and developing plans for their management/control that are compatible with existing native and sportfish populations.

Panfish

Yellow perch are the primary panfish in Region Two and are found in most lower elevation lakes, ponds, and a few portions of the Clark Fork River. This species provides relatively little recreation in the region due to marginal habitat conditions which lead to slow growing fish. The only other panfish present in Region Two is pumpkinseed, which also provides little recreational opportunities due to slow growth and small adult size. There are no present management efforts aimed at these or any other panfish in Region Two.

MANAGEMENT PLANS FOR MAJOR WATERS

CLEARWATER CHAIN OF LAKES

Management Objective

To manage the chain of lakes for a mixture of coldwater and warmwater species, where possible, with emphasis on preserving native trout and providing sport fisheries for rainbow trout, kokanee, and largemouth bass.

History/Status

Salmon, Seeley, Inez, Alva, Rainy and Clearwater lakes are the lakes that are connected by the Clearwater River. The lower four lakes have been providing fishing for trout, kokanee salmon, largemouth bass and yellow perch for many years. An illegal introduction of northern pike in these four lakes in recent years has initiated changes which will take a number of years to totally unfold. The first four lakes listed in the chain provide the best

potential for fishing for warm/coolwater species. Rainy and Clearwater lakes contain pure westslope cutthroat and bull trout populations and our intention is to preserve these native populations.

Issues

The primary issues related to the Clearwater Chain of Lakes include control of illegally introduced northern pike throughout the system and restoration of westslope cutthroat and bull trout populations in Rainy and Clearwater lakes. Expanding northern pike populations threaten management of virtually all fish species in the chain, warm- and coldwater, while FWP has a legal mandate to restore and protect westslope cutthroat and bull trout populations, which are both species of special concern in Montana.

Action Plan

- Monitor the expanding northern pike populations over the next 2 to 3 years to determine their influence on all other species and our management options.
- Evaluate our fish stocking program for all species after the 1996 fish population sampling and develop a stocking program for the next 10 years.
- Protect Rainy and Clearwater lakes from the introduction of any species other than native trout.
- Determine bass habitat conditions in the outlet of Seeley Lake within the next 2 years, determine changes that could improve those conditions.
- In cooperation with homeowners and boating enthusiasts, develop and implement a habitat improvement plan, if needed.
- Evaluate fishing regulations on the chain of lakes, in light of new population data, to determine if change is warranted in the regulation change cycle beginning in early 1997.

UPSATA LAKE

Management Objective

Provide angling opportunities for largemouth bass and yellow perch through monitoring and, if necessary, reduction of illegally introduced northern pike.

History/Status

Upsata Lake has historically been the premier warmwater fishery in the region, with a quality largemouth bass population maintained through a catch and release fishing regulation. Yellow perch have also provided angling opportunities and prey for largemouth bass. The recent illegal introduction of northern pike poses a new threat to the fishery that has existed in Upsata Lake for several years. Future management actions and options will be determined by the new natural balance that evolves through the presence of northern pike.

Issues

The primary issue related to Upsata Lake is management of the illegally introduced northern pike population. Although this species provides angling opportunities, it also threatens the established largemouth bass-yellow perch fishery.

Action Plan

- Monitor the expanding northern pike population over the next 2 to 3 years.
- Evaluate the effects of pike on largemouth bass and yellow perch populations and determine what course of action is needed to maintain a quality fishery in this lake.
- Evaluate the current bass regulations and determine if a change is warranted during the regulation change cycle beginning in early 1997.
- Develop and implement a plan to reduce northern pike populations and increase bass and yellow perch populations.

PLACID LAKE

Management Objective

Manage as a cold- and warmwater fishery, featuring quality angling for trout, kokanee, largemouth bass, and yellow perch.

History/Status

The fishery in this lake has consisted of westslope cutthroat trout, rainbow trout, bull trout, brown trout, largemouth bass and yellow perch for many years. Kokanee salmon provide a popular summer troll fishery and a snag fishery in the fall, and yellow perch seem to be favored during the ice-covered months. Largemouth bass provide a limited fishery for those who know where and when to go on Placid Lake. A recent catch of walleye in the lake has placed management of the fishery in doubt. Northern pike have also been reportedly caught in the lake in recent years although our sampling indicates the population is sparse.

Issues

Placid Lake has historically provided a diverse cold- and warmwater fishery for a variety of species. Management of this fishery is presently complicated by several factors including the species of special concern status of westslope cutthroat trout and the apparently illegal introduction of walleye and northern pike. Future management of Placid Lake will have to include protection of westslope cutthroat trout and monitoring/removal of walleye and northern pike.

Action Plan

- Monitor and, if necessary, implement control measures for walleye and northern pike populations.
- Consider implementation of angling regulations to maintain a diverse fishery and reduce walleye and northern pike densities.
- Monitor fishing pressure and success to maintain a long-term quality fishery.

METCALF REFUGE PONDS

Management Objective

Work in cooperation with the U.S. Fish and Wildlife Service to provide a quality largemouth bass fishery for youth angling, with future new ponds to be managed for the general public.

History/Status

The Metcalf Refuge has been closed to fishing except in the past five years or so it has been open to a limited number of children during National Fishing Week. During this week, usually Saturday from 60 to 130 children, under the guidance of the local bass club and FWP, are allowed to fish for bass. Some of the bass have been taken to establish populations in other waters. A new pond is planned for construction on the refuge which will improve the opportunity for public fishing.

Issues

The primary issue at Metcalf Refuge Ponds is providing angling opportunities that are compatible with the overall mission of the refuge. A secondary issue is how to manage any new refuge waters that may be available to public fishing.

Action Plan

- Develop a largemouth bass fishery through stocking and, if necessary, special regulations in the new public fishing pond.
- Maintain ongoing youth angler education opportunities in connection with National Fishing Week.
- Work with the U.S. Fish and Wildlife Service to identify and develop any further fishery opportunities within the refuge.

CLARK FORK RIVER CUTOFF CHANNELS

Management Objective

Manage channels to provide angling for largemouth bass and other compatible prey species.

History/Status

Approximately 30 miles east of Missoula, along Interstate 90, there is a series of old river channels that were cutoff from the river by the railroad and highway many years ago. These channels, which retain groundwater, provide potential habitat for largemouth bass and warmwater panfish.

Issues

Little work has been done on these waters and there is a need to determine fish species present and estimate which fishes are most suitable for these channels. There may be some potential for a variety of species, so it will be important to obtain public input on future management once feasible options are better understood.

Action Plan

- Evaluate habitat conditions and present fish communities to determine ideal sportfish candidates.
- With public input, develop a management plan for maximizing fishing potential of these waters.

REGION THREE

Region Three, which comprises the southwest corner of the state, has relatively few warmwater fisheries and is best known for its famous trout streams such as the Madison, Ruby, and Yellowstone rivers. There are limited warmwater fisheries in the region; unfortunately, some of these are the result of illegal introductions that may adversely impact traditional coldwater fisheries.

OVERVIEW

Black Bass

Largemouth bass are present in some backwater sloughs along the Missouri and Madison rivers, and an unknown number of small ponds. The only legal introduction was made into Three Forks Pond, in the late 1970's; all other largemouth bass populations in the region are the result of illegal introductions. There are no special management efforts aimed at this species in Region Three.

Walleye

Daily Lake is managed for walleye and receives fry and fingerling stocking on an annual basis. Standard angling regulations apply and access is provided by the Daily Lake Fishing Access Site. Canyon Ferry Reservoir also contains walleye, which are present through an illegal introduction. This walleye population is addressed in the Canyon Ferry Reservoir Fisheries Management Plan, which calls for an evaluation of control measures to minimize walleye density in the reservoir. Besides ongoing activities in Daily Lake and Canyon Ferry Reservoir, there are no further walleye management efforts aimed towards walleye in Region Three.

Northern Pike

Northern pike have been found in Canyon Ferry Reservoir and the Missouri River above the reservoir, presumably as the result of an illegal introduction. There is no stocking or other active management of this species in the region. In Canyon Ferry Reservoir, northern pike are subject to the same removal measures prescribed for walleye in the current management plan.

Burbot

Burbot are native to the Missouri River within Region Three, and the strongest fisheries are found in Clark Canyon and Canyon Ferry Reservoirs. Standard angling regulations apply throughout the region, and there are no special management efforts underway for this species.

Channel Catfish

FWP stocked channel catfish into Canyon Ferry Reservoir in the mid-1960's. Presently, a few apparently exist in the Missouri River above the reservoir, but their numbers are not sufficient to provide a viable fishery. Water temperatures are marginal for channel catfish in the region and there are no present plans to further manage for this species.

Panfish

Yellow perch is the most popular panfish in the region and are found in several reservoirs and ponds. The strongest yellow perch fisheries are found in Canyon Ferry Reservoir and Daily Lake. These are popular fisheries, particularly in years when strong year-classes provide good fishing. Management efforts to improve yellow perch fishing have included artificial structure projects in Canyon Ferry Reservoir to improve spawning habitat and stocking of walleye in Dailey Lake to reduce yellow perch numbers and stunting.

The other panfish of note in the region is bluegill, which is present in the Three Forks Ponds and Glen Lake as a result of illegal introductions. While there is some angler interest for this species, there are no present management plans to enhance bluegill fisheries as there is little suitable habitat within the region.

MANAGEMENT PLANS FOR MAJOR WATERS

CANYON FERRY RESERVOIR

Canyon Ferry has a current management plan which guides management activities through January 1998. The primary management directions for the reservoir at this time are to increase the number of rainbow trout in the reservoir; to increase wild trout recruitment from the Missouri River and tributaries of the reservoir; and to increase the number of brown trout residing in the reservoir. Although emphasizing coldwater species, the management plan does include a management direction for yellow perch. This direction is "... to obtain a better understanding of population dynamics for yellow perch in the reservoir and improve techniques for monitoring population trends."

Walleye were recently established in this reservoir from an unauthorized introduction. As recommended in the Canyon Ferry Reservoir plan, FWP has taken action to determine the status of this new population and to evaluate its possible effects on existing reservoir fisheries. FWP is also evaluating removal methods, reservoir water level manipulations, and other management actions that could reduce or eliminate the walleye population. These last actions are consistent with the reservoir plan recommendations concerning new species introductions during the five-year management planning period.

DAILEY LAKE

Management Objective

To provide the best recreational fishery that Dailey Lake can reasonably support using trout, walleye, and yellow perch.

History/Status

Dailey Lake is located in south-central Montana, about thirty miles from Livingston. This 200-acre lake supports a popular fishery, and attracts a large number of recreationists, especially from nearby communities. Anglers, picnickers, campers, boaters, water skiers, windsurfers, wildlife viewers, hikers, and many others visit the lake. Although annually the lake contributes less than one percent of total fishing to Region Three, its popularity results in intensive use of the site.

Dailey Lake has a long history of fish stocking. Both cold- and warmwater species including a variety of salmonids, centrarchids, and walleye have been used over the years to provide a recreational fishery. In addition to authorized stocking, yellow perch and brook stickleback have been illegally introduced to the lake. Perch and sticklebacks provide most of the fish forage base in the lake at this time.

Since 1951, Dailey Lake has been managed with varying success as a rainbow trout and yellow perch fishery. Yellow perch have historically exhibited extreme cycles of population abundance. High densities were common in the past, but, unfortunately, high perch densities were associated with very slow growth rates. High densities also seemed to reduce trout growth. Anglers were frequently dissatisfied with the size of fish available in the lake.

Between 1977 and 1984, Dailey Lake was periodically treated with chemicals to control perch numbers. Chemical treatments reduced perch numbers and increased growth rates of both perch and rainbow trout. In the late 1970's FWP suggested using walleye to control perch numbers, instead of using fish toxicants. Poisoning was retained as a management option, however, when FWP prepared its WFMP in 1987.

Since 1990, Dailey Lake has been managed without the use of fish toxicants, relying instead on predation by walleye to adequately control yellow perch numbers. A five-year lake management plan was developed in 1990 to provide some walleye fishing while improving growth rates of yellow perch and rainbow trout. This plan recommended an initial stocking of 12,000 rainbow fingerlings and 15,000 walleye fingerlings in 1991. Stocking would be adjusted in subsequent years with more rainbow than walleye intended to be stocked at the end of the management period.

Evaluation from angler surveys and sampling of the lake shows that the program has been successful in controlling perch abundance. Most of the Management Plan goals for catch rates and average lengths of each species have been effectively achieved. In 1995, for example, perch caught in gill nets averaged 8.0 inches (total length) and weighed up to half a pound. Perch were caught by anglers at an average rate of one fish each hour in the spring and summer months. Rainbow trout averaged 13.7 inches in gill net samples and commonly weighed between one and a half and two pounds. Rainbow trout were caught by anglers at an average rate of 0.02 fish every hour. Walleye caught in gill nets averaged 13.7 inches and were caught by anglers at an average rate of 0.03 fish every hour.

More rainbow and walleye have been stocked since 1992 than was proposed in the management plan. Although stocking rates were increased, the result is a stable walleye and perch fishery based on the numbers and sizes of fish caught during gill net and trap net surveys. Rainbow trout continue to increase in size and abundance in these same net samples.

Issues

Historically, the primary fish management issue at Dailey Lake has been controlling yellow perch numbers so that the population does not increase to densities that drastically reduce growth. Current stocking rates for rainbow trout and walleye seem effective for controlling perch numbers. Managing walleye has recently assumed new importance as public interest in the lake's walleye fishery has increased. Walleye are still small on average in Dailey Lake; increasing their size, if possible, would be desirable to enhance recreational opportunities for anglers. New spawning activity by rainbow trout in an inlet stream this year is an additional factor to be considered in developing management plans for Dailey Lake.

Action Plan

- Walleye and rainbow trout will continue to be stocked at current levels.
- Approximately 10,000 - 15,000 fingerlings of each species will be stocked each spring.
- Fish growth will be monitored by gill net and trap net samples of all species in the lake.
- Although yellow perch size and abundance will continue to be the primary index of management success, rainbow trout and walleye stocking can be decreased if growth and survival of these species should decline significantly. Maintaining flexibility to respond to change is essential now that rainbows are spawning in new areas, and now that sticklebacks are established in the lake.
- Fish community data will be analyzed to determine if a special regulation (i.e., length limit) for walleye could provide larger walleye in the creel without adversely impacting the yellow perch and/or rainbow trout fisheries. The resultant special regulation proposal (if any) would be discussed in

a series of public meetings before a final recommendation is made to the FWP Commission.

- Considerable new facility development occurred at Dailey Lake in 1994 and 1995. This development provoked serious public controversy which is only now being resolved. In addition, we have learned that FWP does not own the land around the north shore of Dailey Lake. FWP is now negotiating with the Montana Department of Natural Resources and Conservation to settle this land ownership problem. For all of these reasons, no new site development is presently planned at Dailey Lake.

THREE FORKS PONDS

Management Objective

To provide a viable pond fisheries near the community of Three Forks, with some emphasis on low-tech fisheries suitable for youth, handicapped and older anglers.

History/Status

The three borrow pit ponds located in Gallatin County, known collectively as the Three Forks Ponds, are controlled by the City of Three Forks, but their fisheries are managed by FWP. Historically the east pond has been a largemouth bass, bluegill and perch fishery, while the middle and west ponds have been stocked with put-and-take trout and broodstock culls from the Ennis National Fish Hatchery. Water quality in the ponds has probably deteriorated from previous conditions (particularly in the largest or west pond) due to a reduction in irrigation driven groundwater inflow and to the development of the adjacent golf course.

While no up-to-date information exists at this writing, current status of the ponds' fish communities are believed to be common carp in the west pond, unknown in the middle pond, and largemouth bass, bluegill and yellow perch in the east pond.

Issues

Active management of the Three Forks Ponds fisheries has been limited in the recent past due to poor water quality, persistent carp problems and most recently the moratorium on planting broodstock culls from the Ennis National Fish Hatchery.

Increased demand for youth fishing opportunities, fishing sites near population centers and the efforts of the Three Forks community to further develop the site for recreation, have prompted FWP to take a more active role in managing the fisheries.

Action Plan

- Survey the fish community and physical and water quality characteristics in each of the three ponds. (1988)
- Develop and implement management plans for the three ponds, at least one of which (likely the east pond) will emphasize warmwater species, based on results of the above mentioned surveys. (1999)

REGION FOUR

Warmwater fisheries in Region Four, which encompasses a substantial portion of north central Montana, are associated primarily with reservoirs and river systems within the Missouri River drainage. Walleye are probably the most popular warmwater gamefish in the region, with sauger, northern pike, and yellow perch also gaining increasing angler interest. Other warmwater species include largemouth and smallmouth bass, paddlefish, shovelnose sturgeon, channel catfish, and a variety of panfish.

Fishing use on waters supporting warm and coolwater fisheries in the region has increased slowly and steadily since 1982. Sport fishing for warm and coolwater species in Region Four occurs on approximately 35 reservoirs and sections of four rivers. Fishing pressure on these waters averaged 39,000 angler-days during 1982-1984 and increased to an average of 61,000 angler days during 1991-1995, a 55% increase. Total fishing use in a typical year in the region averages around 500,000 angler-days and 80-85% of this occurs on waters managed primarily for coldwater species. However, fishing effort directed at warmwater species increased from 8% of total fishing use in 1982-84 to 12% in 1991-95. Warmwater fishing currently comprises 17-18% of all fishing use if angler-days spent fishing for perch and walleye on Holter and Hauser reservoirs are included.

Most fishing for warmwater species is done on standing waters and it appears there has been a slight shift in preference towards fishing on reservoirs and ponds in recent years. Currently, 70-75% of warmwater fishing occurs on standing waters as compared to 60-65% in the early 1980's. Warmwater fishing opportunities are available on at least 500 miles of rivers and streams in the region. Although these waters provide angling opportunities for a wide array of warmwater species, fishing pressure is relatively light. These waters supported an average of approximately 15,000 angler-days per year during 1991-1995. As with coldwater rivers, management emphasis on warmwater streams focuses on habitat protection, maintenance of suitable stream flows, reliance on natural reproduction and protection of fish stocks with appropriate harvest regulations. Approximately two-thirds of Montana's native fish species are found in these waters, several of which are species of special concern due to substantial declines in distribution and abundance statewide.

OVERVIEW

Black Bass

Few viable largemouth bass populations have been established in Region Four, despite being stocked by FWP in more than 110 waters. It appears that cool water temperatures, fluctuating water levels in reservoirs, and periodic winterkills in ponds severely limit the ability of largemouth bass to establish self-sustaining populations in this portion of the state. However, largemouth bass continue to be stocked in several small ponds and reservoirs in Region Four. Most of these waters are located on the eastern edge of the

region in the Judith and Musselshell drainages where water temperatures are more suitable for largemouth bass.

Smallmouth bass have not been stocked as extensively as largemouth bass in Region Four, and as a consequence are fairly rare in the region. Smallmouth bass are occasionally caught by anglers throughout the Missouri River system from Hauser Reservoir to Great Falls. The species apparently exists at very low self-sustaining levels in the system. Smallmouth bass are more abundant in the Missouri River downstream from Great Falls, though they are still a relatively minor species in terms of abundance. It appears environmental conditions in the Missouri River system are not particularly suitable for smallmouth bass, with primary limiting factors probably including coolwater temperatures and lack of suitable habitat.

Walleye/Sauger

Walleye are found in eight reservoirs and three river systems in the region including Tiber Reservoir, Lake Frances, Bynum Reservoir, Hauser Reservoir, Holter Reservoir, Cochrane Reservoir, Morony Reservoir, Petrolia Reservoir, Marias River, Judith River, and throughout the Missouri River downstream from Canyon Ferry Dam. Most of these walleye populations are presently self-sustaining but a few receive occasional maintenance stockings. To maintain naturally recruiting populations and quality angling in the region, walleye are protected with a variety of special regulations including a slot-limit at Holter Reservoir and a modified maximum length limit at Hauser Reservoir. Special management efforts aimed at enhancing walleye populations include introduction of new prey species (yellow perch and/or spottail shiner) in six waters to improve prey availability and habitat improvement/maintenance work to increase natural reproduction.

Sauger is a native species that is commonly found in over 200 miles of the Missouri, Marias, and Judith rivers in Region Four. Relatively little information on sauger population status has been collected since 1981 but it appears this species has declined in abundance over the past 15 years, presumably due to low stream flows, daily fluctuating water levels in the Missouri River caused by hydropower operation, and low water levels in Fort Peck Reservoir. Sportfishing for sauger in Region Four is considered fair and special management efforts to improve the fishery primarily center on improving water levels and reducing fluctuations through cooperation with the Montana Power Company.

Northern Pike

Eight reservoirs in Region Four contain northern pike including Tiber Reservoir, Lake Frances, Pishkun Reservoir, Little Pishkun, Arod Lakes, Split Rock Lakes, and Petrolia Reservoir; several ponds in the region also contain significant numbers of the species. Northern pike are also established in East Fork Spring Creek Reservoir by an illegal introduction. They also occur in the Marias, Teton, Sun, Judith, and Missouri Rivers, but river populations are typically characterized by low densities. Most northern pike

populations are self-sustaining, and FWP stocks relatively few fish. There are no northern pike length limits in Region Four and a 10 fish daily bag limit applies to the entire region. Efforts to improve northern pike populations in Region Four include introduction of new prey such as spottail shiners in select reservoirs and habitat improvement projects such as water level manipulation, shoreline seeding, and artificial structure placement to improve spawning success.

Shovelnose Sturgeon/Paddlefish

Shovelnose sturgeon is a native species that is found primarily in the 130 mile segment of the Missouri River within Region Four. The species also occurs in the Marias River during the spring. Shovelnose sturgeon appear to be thriving in the Region Four segment of the Missouri River. Fish sampling catch rates have remained high over the past 15 years and a recent population estimate in the Missouri River yielded a population estimate of 1,242 fish/mile which is an unusually high density. Sportfishing for shovelnose sturgeon is considered very good in the region, with most fishing pressure occurring in the spring. Fishing pressure for this species is presently low but is expected to increase as a result of national exposure that this fishery is receiving. Shovelnose sturgeon are managed with a 40 inch maximum length limit, primarily to protect the larger, federally endangered pallid sturgeon, and a 5 fish daily bag limit applies to all shovelnose sturgeon fisheries within the region. Considerable shovelnose sturgeon information has been collected as a by-product of pallid sturgeon surveys in recent years. This will be valuable for monitoring population trends and measuring management efforts intended to protect shovelnose sturgeon. Location of spawning sites should be continued so that critical habitat can be protected.

Paddlefish are only found in the Missouri River downstream of the Marias River confluence in Region Four. Paddlefish are found mostly in this area during the spawning season, preferring the lake conditions of Fort Peck Reservoir for the majority of their life. This native species is classified as a species of special concern because of its longevity, slow growth, and delayed maturation; the Missouri River paddlefish also constitute one of the few remaining wild populations of this species. Snagging for paddlefish is limited above the confluence with the Judith River due to low abundance of spawners this far upstream and difficult access. Special management efforts directed towards paddlefish consist primarily of locating spawning sites so that critical habitat can be protected.

Burbot

Burbot are native to the major river systems and several associated reservoirs in Region Four. They have also been transplanted to Petrolia, Smith River, and Newlan Creek reservoirs. There are no special regulations applying to burbot in Region Four and a 10 fish daily bag limit applies to all waters within the region. Overall, interest in fishing for burbot is minor in Region Four. However, during winter months, some anglers fish specifically for burbot and access to waters containing this species is considered good.

Channel Catfish

Channel catfish are a native species to Montana and are found in 270 miles of rivers in Region Four. Channel catfish average 14-16 inches in length and weigh from 1-1½ pounds in Region Four, with maximum sizes ranging from 7-12 pounds. Catfish have not been stocked for nearly 20 years in any substantial numbers within the region, and existing populations are entirely self-sustaining. Little information has been collected on channel catfish since 1980, however by-catch information gathered while sampling other fish species suggests that the channel catfish population is at least as healthy as it was 15 years ago. Sportfishing for channel catfish is excellent in Region Four, pressure is relatively light, and a daily bag limit of 20 fish is in effect for the entire region. The only management effort presently planned for channel catfish is to collect population status information so that trends can be monitored.

Panfish

Yellow perch are the most abundant panfish in Region Four. This species has only been stocked by FWP into 14 waters in the region between 1930 and 1994, but yellow perch distribution has expanded enormously through natural dispersion into river systems and irrigation canals, legal introductions into private ponds, use of live bait (with subsequent escape), and illegal introductions. Yellow perch are found in larger rivers, but are most common in lakes, reservoirs, and ponds within the region. There are no length limits or bag limits for yellow perch in Region Four, and perch provide popular fisheries in a few waters where suitable densities of quality-sized fish are found. Some important yellow perch fisheries in the region include Lake Frances, Holter Reservoir, and Hauser Reservoir. Yellow perch are also important prey for walleye and northern pike in several Region Four waters. Management efforts to improve perch populations for angling and prey have consisted mostly of placing habitat structures in select waters to enhance spawning habitat.

Crappie (black and white) have been stocked in 24 waters with little success in Region Four waters. Similarly, efforts to establish bluegill have largely been unsuccessful despite stocking more than 70 waters with the species. Apparently water temperatures are too cool, even in smaller waters, for these species to reproduce and establish self-sustaining populations. Because of this poor past performance, FWP is re-examining future management plans aimed at developing fisheries for these species.

MANAGEMENT PLANS FOR MAJOR WATERS

LAKES, RESERVOIRS AND PONDS

TIBER RESERVOIR

Management Objective

To provide the best fishery Tiber Reservoir can reasonably support, with emphasis on walleye and associated prey species.

History/Status

Tiber Dam was completed in 1955 and created a 17,000 acre reservoir on the Marias River. The original management goal was to establish a coldwater fishery for rainbow trout. Long segments of the Marias River and its tributaries were treated with fish toxicants in 1954-55 to remove fish species that would likely compete with trout in the newly-formed reservoir. This effort was largely unsuccessful. Millions of rainbow trout were stocked during 1956-63 but the quality of the trout fishery declined during the 1960's. Yellow perch first appeared in the reservoir in 1963 (probably from upstream sources), and reached high numbers by 1971.

Walleye were stocked in 1971-74 with the goal of establishing a self-sustaining predator to utilize the yellow perch prey base and diversify angling opportunities. Walleye became the dominant fish species by 1974 and the population has maintained itself by natural reproduction in subsequent years. Northern pike first appeared in 1973, probably via dispersal from upstream sources. Channel catfish are native and were stocked during 1967-72 but their abundance remains low. Tiber supports limited populations of rainbow and lake trout that apparently sustain themselves by natural reproduction.

Yellow perch and white sucker numbers declined dramatically in the late 1970's following the establishment of walleye and northern pike. This substantially affected the prey base because densities of eight native fish species that could potentially serve as walleye forage in Tiber have remained low. Black and white crappie were introduced on several occasions between 1979 and 1985 but they failed to establish significant naturally reproducing populations due to cool water temperatures, low productivity, lack of suitable habitat and high predation rates. Spottail shiners were introduced in 1984 and they became the most common forage species in shoreline areas by 1989. The forage fish community is currently comprised mostly of spottail shiners and yellow perch.

The successful establishment of spottail shiners did not result in significant long-term improvement in walleye populations. Walleye growth declined substantially in 1992-94, causing widespread public concern for the fishery. In response to this concern, FWP

prepared an Environmental Assessment and is planning to introduce cisco (lake herring - *Coregonus artedii*) in spring 1997.

Despite recent fluctuations, Tiber continues to provide one of the most popular and consistent walleye fisheries in Montana. Fishing pressure increased from around 15,000 angler-days per year during 1983-85 to around 23,000 angler-days per year during 1991-95. Walleye harvest rates have remained stable (10-20% of adult population harvested per year) despite increased use and this harvest rate is considered acceptable. Average number of walleye caught per hour during the summer fishing season typically exceeds 0.5 fish/hour, which is excellent. Average length of walleye harvested by anglers ranged from 14 inches (fair) to 16 inches (good) during 1991-1995. Approximately 15,000 walleye, 5000 northern pike, 3000 yellow perch, and 1500 rainbow trout were harvested during the 1991 fishing season.

Issues

Enhancement of forage fish populations to improve walleye growth and increase the average size of harvested walleye has been the main management issue on Tiber Reservoir for the past several years. As mentioned previously, FWP plans to introduce cisco during 1997 to improve and diversify the prey base by establishing a self-sustaining prey fish population that will use the pelagic waters of Tiber more effectively than perch or spottails. A key concern is whether or not cisco will adversely affect walleye recruitment and existing populations of perch and spottails. New management actions (such as water level manipulation and/or walleye stocking) could be proposed if adverse impacts are documented.

Water level manipulation, placement of spawning structures, and shoreline revegetation have all been attempted during the past decade to improve yellow perch reproduction. Perch numbers continue to fluctuate though there have been improvements in juvenile and adult densities in the past 2-3 years. The extent of winter drawdown and annual water level fluctuation has been reduced in recent years, which should enhance aquatic plant communities and improve perch habitat. FWP is currently preparing new reservoir operating guidelines that will advocate more stable water levels.

Revegetation specialists should be consulted to determine the feasibility of improving temporary terrestrial vegetative cover in reservoir drawdown zones. If feasible revegetation methods are identified, experimental plots should be established. Placement of perch spawning structures and shoreline revegetation can be accomplished by fishing clubs, with possible assistance from the FWP Future Fisheries Program. FWP staff availability for these projects will be limited because establishment and monitoring of a cisco population in Tiber will be the top management priority for at least the next five years.

A substantial number of public comments were received concerning potential overharvest of walleye in the Willow Creek Arm (WCA) area during the spring time. Some anglers believe excessive numbers of walleye are harvested in early spring prior to completion of spawning. Many anglers also felt there was a need for additional law enforcement efforts in WCA to reduce the potential for illegal harvest of walleye. Although spring angling success in WCA can be very good at times, surveys thus far indicate overall harvest levels are not excessive and most fish are harvested after spawning season has ended. In recent years, the daily walleye limit was reduced from 10 to 5, and the type and number of setlines has been reduced substantially. These measures have probably kept walleye harvest at an acceptable level.

Management of recreational facilities is the responsibility of the U.S. Bureau of Reclamation. Access roads, boat ramps, and camping areas have been substantially improved in recent years by the Bureau in cooperation with local counties, organized sporting clubs, and FWP. FWP may be able to assist in future cooperative efforts if funds are available. The most pressing access needs appear to be improvements to existing access roads in the Willow Creek, north and south Bootlegger, and Devon areas. Addition of boat docks at several launch points and a breakwater at VFW campground were also mentioned by WFMP committee members and survey respondents.

Action Plan

- Introduce cisco during 1997 with goal of establishing a self-sustaining population. Consider stocking walleye if substantial reduction in walleye recruitment results from adverse interaction with cisco.
- Monitor walleye, prey populations, zooplankton, and angling pressure/success to assess cisco introduction. (annual)
- Complete revised guidelines for reservoir operation to provide for more stable water levels. (1997)
- Prepare evaluation of revegetation options in reservoir drawdown zones to improve overall fish habitat.
- Monitor walleye population structure and dynamics (reproduction, growth, mortality) and propose new fishing regulations if overharvest is documented. Carefully monitor walleye harvest levels during spring in Willow Creek Arm area and propose fishing regulation changes if overharvest is documented. (annual)
- Request law enforcement place high priority on patrolling Willow Creek Arm area in springtime to ensure compliance with walleye harvest regulations.
- Monitor access needs and work in cooperation with the U.S. Bureau of Reclamation, local counties, and organized sporting clubs to provide necessary fishing access improvements.

LAKE FRANCES

Management Objective

To provide the best fishery Lake Frances can reasonably support, with emphasis on walleye, northern pike and associated prey species.

History/Status

Lake Frances is a 5,500-acre off-stream irrigation storage reservoir that receives water from Birch and Dupuyer creeks. Maximum depth is 42 feet with annual fluctuations of 5-6 feet. During extended drought periods, lake surface area is drastically reduced because of gradually sloping shorelines and lower reservoir volume. Northern pike and yellow perch were illegally introduced in the 1950's. The lake was managed with rainbow trout from 1928-64 and with kokanee salmon from 1941-74. Salmonid management was discontinued after northern pike became established. Walleye were introduced in 1969 and stocked periodically until 1977. Spottail shiner were introduced in 1984 to provide additional forage. Crayfish are abundant and also provide forage.

Walleye populations were fairly high during the 1980's but began declining after 1989. Natural reproduction of walleye is good to very good but survival to adulthood appears low. Northern pike numbers were lower than average during 1980-88, possibly contributing to walleye population expansion during those years. Northern pike and yellow perch also reproduce naturally. Northern pike numbers are presently stable while adult yellow perch are increasing. Approximately 8-10% of adult walleye and northern pike populations are harvested annually, based on tag returns. This level of harvest appears to be in the acceptable range. Forage fish populations fluctuate with available spawning habitat, and yellow perch are presently increasing. Spottail shiner numbers peaked in 1992 and have steadily decreased since but will probably recover within a short period of time.

Although fishing pressure has declined in recent years, Lake Frances remains the second most popular warmwater fishing reservoir in the region. Fishing use declined from 15,000-18,000 angler-days per year during 1989-1993 to 10,000 angler-days during 1995. Summer creel surveys conducted since 1989 indicate that the majority of anglers target walleye while few anglers fish specifically for northern pike. This pattern reverses in the winter, when most anglers seek northern pike. Average summer catch rates for walleye have ranged from 0.13-0.35 fish per hour and have been low in recent years. Average northern pike catch rates during summer have ranged from 0.11-0.35 per hour since 1989. Anglers kept approximately 85 percent of the walleye and 40 percent of the northern pike caught during 1994 and 1995. Average length of walleye harvested by anglers increased from 14.5 inches in 1989 to nearly 17 inches in 1995. Northern pike harvested by anglers average approximately 20 inches. Approximately 11,000 walleye, 8000 yellow perch, and 6000 northern pike were harvested by anglers during 1989.

Issues

Fluctuating water levels will continue to be a problem since the main purpose of the reservoir is irrigation. Because of fluctuating water levels, spawning habitat for yellow perch may be limited. Artificial structures could be installed and seeding of drawdown zones could be attempted to improve spawning habitat. However, these actions are currently not recommended since they would also benefit northern pike, considered to be a major competitor with walleye in Lake Frances.

The decline of the walleye population during the 1990s has been an issue of major concern. Survey data indicate the decline has not been caused by overharvest of walleye or failure of walleye to reproduce. It appears northern pike numbers are high enough to limit walleye recruitment by direct predation on young walleye. Unfortunately, no simple and effective methods are known to reduce northern pike numbers in Lake Frances. Northern pike bag limits could be increased but this would have little effect since few anglers keep more than one northern and virtually none harvest the current daily limit of 10 northerns. Attempts could be made to trap and remove northern pike but results of past netting surveys indicate it is unlikely enough fish could be removed to make a significant difference in population levels. The most effective way to reduce northern pike numbers is probably to encourage anglers to harvest more small northern pike.

Because few other options exist to improve walleye numbers, FWP recommends an experimental walleye stocking program on Lake Frances. Stocking rainbow trout in reservoirs with significant numbers of northern pike (such as Pishkun Reservoir) has been largely unsuccessful due to high predation rates. However, walleye stocking to overcome pike predation has not been attempted in Region Four waters. Consequently, we recommend stocking 100,000 walleye fingerlings in 1997, 1999, and possibly in 2001. Effectiveness of stocking will be evaluated by creel surveys (if funding remains available) and by standard fall gill net surveys. Management recommendations would be made pending results of stocking evaluation.

Access to Lake Frances during periods when water levels are low is an occasional problem which could be improved with cooperation of FWP, Valier Area Development Council, Pondera County Canal & Reservoir Company and Walleyes Unlimited. The best low water access site is at the outlet area at the southeast end of the lake and some improvements could potentially be made there. Also, during creel interviews, anglers complained of lack of enforcement, particularly with regard to overlimits of walleye.

Action Plan

- Place signs at strategic locations to encourage anglers to harvest more small northern pike. (1997-1998)

- Stock 100,000 walleye fingerlings on alternate years over a four to six year period as an experiment to augment depressed walleye populations. Evaluate results and make recommendations.
- Continue monitoring walleye and northern pike harvest levels and propose regulation alternatives if overharvest is documented. (annual)
- Provide additional enforcement patrols as schedules permit.
- Conduct seining and gill net surveys to monitor forage fish availability and fish population trends. (annual)

BYNUM RESERVOIR

Management Objective

To provide the best fishery Bynum Reservoir can reasonably support, managing exclusively for walleye and associated prey species.

History/Status

Bynum Reservoir is an off-stream irrigation storage reservoir that covers approximately 3400 surface acres. Water is diverted from the Teton River only during high flow periods or when other water users are not exercising their rights. Maximum depth is approximately 40 feet, with up to 8 foot fluctuations annually. A variety of species have been stocked in Bynum: sunfish (1925-26); kokanee salmon (1946; 1953-59; 1971-77); largemouth bass (1951); rainbow trout (1960-84); and brown trout (1981). Due to demand for more warmwater fishing in the area, walleye were introduced into Bynum in 1985, with additional stocking occurring through 1992. To provide forage, yellow perch and spottail shiner were also introduced in 1985, with additional transfers made through 1988. Abundant white sucker and crayfish populations also provide forage.

Based on netting surveys, walleye populations are fairly stable and natural reproduction has been documented in 1993 and 1994. An average of approximately 4-8% of the adult walleye population is harvested annually, based on tag returns, with a maximum of 18% observed in 1992. Average harvest levels appear to be acceptable. Yellow perch numbers fluctuate, depending on spawning habitat available at the corresponding reservoir level. Spottail shiners increased through 1991 and have since decreased, but are expected to rebound in coming years. Fishing pressure ranged from 1400-2700 angler-days per year during 1991-1995.

Issues

Natural walleye reproduction appears to be adequate on Bynum. However, walleye reproduction will be carefully monitored and periodic stocking will be conducted if reproduction falls below desirable levels. Prey fish abundance, particularly yellow perch and spottail shiner is low at times. Attempts will be made beginning in 1997 to improve

yellow perch reproduction through installation of artificial spawning structures. Placement of structures is contingent upon availability of funding (possibly from the FWP Future Fisheries Program) and approval from the Bynum Water Users Association.

Harvest of walleye will continue to be monitored on an annual basis and alternative regulations will be proposed if overharvest is documented. Seining and gill net surveys will continue annually as manpower allows to monitor forage fish availability and fish population trends. The breakwater protecting the boat ramp needs to be permanently and visibly marked and will be repaired and maintained as necessary. Access roads to the lake and campground will be maintained and improved cooperatively with FWP, Teton County, Walleyes Unlimited, Teton County Sportsmen's Association, and the Irrigation District. Congestion occurs in the campground with campers and boat trailers. FWP has a master plan developed for the area and site improvements to reduce congestion are forthcoming.

Bynum Reservoir is the only water in the region managed exclusively for walleye. Most other Region Four walleye waters also contain northern pike which are known to prey on walleye and compete with walleye for forage fish. Since forage fish numbers in Bynum are already limited at times, addition of northern pike would likely have an adverse impact on the walleye fishery. Northern pike are the most common fish illegally introduced into Region Four waters. FWP and organized sporting groups should continue to inform the public of the negative aspects of northern pike establishment and FWP enforcement personnel should place emphasis on discouraging illegal introduction, particularly on Bynum.

Action Plan

- Monitor walleye recruitment and provide supplemental stocking, if necessary, to maintain adequate population density. (annual)
- Supplement spottail shiner population through stocking of adults from other populations, if necessary.
- Install artificial structures to improve yellow perch spawning success beginning in 1997; if funding and permission are obtained.
- Continue monitoring walleye population structure and dynamics, and propose more restrictive angling regulations if overharvest is documented. (annual)
- Monitor forage fish abundance through gill net and seining surveys. (annual)
- Work cooperatively with other groups to enhance existing breakwater, fishing access sites, and access roads. (annual)
- Place enforcement emphasis on prevention of illegal northern pike introduction.

HOLTER RESERVOIR

Management Objective

To provide the best fishery Holter Reservoir can reasonably support, with primary emphasis on salmonids but with continued opportunity to harvest substantial numbers of yellow perch and opportunity to catch trophy walleye. Begin to develop a management plan in 1997 to establish long-term management objectives.

History/Status

Holter Reservoir is a 4800 acre, 24 mile long impoundment created when Montana Power Company completed Holter Dam around 1910 on the Missouri River. It is lowermost in a chain of three reservoirs with Hauser Reservoir (3800 acres) immediately upstream and Canyon Ferry Reservoir (35,000 acres) on the upper end of the chain. Holter has traditionally been one of the five most heavily fished lakes in Montana, with average annual fishing pressure of around 75,000 angler-days per year. The reservoir is stocked with rainbow trout fingerlings annually and there is also a significant population of wild rainbows that reproduce naturally in tributaries. Kokanee salmon reproduce naturally and have been present in low numbers in Holter for the past 30 years. Kokanee abundance increased naturally in the late 1980's and they are now heavily sought by anglers. Yellow perch and walleye drifted into Holter from stockings made in upstream waters during the period 1939-1955 and have maintained significant populations by natural reproduction in subsequent years. Reservoir volume is small relative to inflow, hence the theoretical water exchange rate (flushing rate) averages only 22 days.

Approximately 80% of anglers fish for trout/salmon, 15% fish for perch, and 5% fish for walleye during the "summer" months (April thru September). The winter fishery is comprised mostly of anglers fishing for yellow perch (approximately 75% of winter anglers) with remaining anglers primarily targeting trout and salmon. On an annual basis, approximately 70% of anglers fish for trout/salmon, 25% fish for perch, and 5% fish for walleye. Holter has provided one of the most productive yellow perch fisheries in Montana over the past decade. Average harvest was more than 300,000 perch per year (78,000 in summer; 246,000 in winter) averaging 8-9 inches during 1985-1995. Yellow perch catch in gill nets was relatively stable in 1989-1995 but numbers were significantly lower than in 1986-1989.

Holter supports a relatively small population (approximately 3000 adults) of fast-growing walleye. Anglers harvest approximately 20% of the adult walleye population each year. Four year old walleye average 19 inches during early fall in Holter, compared to 15-16 inches in Tiber and 14-15 inches in Lake Frances. Walleye up to 16 years old have been found in Holter and individuals in the 8-12 pound range are commonly caught in netting surveys. Walleye feed mostly on yellow perch and sculpins (70% of food volume) with suckers, trout, kokanee, and other walleye comprising the remaining 30% of the diet. Long-

term netting data indicates walleye numbers have been fairly stable since 1967 with some decrease noted in 1995.

Issues

Maintenance of the trophy walleye fishery in the face of increased fishing pressure for walleye has been the main issue on Holter during the past several years. A slot limit was established in 1990 which allowed a daily harvest of 3 walleye less than 18 inches and one over 24 inches. The bag limit was 5 daily with only one over 20 inches prior to 1990. Since the slot limit was established, numbers of female walleye over 26 inches and males over 24 inches appear to have increased significantly. The slot limit was increased to protect walleyes between 18 and 28 inches beginning in 1996. Walleye population and harvest data suggest this change was justified and consistent with the goal of maintaining a trophy fishery. The Holter walleye population needs to be carefully monitored. It is possible that allowing harvest of three fish under 18 inches may be too high to allow adequate recruitment. Reducing the daily walleye limit to two fish under 18 inches would decrease harvest by approximately 20% and might be appropriate if long-term decreases in recruitment are observed.

There is currently no daily bag limit on yellow perch and it is not known if current harvest levels are affecting the perch population. FWP personnel are currently gathering perch age and growth information, marking and releasing perch caught in spring trap nets, and conducting creel surveys to determine the need for harvest restrictions. Appropriate bag limits will be proposed if harvest levels are too high. The need and effectiveness of placing artificial perch spawning structures should be evaluated and structures should be added if deemed feasible and necessary.

Flushing losses of all gamefish over and through Holter Dam is a very important issue. FWP biologists have observed substantial numbers of yellow perch and kokanee in the Missouri River downstream from Holter Reservoir in recent high-runoff years. These fish were undoubtedly spilled from Holter Reservoir. In addition, several hundred adult walleye were tagged in Holter Reservoir during spring 1995 and 1996. A surprisingly high number of these tags have been returned from walleye caught in the river below Holter Dam, indicating flushing losses of adult walleye are unexpectedly high. FWP will request funding from Montana Power Company (MPC) in 1996/97 to begin evaluation of the magnitude of flushing losses and investigation of alternatives to reduce flushing losses.

The potential to stock walleye in Holter to maintain or increase the population has been an issue for several years. Walleye stocking is controversial since they prey upon perch, trout, and kokanee; the most highly sought-after gamefish in the reservoir. In addition, significant numbers of walleye are believed to flush downstream into the popular blue-ribbon stretch of the Missouri River below Holter where they likely prey on trout to some extent. Consequently, walleye stocking should only be considered after other methods (such as reservoir harvest regulations and dam outlet screening) for maintaining the walleye

population have been thoroughly evaluated. All stakeholders (reservoir and river anglers) would need to be fully involved before a decision to stock walleye in Holter could be made.

Action Plan

- Evaluate newly implemented (1996) harvest regulations for walleye and modify if necessary to maintain trophy walleye fishery.
- Continue research on yellow perch population with objective of determining if harvest regulations would improve fishery.
- Evaluate need for yellow perch spawning structures; conduct habitat improvement project if deemed beneficial.
- Seek funding from MPC to evaluate flushing losses of fish from Holter Reservoir and identify means of reducing such losses. (1997)
- Initiate Holter Reservoir fisheries management plan. (1997-1998)

HAUSER RESERVOIR AND LAKE HELENA

Management Objective

To provide the best fisheries Hauser and Lake Helena can reasonably support, with primary emphasis on salmonids with opportunities to catch yellow perch and walleye. Update management plan beginning in 1997/98 to establish long-term management objectives.

History/Status

Hauser is a 3,800-acre reservoir created in 1911. Hauser Dam is operated by the MPC and impounds the Missouri River for a distance of 15 miles upstream to the base of Canyon Ferry Dam. As with Holter, the volume of Hauser Reservoir is small relative to inflow. As a result, the theoretical water exchange rate (flushing rate) averages only 12 days, which is very brief. Lake Helena is a large, shallow area connected to the Causeway Arm of Hauser Reservoir by a narrow channel. Lake Helena was created when the lower reach of Big Prickly Pear Creek was inundated by Hauser Dam. Lake Helena has a surface area of 2100 acres, average depth of only 5 feet, and maximum depth of only 10 feet. Lake Helena has dense mats of aquatic vegetation, is an important waterfowl production area, and receives substantial use by rainbow trout and kokanee moving in from Hauser Reservoir in the springtime.

Hauser has traditionally been stocked with rainbow trout fingerlings on an annual basis. Kokanee salmon were stocked in Hauser and upstream waters on several occasions beginning in the 1950's and maintained low populations sustained by natural reproduction until rapid population expansion occurred in the mid-1980's. An extremely popular fishery developed and fishing use nearly tripled between 1985 and 1989 with most anglers targeting naturally reproducing kokanee salmon. Hauser has been one of the five most

heavily fished lakes in Montana in recent years with angling use ranging from 60,000-80,000 angler-days per year during 1989-1995.

Several warmwater fish species have been stocked in Hauser/Lake Helena over the past 70 years, including walleye, yellow perch, largemouth bass, bluegill, sunfish, and bullheads. Several attempts to establish a largemouth bass fishery in Lake Helena have been made with stocking in 1945-48, 1962, and 1988-91. These efforts failed to produce a significant fishery despite stocking approximately 250,000 largemouth fingerlings during 1988-1991. Fluctuating dissolved oxygen levels due to extensive amounts of aquatic vegetation apparently preclude year-around habitation by gamefish. Largemouth bass also failed to establish significant populations in the shallow Causeway Arm of Hauser.

Smallmouth bass are found in low numbers in Hauser, presumably originating from 1967 stocking in Helena Valley Regulating Reservoir which drains to Hauser via irrigation canals. Walleye have maintained a sparse population apparently by limited natural reproduction following stocking in Lake Helena during 1951. Yellow perch are present in significantly lower numbers than in Holter Reservoir. Anglers fishing for yellow perch account for around 10% of annual fishing pressure and harvest approximately 10,000 perch per year on Hauser. Low numbers of perch and walleye (as compared to Holter) are probably due to a substantially faster flushing rate and subsequent losses over and through Hauser Dam.

A detailed fisheries management plan with extensive public involvement was prepared for Hauser/Lake Helena in 1989. The primary management goal is to maintain a mixed fishery for kokanee and rainbow trout. The issue of stocking walleye was controversial and three options (no stocking, low density stocking, high density stocking) were evaluated. Though most survey respondents opposed walleye stocking, the low-density stocking option was selected with a goal of establishing a walleye fishery similar to Holter. In accordance, 5000 advanced walleye fingerlings (3-5 inches) have been stocked each year during 1989-1996. This stocking appears to have increased walleye density in Hauser but gill net surveys suggest walleye density in Hauser is currently only 10% of Holter. Creel surveys have not shown a commensurate increase in walleye catch.

Issues

High flushing losses of salmonids and warmwater species through Hauser Dam is a significant management issue. The cost and feasibility of screening the outlet(s) of Hauser Dam must be carefully evaluated. FWP will request funding from MPC in 1996/97 to begin evaluation of the magnitude of flushing losses and investigation of alternatives to reduce flushing losses.

The question of whether or not to enhance existing populations of warmwater predators (walleye and/or smallmouth bass) in Hauser continues to be a key management issue. This issue is complex because predator stocking could affect the popular salmonid fisheries in Hauser as well as in Holter and the Missouri River below Holter due to high flushing losses

from Hauser. Continued expansion of illegally introduced walleye in Canyon Ferry Reservoir (located immediately upstream from Hauser) could result in flushing losses similar to those observed below Holter, thereby increasing walleye density in Hauser and downstream areas. Hauser kokanee numbers declined significantly in 1996. Some anglers attribute the recent kokanee decline to predation by stocked walleye, although high flushing flows are likely responsible. The recent appearance of whirling disease in the Missouri River drainage poses an uncertain threat to the continued health of salmonid communities in the Missouri River/reservoir system. The sudden and unexpected increase in kokanee during the mid-1980's illustrates fish species balances in Hauser and Holter are sensitive and unpredictable.

Because of these concerns, FWP recommends walleye stocking in Hauser be maintained at current levels until the existing Hauser management plan can be updated. The ramifications of Canyon Ferry walleye establishment, whirling disease, and recent kokanee declines need to be more completely understood before decisions can be made to alter warmwater predator stocking. Anglers who fish for salmonids on this extremely popular reservoir must be fully involved in these decisions. In the meantime, warmwater enhancement efforts should focus on species less apt to prey on salmonids. Yellow perch are currently the most common warmwater species targeted by Hauser anglers and are least likely to impact salmonids. Attempts should be made beginning in 1997 to improve yellow perch spawning habitat in the Causeway Arm by extensive placement of artificial habitat structures. Efforts to establish largemouth bass should be discontinued due to poor success of past stocking efforts. Attempts could be made to enhance smallmouth bass but this decision should be made during the management plan update process.

Action Plan

- Seek funding from MPC to study flushing losses of fish from Hauser Reservoir and identify means of reducing such losses.
- Improve yellow perch spawning habitat in the Causeway Arm by placement of artificial habitat structures.
- Update existing management plan, beginning in 1997 or 1998.

PISHKUN RESERVOIR

Management Objective

To provide the best fishery Pishkun Reservoir can reasonably support. Continue attempts to manage for a mixed fishery of northern pike, yellow perch, and either kokanee salmon or rainbow trout.

History/Status

Pishkun Reservoir receives water diverted from the Sun River. It is an off-stream irrigation storage reservoir covering approximately 1500 surface acres. Reservoir levels generally fluctuate less than 10 feet annually with a maximum depth of 81 feet. Rainbow trout were the principal species stocked in the reservoir, beginning in 1932. Grayling were stocked in the late 1930's and early 1940's. Northern pike and yellow perch were illegally introduced in the 1950's. Rainbow trout plants were discontinued in 1963 after northern pike became established. To satisfy anglers wishing to catch salmonids, rainbow trout were again stocked annually beginning in 1977, but this practice was discontinued after 1984 because of poor survival due to high northern pike predation. Experimental stocking of two sizes (small and large) of two rainbow trout strains was conducted from 1992 through 1996. Tentative results indicate none of the four rainbow size/strain combinations tested produced significant fisheries. Kokanee salmon were also stocked from 1970 until the late 1980's. Spottail shiner were introduced as forage for northern pike on several occasions beginning in 1987.

Northern pike and yellow perch reproduce naturally in the reservoir, but both populations fluctuate on occasion. Spottail shiner appear to have established after several transplants and may improve the forage situation. Wild rainbow trout enter the reservoir from the Sun River diversion. If they are large enough to escape predation by northern pike, trout are capable of reaching 10-12 pounds. Northern pike also reach large size, with fish over 20 pounds occasionally caught by anglers. Fishing pressure has fluctuated from 3000-6000 angler-days per year since 1985, with approximately 50-75% of this use directed at warmwater species (northern pike and yellow perch).

Issues

The primary issue on Pishkun Reservoir is whether to manage as a warmwater, coldwater, or mixed fishery. Recent attempts to manage as a mixed fishery with rainbow trout do not appear to have been particularly successful, probably due to predation by northern pike. Trout survival would likely increase if northern pike numbers were reduced, but no feasible method to control these fish has been identified. Chemical eradication is currently impossible due to the large size and depth of the reservoir. Northern pike could be removed with traps during the spring spawning season but current equipment and manpower are inadequate and it is not known where or how to dispose of the fish. Some anglers have suggested introducing walleye but the forage base (yellow perch and spottail shiner) is inadequate to support two predators. Artificial structures could be added to enhance yellow perch spawning but these would likely also improve northern pike reproduction.

Pishkun continues to provide a popular fishery despite poor survival of stocked rainbow trout. The recommended option is to continue to manage for a mixed fishery comprised of northern pike and yellow perch, with some salmonid stocking. If rainbow stocking fails,

kokanee should be attempted once again because their habitat requirements do not overlap as extensively with northern pike. Trapping and removal of a significant portion of the northern pike population should be attempted on an experimental basis if additional manpower and equipment becomes available.

Fluctuating water levels will continue to be a problem in some years, thereby limiting yellow perch reproduction. Water level fluctuation is unavoidable because Pishkun is an irrigation storage reservoir. Adverse effects could possibly be reduced by consultation and negotiation with Greenfields Irrigation District for more favorable water level management. Numerous forage fish become trapped in two areas of the reservoir when water levels recede. When water levels are low, a backhoe could be used to excavate a small channel which would allow fish to escape with the water. An improved boat ramp is needed at the campground. Plans are in progress to pour a concrete ramp at the existing campground along the north shore.

Action Plan

- Evaluate potential to reduce northern pike density by removal efforts.
- Maintain current rainbow trout stocking, substitute with kokanee if rainbow survival remains poor.
- Work with the irrigation district to provide more favorable water level management for fishery.
- Complete boat ramp improvements. (2000)

SPLIT ROCK LAKE AND AROD LAKES

Management Objective

To provide the best fisheries Split Rock Lake and Arod Lakes (=Eyraud Lakes) can reasonably support, emphasizing northern pike and yellow perch.

History/Status

Split Rock Lake is a series of natural potholes fed by springs and seepage from the Pishkun Supply Canal. Water level in the lowermost lake is maintained by a dam in the outlet. Split Rock covers approximately 100 surface acres with most depths less than 12 feet. The three Arod Lakes cover about 225 surface acres with maximum depths of 11, 17 and 21 feet. Water is diverted from Muddy Creek and stored in Arod for irrigation. Northern pike were stocked in Split Rock and Arod Lakes in the late 1940's with fish obtained from Pike Lake on the Blackfeet Reservation.

Split Rock and Arod both produce large yellow perch and are relatively minor fisheries, each supporting an average of around 500 angler-days per year. Northern pike are generally small, with a few large individuals caught annually, mainly through the ice. Yellow

perch and northern pike are not stocked and reproduce naturally in Split Rock and Arod. Largemouth bass and crappie have been stocked in both Arod and Split Rock, and bluegill have been stocked in Split Rock in the past. These stockings have failed to provide significant self-sustaining populations.

Issues

Water levels are fairly stable at Split Rock but fluctuate considerably at Arod causing poor reproduction of yellow perch and resulting forage limitations for northern pike. It is doubtful if anything can be done to stabilize Arod water levels because of demands for irrigation and domestic water supply for the town of Brady. Access to both waters has been a problem in the past. Land around Arod Lakes was recently purchased by the U. S. Fish & Wildlife Service and they have since improved roads on the property and ensured continued access. At Split Rock, FWP has worked with the landowners to keep the area open and provided signs asking users to stay on established roads. This communication should be continued. Forage fish populations are lower than desirable in both waters. Spottail shiner could be introduced in an attempt to improve forage availability for northern pike.

Action Plan

- Maintain effective working relationship with local landowners to keep area open and provide adequate access.
- Prepare environmental assessment and introduce spottail shiners to provide forage for northern pike, if deemed acceptable.

PETROLIA RESERVOIR

Management Objective

To provide the best fishery Petrolia Reservoir can reasonably support, with emphasis on walleye and associated forage species.

History/Status

Petrolia Reservoir is a 515-acre impoundment created in 1951 and located approximately 10 miles south of Winnett on Flatwillow Creek. The dam was constructed by the State of Montana Water Conservation Board (now Department of Natural Resources and Conservation). The 1995 Montana Legislature authorized funding approximately $1 million in dam repairs and the transfer of the project to the Petrolia Water Users Association, a private group of farmers and ranchers who irrigate crops with water stored in Petrolia.

Eight fish species have been stocked by FWP in Petrolia since 1953, including rainbow trout, largemouth bass, black crappie, burbot (ling), yellow perch, northern pike, walleye,

and spottail shiners. Northern pike have not been stocked since 1986 but they continue to maintain low to moderate population levels through natural reproduction. Walleye fingerlings have been stocked in seven of the past 10 years and there is some evidence of natural reproduction. Walleye numbers are variable but relatively high gill net catches have been recorded on occasion. Yellow perch and white sucker numbers were low in 1992-1994 gill net surveys. Seining surveys done in 1994 and 1995 indicate much lower forage fish numbers than in other Region 4 reservoirs. Billings-area anglers placed 63 artificial perch spawning structures in the reservoir in spring 1994, in cooperation with FWP. Petrolia is a fairly popular reservoir, particularly among Billings-area anglers, and supports an average of approximately 1500 angler-days of fishing use per year.

Issues

It is currently not known if public access will continue to be allowed once the state-owned dam and lands around Petrolia Reservoir are transferred to the private association of water users. Continued public access was not stipulated in the transfer authorized by the 1995 legislature. Future public access is currently being negotiated between the water users and the Department of Natural Resources and Conservation (DNRC). DNRC has maintained an access site near the dam for many years and public access has been unrestricted. FWP has offered to accept the responsibility and associated costs of operating and maintaining the access site but this function could possibly also be met by DNRC, Petroleum County, or the City of Winnett.

Forage fish shortages are due largely to extensive reservoir drawdowns that occur in dry years due to heavy irrigation demand. These drawdowns are probably unavoidable due to limited water availability in the Flatwillow drainage. It is too soon to tell whether or not spawning structures placed in 1994 have benefitted yellow perch. A significant number of spawning structures should be added to allow a fair evaluation of this action. However, lack of adequate fisheries management staff in the Lewistown area will make it difficult to complete this task. FWP will submit a proposal to the 1997 Legislature to increase fisheries staff in the Lewistown area. An Environmental Assessment was prepared in 1994 to introduce spottail shiners to diversify and improve the forage base. Spottails were introduced in 1996 and transfers should continue until they have a reasonable chance to establish a self-sustaining population. Walleye stocking should be evaluated to determine appropriate frequency, stocking density, and extent of natural reproduction.

Action Plan

- Monitor ongoing negotiations for public access between water users and DNRC and participate in management of access site, if necessary, to maintain angler access.
- As funding and staffing allows, add habitat structures to benefit yellow perch spawning.
- Continue spottail shiner transplants to establish a self-sustaining population and improve forage base.

SMALLER PONDS AND RESERVOIRS

Management Objective

To provide diversity of angling opportunity in Region 4 waters by managing for warmwater species in smaller ponds and reservoirs when appropriate.

History/Status

In addition to the nine major lakes and reservoirs mentioned above, warmwater fishing opportunities exist (or will likely exist) in 27 smaller ponds and reservoirs in R-4. Individual summaries including warmwater species present, management issues, and recommended actions are presented for each of these waters in Table 2.

Issues

During public review of the draft WFMP, Lewistown area anglers expressed a desire for more opportunity to catch bass in their area. FWP will investigate the potential to establish a bass fishery within 10-20 miles of Lewistown. This could involve conversion of an existing public trout fishery, hence further public review and approval may be required. FWP will continue to seek opportunities to manage for warmwater species and mixed fisheries in other areas as opportunities arise.

RIVERS AND STREAMS

Management Objective

To provide the best fishery Region Four warmwater rivers and streams can reasonably support, with emphasis on native species maintained by natural reproduction.

MISSOURI RIVER

History/Status

The 120-mile reach of the Missouri River between Morony Dam near Great Falls and the mouth of the Judith River is the most popular warmwater river fishery in R-4, supporting approximately 13,000 angler-days of fishing use in 1995. This river reach has one of the most diverse fish communities in Montana with substantial angling opportunities for sauger, channel catfish, shovelnose sturgeon, walleye, smallmouth bass, burbot, channel catfish, freshwater drum, and a wide variety of nongame species. Rainbow trout, brown trout, and mountain whitefish are also common in the upper 16-mile stretch between Morony Dam and Carter Ferry. Most species maintain populations through natural reproduction. Smallmouth bass stocking was redirected from the lower Marias River to the area between Morony Dam and Carter Ferry beginning in 1994. Preliminary survey results indicate

smallmouth stocking has increased existing populations below Morony, where habitat is more suitable due to the prevalence of rocky substrate. Walleye have been stocked in Morony Reservoir annually since 1990 with the goal of establishing a limited fishery in the reservoir and increased opportunity in the river as walleye are flushed downstream. Actual contribution to the river fishery is unknown although marked fish have been found in the river below Morony. The 90-mile reach between Holter Dam and Great Falls is managed primarily as a coldwater fishery although trophy-sized walleye and occasional smallmouth bass are caught by anglers throughout its length. The walleye population is believed to maintain itself via limited natural reproduction and flushing from Holter Reservoir.

Issues

Substantial water level fluctuations below Morony Dam have been identified as a limiting factor in the downstream river reach. As a result of negotiations during the federal dam relicensing process, the Montana Power Company (MPC) has committed to providing stable natural flows below Morony, which should benefit the warmwater fishery.

Limited public access to these waters is also an issue of concern. Through the federal dam relicensing process, MPC committed to establishing two new river access points above Great Falls and two in the reach downstream from Morony Dam to compensate for restricted angling opportunities on the five small Missouri River reservoirs in the Great Falls area. In addition, FWP is proposing to develop a new access point at Big Bend, approximately 10 miles upstream from Great Falls. Several anglers in the Great Falls area expressed a need to significantly improve and/or relocate the existing boat launching site near Loma on the Missouri River.

Sauger numbers in the reach between Morony Dam and the Judith River have declined in the past 10-15 years for unknown reasons. Harvest by anglers is not thought to be a significant factor, due to relatively light fishing use and low return on tagged fish. Sauger abundance and distribution should be evaluated to identify limiting factors and potential methods for increasing population size.

Stocking of warmwater species is also an issue of concern. Due to warmer water, better warmwater fish habitat, and less potential for conflict with coldwater management; stocking efforts should focus on the reach of river downstream from Morony. Smallmouth bass stocking in the river downstream from Morony Dam and efforts to evaluate stocking success should continue as long as no significant negative impacts on sensitive native species are found. The potential to stock sauger, rather than walleye, in Morony Reservoir should be seriously considered since sauger are the native perch in the area. During 1997 and 1998, FWP will investigate potential sources of wild Missouri River sauger eggs and the potential to raise sauger to the fingerling stage at the Miles City hatchery if adequate personnel and resources are available. The main intent of stocking sauger in Morony would be to use the reservoir as a temporary rearing facility with the expectation most sauger would eventually flush downstream where they should enhance sauger populations

Table 2. Warmwater fishing opportunities, issues and recommended management actions on smaller ponds and reservoirs in Region Four.[2/3]

Water Name	County	Public or Private	Warmwater Species Present	Issues	Actions and Notes
Benes Pond	Fergus	Pri	NP, YP	Enhance fish numbers	Transplant more perch and northern pike
Big Casino Reservoir	Fergus	Pub	None	Sucker over-population	Prepare EA and introduce walleye, if approved; Attempt to manage for rainbow trout and walleye
Catfish Res.	Fergus	Pri	LmB	Occasional winterkill	Monitor and restock as necessary
Cochrane Res.	Cascade	Montana Power Co.	YP	High flushing losses; limited shore access; no boat access	Limited fishery potential due to high flushing rate; Access controlled by Montana Power Co.
C-1 Res.	Judith Basin	Pri	LmB	Frequent winterkill	Discontinue bass stocked; stock catchable trout
Drag Res.	Petroleum	Pub	None	Shallow depth, probable winterkill	Consider stocking perch and northern pike
Dry Blood Res.	Petroleum	Pub	LmB	Occasional winterkill	Monitor and restock as necessary; Coordinate with BLM to increase depth
East Fork Big Spring Creek Res.	Fergus	Pub	NP, YP	Pike and perch illegally introduced; populations have yet to stabilize	Monitor pike, perch and sucker populations; Develop management alternatives when populations stabilize; evaluate pike harvest level and need for harvest restrictions
Gollaher Pond	Cascade	Pri	LmB, Cr	Possible winterkill	Survey fish populations and restock if necessary

[2] Private ponds are stocked with understanding landowner will allow reasonable public access.

[3] Species abbreviations: BB - black bullhead; Cr - crappie; LmB - largemouth bass; NP - northern pike; WE - walleye; YP - yellow perch

Water Name	County	Public or Private	Warmwater Species Present	Issues	Actions and Notes
Holland Res.	Fergus	Pub	LmB	Occasional winterkill	Monitor and restock as necessary
Hopalong Res.	Fergus	Pri	LmB	Occasional winterkill	Monitor and restock as necessary
Iliad Res.	Choteau	Pri	LmB		Monitor and evaluate overwinter survival and need for additional stocking
Jake's Pond	Fergus	Pub	YP, NP	Stunted yellow perch	Evaluate recent northern pike transplant
Kolar Res. #1	Judith Basin	Pri	YP	Illegal introductions	Monitor impacts and make management recommendations
Kolar Res. #8	Judith Basin	Pri	LmB	Recent introduction by FWP	Monitor survival and extent of natural reproduction; adjust stocking accordingly
Little Pishkun Pond	Teton	Pub	NP, YP, LmB		
Morony Res.	Cascade	Montana Power Co.	WE, YP	Limited public access; no boat access; water level fluctuation and high flushing losses	Evaluate walleye stocking in reservoir and contribution to down-stream areas; convert to sauger if available; shore fishing available; access controlled by Montana Power Co.
Payola Res.	Petroleum	Pub	LmB, YP, BB		Evaluate overwinter survival; natural reproduction may be adequate
Pelican Point Ponds	Cascade	Pub	LmB, YP, WE, NP	Recent illegal introductions of walleye, northern pike, pumpkin-seed sunfish	Evaluate impacts and make management recommendations; consider eradication and restocking

Water Name	County	Public or Private	Warmwater Species Present	Issues	Actions and Notes
Priest Butte Lake	Teton	Pub	YP, Cr	High selenium levels in fish pose human health risk; high alkalinity limits fish survival	Discontinue all stocking to avoid creating health risks
Ryan Res.	Cascade	Montana Power Co.	WE, YP	Limited public access; water level fluctuation and high flushing losses	Limited fishery potential; access controlled by Montana Power Co.
Schoonorer Res.	Choteau	Pri	LmB, CR	Occasional winterkill	Monitor and restock as necessary
Shel-oole Res.	Toole	Pub	YP	Illegal introduction	Monitor impacts and make management recommendations
South Fork Dry Blood Res.	Petroleum	Pub	LmB	Occasional winterkill	Monitor and restock as necessary; coordinate with BLM to increase depth
Spring Meadow Lake	Lewis & Clark	Pub	LmB		
Silvan Res.	Choteau	Pri	LmB		Evaluate survival and need for additional stocking
Wadsworth Pond	Cascade	Pub	WE, YP, LmB, BB	Overpopulation of perch and bullheads	Attempt to balance fishery by stocking walleye and bass; monitor fish population changes to determine appropriate stocking density and frequency

and angling opportunity in the Missouri River. Stocked sauger should be marked for future identification (if possible) to evaluate stocking success and contribution to the river fishery.

Action Plan

- Continue to evaluate effects of improved water flows implemented by Montana Power Company below Morony Dam on warmwater fishery.
- Continue ongoing plans to provide several new river access points in cooperation with Montana Power Company and other agencies.
- Evaluate sauger population between Morony Dam and the Judith River to identify means of increasing population density.
- Evaluate stocking of sauger in Morony Reservoir and/or Missouri River as a means of increasing sauger density in the Missouri River.
- Evaluate ongoing smallmouth bass stocking below Morony Dam and adjust as necessary. (annual)
- Monitor fish population trends between Morony and Carter annually and in other sections below Carter when possible.
- Cooperate with Walleyes Unlimited, U.S. Bureau of Land Management, Montana Power Company, and others to improve boat access facilities on the Missouri River near Loma.

MARIAS RIVER

History/Status

Warmwater fishing opportunities are found in approximately 70 miles of the Marias River upstream from Tiber Reservoir and 80 miles downstream from Tiber Dam. Angling use averages approximately 4,000-5,000 angler-days per year. The reach above Tiber supports a mixed fishery for walleye, channel catfish, and trout. This reach is an important spawning area for migratory walleye from Tiber Reservoir. The first 20 miles below Tiber is managed as a coldwater fishery, although this section is used by migratory warmwater fish during the spring runoff period. The lower 60 miles of the river provides a good year-round fishery for sauger and is an important spawning area for sauger, channel catfish, shovelnose sturgeon, and a wide variety of native nongame species, including blue sucker - a species of special concern. Smallmouth bass were stocked in the Loma area on the lower Marias in 1977, 1978 and 1991-1993. Smallmouth stocking was redirected to the Carter Ferry area on the Missouri River after repeated fisheries surveys revealed poor survival in the Loma area, probably due to lack of suitable habitat.

Issues

Alteration of normal spring runoff patterns due to operation of Tiber Dam is an important warmwater management concern. Typical dam operations in the past resulted in abnormally low flows below Tiber during the period of normal spring runoff and abnormally high flows during late summer. FWP will complete revisions to Tiber Dam operating

guidelines in 1997 with the aim of establishing a more normal spring runoff pattern in the lower Marias. The Bureau of Reclamation is currently providing more natural flows in the river below Tiber on an experimental basis. More natural spring flows should increase spawning success of migratory warmwater species in the lower river which should benefit fisheries in the Marias and Missouri rivers. FWP is currently evaluating the effectiveness of this change and will make appropriate flow recommendations pending the results of this investigation, which will require several years of observation.

Sauger were native throughout the Marias River prior to the construction of Tiber Dam. However, sauger were eradicated from the river upstream from Tiber during a massive chemical treatment effort intended to remove several "undesirable" fish species immediately prior to the completion of Tiber Dam in the 1950's. Potential re-introduction of sauger above Tiber Reservoir should be considered in the future. Sauger could diversify and improve the river fishery and would also colonize Tiber Reservoir. Two key issues would need to be resolved prior to a sauger introduction: 1) the extent and effects of potential hybridization with walleye that migrate up the Marias River to spawn, and 2) competition with walleye and northern pike for the limited forage fish supply in Tiber Reservoir.

Local anglers have expressed concern over potential overharvest of spawning walleye in the river upstream from Tiber Reservoir due to the use of setlines. As a result, the number of setlines allowed was reduced from six to two to better protect spawning fish.

Action Plan

- In cooperation with the Bureau of Reclamation, make final revisions in Tiber Dam operation guidelines to establish more favorable spring flows for the Marias River fishery. (1997)
- Evaluate potential reintroduction of sauger above Tiber Reservoir.

- Continue to evaluate response of warmwater fish to improved peak springtime flows in Marias River below Tiber, and revise flow recommendations (if necessary) pending results of investigations.

Other Waters

The lower 50-70 miles of the Judith River and lower 100 miles of the Teton River provide important spawning habitat for a variety of warmwater fish species, including nongame species of special concern. Both are lightly used by anglers. The lower Teton suffers from extensive dewatering due to limited water supply and very high irrigation demand. The lower Judith has more suitable summertime flows and has reasonably good warmwater fishery potential. Limited fisheries staff in the Lewistown area preclude management attention to this reach. Fisheries inventory of the lower Judith should be conducted and potential measures to enhance the fishery should be identified if additional manpower

becomes available. Smallmouth bass have been stocked on several occasions in recent years on Warm Springs Creek near Lewistown. These stockings appear to have created some angling opportunity though some are lost through a large unscreened irrigation diversion. Smallmouth management and irrigation diversion screening need to be addressed if Lewistown-area fisheries management staffing shortages are remedied. FWP will submit a proposal to the 1997 Legislature to increase fisheries staff in the Lewistown area.

REGION FIVE

Region Five includes a substantial portion of south central Montana and contains a variety of warmwater fisheries associated with the Yellowstone and Musselshell drainages. Interest in warmwater angling appears to be increasing within the region as evidenced by growing participation in various warmwater fishing organizations such as Walleyes Unlimited. Walleye are probably the most popular warmwater gamefish in the region, with largemouth bass and tiger muskie also attracting large followings. Other popular warmwater sportfish include smallmouth bass, sauger, burbot, channel catfish, and a variety of panfish.

OVERVIEW

Black Bass

Largemouth bass are the most common black bass in Region Five and have been stocked in approximately 30 waters since 1990. In this portion of the state, small impoundments provide the best habitat for largemouth bass, and most of the best angling opportunities for this species are in farm ponds. Special management efforts directed at improving largemouth bass populations have included chemical reclamation of select waters to eliminate over-abundant prey prior to re-stocking, installation of aerators in Arapooish Pond to prevent chronic winterkills, and artificial structure projects to improve fish habitat. Smallmouth bass populations are present in fewer numbers within the region and are mostly confined to portions of the Bighorn, Yellowstone, and Musselshell Rivers. With the exception of a special bag limit at Bighorn Lake, there are no special regulations for largemouth or smallmouth bass within the region, and an aggregate daily bag limit of five fish applies to both species.

Walleye/Sauger

The primary walleye fisheries in the region are Bighorn Lake and Cooney Reservoir. Both of these walleye populations have been used as a source of eggs, but spawning operations at both sites have been suspended indefinitely as Fort Peck Reservoir is presently providing sufficient eggs for the entire state. There is considerable angler interest in expanding walleye distribution within the region, but this must be carefully balanced with ongoing management of coldwater fisheries. Special management efforts directed at walleye have included limited prey introductions, such as introducing spottail shiners at Bighorn Lake, and annual walleye stocking in select waters to augment natural recruitment. There are no length limits on walleye within the region and all waters are managed with a standard daily bag limit of five fish, with the exception of Bighorn Lake, where walleye are included in an aggregate limit of six fish for walleye, sauger, and black bass through a cooperative agreement with the Wyoming Game and Fish Department. Several sauger

populations are also present, with key waters including Bighorn Lake and the lower portion of the Yellowstone River below the Huntley Diversion.

Tiger Muskie

Tiger muskie have been introduced into Broadview Reservoir, Lebo Lake, and Lower Glaston Lake to reduce population densities of a variety of prey and nongame fish species such as white suckers, black crappie, and common carp. All three introductions have resulted in establishment of fishable tiger muskie populations and reduction of targeted prey densities. Tiger muskies are protected with a statewide 30 inch minimum length limit and a one fish daily bag limit. Special management efforts for tiger muskie include periodic stocking of fingerling-sized fish (because tiger muskie are a sterile hybrid), and evaluating additional waters such as Deadmans Basin Reservoir for new tiger muskie introductions.

Burbot

Fishable burbot populations occur in Bighorn Lake, lower Bighorn River, and the Yellowstone River, where burbot are present upstream to Springdale. Concentrations of burbot receive pressure from local anglers during late winter and early spring. There are presently no special management efforts aimed at burbot besides monitoring status of known populations to ensure that this native species does not decline in abundance.

Channel Catfish

Channel catfish are distributed throughout the region in several ponds, lakes, and throughout lower portions of the Bighorn, Musselshell, and Yellowstone Rivers. Some important reservoir fisheries include Lake Elmo and Lake Josephine. Most channel catfish populations are self-sustaining, but since 1990, five waters within the region have received periodic stocking to augment natural reproduction. Other special management efforts have included a variety of artificial structure projects at select waters to improve overall habitat, and spawning habitat in particular. Channel catfish are presently managed throughout the region with the standard Central Fishing District daily bag limit of 20 fish.

Panfish

Yellow perch and crappie (black and white) are the principal panfish in the region. Pumpkinseed and green sunfish are also present but seldom grow large enough to interest anglers. Lake Elmo is the region's primary yellow perch fishery, while fishable crappie are also found in this lake, as well as Anita Reservoir, Broadview Pond, Bighorn Lake, and Lake Josephine. Habitat improvement projects have been conducted at many of these waters which have benefited panfish and other species. Otherwise, there are no special management efforts directed at panfish populations in the region, and there are no daily bag limits for these species as they are not classified as gamefish in Montana.

MANAGEMENT PLANS FOR MAJOR WATERS

ANITA RESERVOIR

Management Objective

To provide a reasonable largemouth bass/channel catfish fishery in a reservoir otherwise dedicated to meeting irrigation demands.

History/Status

Anita Reservoir is a 30-acre reservoir located on the Huntley Project irrigation system approximately 4 miles south of the Pompey's Pillar monument. Fish species from the Yellowstone River have access to the reservoir via the canal system. Water levels fluctuate to meet irrigation demands, but the reservoir is normally refilled in the fall before headgates are closed.

Following dam repairs, largemouth bass were planted from 1989 through 1995. During fall 1990, the Billings Fishing Club placed brush and tree structures in the reservoir. Fish are sampled periodically.

Issues

Irrigation demands determine the frequency of water level fluctuation and extent of drawdown and fishery considerations are secondary. The canal system and perhaps illegal activities introduce new fish species into the system. Habitat structure is minimal.

Action Plan

- Work with the Huntley Irrigation District to ensure adequate pool depth over winter and minimal water level fluctuation. (Ongoing)
- Monitor the effectiveness of existing structure and introduce more where necessary. (1998)
- Continue monitoring the fishery periodically. (Ongoing)

ARAPOOISH POND

Management Objective

To maintain a productive largemouth bass fishery and avoid recurrent winter- and summer-kill.

History/Status

Arapooish Pond is a flooded gravel pit at a Big Horn County Fishing Access Site along the Bighorn River near Hardin. The pond covers about 30 acres with a maximum depth of 8 to 10 feet. Attempts to deepen the pond with a large dragline failed because the bottom is hard clay.

This fertile pond winter-killed frequently and summer-killed occasionally until Big Horn County and FWP installed an aeration system in fall, 1990. Since then, largemouth bass have grown exceedingly well except when the aeration system fails. Heavy algae blooms appear and leave unpredictably.

Issues

Winter-kill and summer-kill are common; unpredictable algae blooms have appeared; and vandalism of toilets and picnic areas is increasing.

Action Plan

- Continue to work with Big Horn County to maintain a reliable aeration system. (Ongoing)
- Encourage Little Bighorn College or another school to investigate the causes for algae blooms. (1998)
- Big Horn County has begun closing the access at 9 p.m. during summers.

BIGHORN LAKE

Management Objective

To provide the best walleye fishery possible while encouraging improving smallmouth and largemouth bass fisheries.

History/Status

Bighorn Lake was created when Yellowtail Dam, a 525 foot high concrete-arch dam, was closed across the Bighorn River in October 1965. Bighorn Lake first filled to the top of the flood control pool at an elevation of 3,657 feet in June 1967. At this elevation, the lake covers 17,298 surface acres, impounds 1,375,000 acre feet of water and has 128 miles of shoreline. At full pool, approximately 42 miles of Bighorn Lake is in Montana and 25 miles in Wyoming. About two-thirds of the lake sits in a narrow canyon characterized by a precipitous shoreline of solid rock and rubble walls with very little shallow littoral area.

Access to Bighorn Lake is limited to three public access sites within the Bighorn National Recreation Area. One ramp at the north end of the lake is accessed through Fort Smith, Montana. The other two accesses are approached through Lovell, Wyoming. The southern-

most access at Horseshoe Bend is not usable at lower lake levels due to extreme sedimentation in the upper end of the lake. Shoreline access is limited to the southern end of the lake in Wyoming.

The fisheries in Bighorn Lake are managed jointly by FWP and Wyoming Game and Fish. Efforts have been made to standardize regulations for the entire lake.

Both Montana and Wyoming planted large numbers of rainbow trout and lake trout, along with some kokanee salmon and cutthroat trout, through the 1970's. Montana made some small walleye fry plants during the first three years of planting (1966-68), but then abandoned any warmwater efforts in Bighorn Lake until 1984 when they transplanted some crappie into the lake. Montana began an annual walleye stocking program into Bighorn Lake in 1988, planting walleye fry in both '88 and '89. Since 1990, a combination of fry and fingerlings have been planted, and walleye has become the major fisheries effort on Bighorn Lake.

Wyoming's first warmwater effort in Bighorn Lake started with a channel catfish plant in the upper end of the lake in 1974. They began intermittent stocking of walleye fry in 1976 and have been stocking walleye annually since 1987. Wyoming transplanted some crappie into Bighorn Lake in 1984 and 1985, and introduced largemouth bass into the lake in 1986. In 1987, Wyoming Game and Fish introduced spottail shiners into Bighorn Lake to supplement the existing forage base. Smallmouth bass have been documented from Bighorn Lake in recent years and may become an important warmwater game species in the future. These fish probably came from smallmouth plants made by Wyoming in the drainages upstream of Bighorn Lake. Two striped bass have also been caught by anglers.

Issues

We aren't certain which factors are limiting walleye harvest, e.g. forage, year-class failures, or difficulties in fishing and sampling the lake. Relative survival of walleye fry versus fingerling plants is unknown. Interest in a smallmouth bass introduction is growing. Silt is accumulating rapidly in the upper end of the lake. Access to Ok-A-Beh is being challenged by the Crow Tribe. Reciprocal licensing has been requested, especially by Wyoming anglers and the National Park Service, but does not benefit Montana anglers enough to merit approval. The storage and release of water from Bighorn Basin reservoirs is managed out of two offices of the Bureau of Reclamation (Billings, Montana, and Casper, Wyoming) which can differ in philosophy and priority of allocation resulting in severe drawdowns in Bighorn Lake.

Action Plan

- Support a Montana/Wyoming graduate study of limiting factors in Bighorn Lake. Adjust stocking of walleye and forage as indicated. (1998-99)
- Track the recent boom in smallmouth bass production and assess the benefits of

smallmouth bass stocking in the Montana end of the lake. (1997-98)
- Lobby for continued access to the Ok-A-Beh Marina as the issue unfolds. Seek new access especially to the west side of the reservoir. (Ongoing)
- Continue to encourage the Montana and Wyoming Area Offices of the Bureau of Reclamation to work cooperatively towards achieving a more balanced allocation that requires less severe fluctuations in Bighorn Lake water levels.

BROADVIEW RESERVOIR

Management Objective

To use tiger muskies to reduce common carp and stunted crappie and provide a trophy fishery. Manage as a crappie/largemouth bass/rainbow trout fishery.

History/Status

Broadview Reservoir is a 7 to 8 acre pond first developed by the Great Northern Railroad as a water stop for their steam engines. It was first stocked in 1944 and was an excellent trout-crappie fishery until carp appeared in the late 1970's. Attempted rehabilitation with rotenone failed, and a marginal fishery for trout, crappie, and largemouth bass has persisted.

Tiger muskies were introduced in 1991, 1992, and 1993 to prey on carp and stunted crappie, and to provide a trophy fishery. Snow fence and willows were placed along the west side of the pond's isthmus to reduce turbidity caused by wind and waves along the shore.

Issues

Numerous carp and persistent winds are making the reservoir turbid. The resident crappie are stunted. The entrance road can be muddy, and the site has no facilities.

Action Plan

- Continue to annually monitor tiger musky growth and success at controlling carp and stunting of crappie. (Ongoing)
- Continue stocking largemouth bass. (Ongoing)
- Introduce trout as conditions improve. (1998-99)
- The entrance road and turnaround, toilet, and fencing are a 1997 capital project.

COONEY RESERVOIR

Management Objective

To continue managing as a walleye/trout fishery.

History/Status

Cooney Reservoir is located about 14 miles south of Columbus and 48 miles from Billings. It was created in 1937 by the Public Works Administration and Montana State Water Conservation Board for flood control and irrigation storage. The reservoir is 778 acres in size and has a maximum depth of about 64 feet.

Since 1953, Cooney Reservoir has been stocked primarily with rainbow trout, with occasional plants of coho salmon and cutthroat trout. Walleyes were first introduced in 1984, and have been planted every year except 1987-89. Natural spawning appears to be unsuccessful. Prior to walleye introduction, rainbow trout stocked were 3 to 6 inches long. After walleye became established, 4- to 9½-inch trout were needed to reduce walleye predation. Crappie have appeared since walleyes were introduced, probably an illegal introduction.

Recreational use of the reservoir is extremely heavy, particularly during summer. Primary activities include fishing, water skiing, camping and picnicking.

Issues

Walleyes from 14 to 19 inches (and more recently 16½ to 21 inches) have been absent from netting and electrofishing samples. Conflicts between recreational boaters, especially water skiers and jet skiers, and anglers is nearing crisis levels.

Action Plan

- Continue present stocking rates and monitoring. (Ongoing)
- Complete the voluntary creel survey on Cooney Reservoir in May 1997, and determine the effect of harvest on the walleye population. Recommend size limits if indicated. (1997-99)
- Address boater/angler conflicts through additional enforcement of current regulations. Consider designating separate areas for boaters and anglers. (1997)

DEADMAN'S BASIN

Management Objective

Manage as a trout/kokanee fishery with trophy tiger muskies or as a trout/kokanee/walleye fishery.

History/Status

Water diverted from the Musselshell River near Harlowton is stored in Deadman's Basin Reservoir for irrigation. The reservoir has a storage capacity of 76,900 acre feet, covering approximately 1,903 surface acres at full pool. Until recently, drawdowns of 40 feet to 10,000 acre feet were not uncommon.

FWP has stocked fish into Deadman's since 1941. Historically, it was one of the most heavily used and best trout fisheries in the Billings area. An apparent total failure of Arlee rainbow trout plants during three of the four years between 1980 and 1984, and very low water levels in the mid-to-late 1980's (which hampered boat launching) caused a decline in angler use.

In 1984, the rainbow trout plant was reduced from 400,000 to 200,000, and 200,000 kokanee were planted annually. Different rainbow strains and planting levels have been explored since then without reaching historic levels of angling success. Anglers have begun to congregate to snag spawning kokanee through the ice during November and December.

Recently, interest in developing a warmwater fishery in Deadman's Basin has increased. The reservoir supports many large suckers which may compete with trout and kokanee for food and space. Introducing a predatory fish which could control the large sucker population might enhance trout/kokanee fishing while providing a trophy warmwater fishery.

Issues

Water levels fluctuate to meet irrigation demands. Catch rates for trout are lower than in the 1970's and are not meeting the expectations of local anglers. Large numbers of larger suckers are competing with trout and kokanee for food and space. Demands are growing to introduce walleyes into the reservoir.

Action Plan

- Continue to participate in the Musselshell Basin Commission and work with DNRC to represent fisheries interests in allocating water. (Ongoing)

- Adjust trout and kokanee stocking rates to improve average fish size and harvest rates. (Ongoing)
- Prepare an environmental assessment addressing the potential introduction of tiger muskies or walleyes into Deadman's Basin to control suckers and provide a secondary fishery. (1996-97)
- Approach the DNRC with alternatives for preventing fish from escaping the reservoir and entering the Musselshell River system. (1997)

LAKE ELMO

Management Objective

To provide an urban fishery with high catch rates to encourage more young anglers to fish. Supplement the existing warmwater fishery with seasonal trout fishing.

History/Status

Lake Elmo is a 64-acre irrigation reservoir serving as an urban state park on the northeastern outskirts of Billings. The Billings Bench Water Association canal supplies water and fish from the Yellowstone River. Maximum lake depth is 16 feet with water levels fluctuating as much as 3 feet in one day. The only habitat structure in the lake has been placed there with help from local fishing clubs.

Largemouth bass, yellow perch, crappie and sunfish were stocked into Lake Elmo in the 1930's and still inhabited the lake in 1983; FWP resumed stocking in 1984. Largemouth bass and channel catfish have been stocked annually along with occasional transplants of adult black crappie. Illegal introductions have included walleye and piranha.

Lake Elmo is heavily used by swimmers and sailboarders in the warmer months. Angler use has increased greatly since a handicapped-accessible fishing pier was completed in 1994. The pier has become a gathering place for young anglers fishing for yellow perch, and anglers of all ages fishing for channel catfish.

Issues

During irrigation season, water levels in Lake Elmo fluctuate dramatically. This fluctuation discourages the growth of aquatic vegetation along the shorelines, which is good for swimmers and bad for anglers. This lack of habitat may explain why we see few largemouth bass return to creels despite heavy stocking.

Few yellow perch larger than 8 inches are found. Rather than the usual stunting problems associated with overpopulation, the lack of larger fish may instead be due to cropping by overzealous anglers and waterfowl. Use of this urban fishery is growing steadily, and catch rates are not as high as desired, especially by young anglers.

Introductions such as walleye and piranha add new management variables to an already unpredictable fishery.

Action Plan

- Because water level control is not likely, explore additional artificial habitat. (1997)
- Conduct a creel survey to determine harvest rates particularly of yellow perch and channel catfish. Adjust regulations if necessary. (1998-99)
- Investigate the economic feasibility of introducing catchable trout seasonally. Stock from ice-out to July, then again in late September to October. The existing warmwater fishery would serve summer anglers. (1998)

LAKE JOSEPHINE

Management Objective

To provide an urban warmwater fishery emphasizing largemouth bass and crappie with channel catfish and trophy tiger muskies controlling stunting in panfish.

History/Status

Lake Josephine is a 20-acre lake formed from an old gravel pit on the southern edge of Billings. The lake is now part of Riverfront City Park, and gets considerable use, especially by young anglers.

The lake is located on the immediate floodplain of the Yellowstone River, and is connected to the river by an irrigation canal, so it can potentially contain any fish species found in the river. Largemouth bass were planted in 1987, 1989, 1991, and 1993. A consistent bass fishery has developed with occasional fish over 5 pounds reported.

Channel catfish were stocked into Lake Josephine in 1991 to provide an additional fishery and to increase predation on stunted sunfish, yellow perch, and crappie. Catfish are now being stocked annually when available.

Walleye and northern pike have been netted from Lake Josephine. Illegal introductions are the likely source.

Issues

Sunfish, yellow perch, and crappie are stunted. The river floods, as it did this year (1996), and exchanges fish with the lake, and fish are also introduced illegally. The stocked channel catfish may be of different genetic origin than those native to the Yellowstone River.

Action Plan

- Continue to stock largemouth bass every other year and channel catfish annually to prey upon stunted sunfish, yellow perch, and crappie, and to provide a fishery. Consider stocking a limited number of tiger muskies to reduce stunting. (1998)
- Consider establishing a size limit on largemouth bass to ensure a good stock of larger predators and a trophy fishery. (1999)
- Support a Department request of the Legislature to stiffen penalties for illegal introductions. (1997)
- Test and compare the genetic composition of introduced and native channel catfish. Seek native sources of catfish if differences are significant. (1998)

LEBO LAKE

Management Objective

To maintain a trophy tiger muskie fishery.

History/Status

Lebo Lake is a privately owned irrigation reservoir south of Two Dot. It covers about 314 acres with a maximum depth of 14 feet. The state first stocked trout in Lebo in 1936, and continued to plant most years through 1957. Bluegill and crappie were also introduced from unknown sources.

In 1963, Lebo Lake was rehabilitated to eliminate a large population of suckers, stunted bluegill, and crappie. Between 1964 and 1982, Lebo received annual plants of 30,000 to 40,000 4 to 6 inch rainbow and provided a good trout fishery. Changes in the early 1980's increased turbidity in the lake, and a tremendous sucker population again took over the lake. A small plant of white crappie was made in 1984, but a viable crappie fishery never developed. Tiger muskie were introduced in 1988, 1989, and 1991 to control suckers. Tiger muskie growth rates have been remarkable, the sucker population has declined dramatically, and the water is again clear. Rainbow trout introduced in 1993 have grown very large and are in excellent condition.

Angling pressure at Lebo Lake has grown steadily as people pursue state record tiger muskies there. This has resulted in the landowners, who control access to the lake, being deluged with requests for access.

Issues

Fishing pressure is increasing and anglers are frustrated with long waiting lists to fish Lebo Lake. The tiger muskie population is aging, and the need for supplemental plants is growing.

Action Plan

- Continue monitoring this excellent fishery annually. (Ongoing)
- Seek a written agreement with the landowners addressing access before more fish are introduced, and evaluate the potential of including these landowners in the block management program. (1998)
- Explore other fish species introductions to serve as forage for tiger muskies. (1997-98)

LOWER GLASTON RESERVOIR

Management Objective

To seek new access and resume management.

History/Status

Lower Glaston Lake is a 768-acre privately-owned irrigation reservoir located 18 miles north of Big Timber. Its maximum depth is approximately 22 feet. The lake is fed by a small creek connecting to Upper Glaston Lake which receives water from Sweet Grass Creek. A portion of the shoreline is composed of broken pieces of sedimentary rock. Dense weed beds are prevalent in midsummer at the southern and northern ends of the lake. Water levels historically fluctuate rather severely due to irrigation withdrawals, and water temperatures normally warm into the low 70°F range during August.

Since 1929, Lower Glaston has been stocked with rainbow, brown, brook, and cutthroat trout; kokanee and coho salmon; largemouth bass and crappie. Yellow perch of unknown origin also inhabit the lake.

The most successful species in the lake has been the white sucker. Tiger muskies were introduced in 1989 and 1991 to control suckers and establish a trophy fishery. These fish grew fast and became very popular.

Unfortunately, the Big Timber Boat Club did not welcome the additional lake use and closed access to all but club members. Unless access problems can be resolved, FWP will no longer manage the fishery in this lake. Club members cannot legally stock fish in Lower Glaston, because it exceeds the 500 acre maximum allowed for private ponds.

Issues

Only Big Timber Boat Club members have access to the reservoir. Current game fish populations will decline with no legal prospect for replenishment.

Action Plan

- Seek new access to Lower Glaston Reservoir. (Ongoing)
- Resume management if clear written agreements are established regarding access and fishery management.

OTHER WARMWATER PONDS AND RESERVOIRS

Management Objective

To provide diverse angling opportunities in Region 5 waters by managing for warmwater species in other ponds and reservoirs where appropriate.

History/Status

Efforts continue toward developing at least 30 viable largemouth bass ponds in this southcentral region (Table 3). Many of our smaller bass ponds were lost to winterkill during the drought of 1988-89. Our more recent policy of requiring ponds with some public access to be listed for public distribution has discouraged some landowners who fear being overrun.

With increasing demands for warmwater fisheries, and water-based recreation in general, the need for a large reservoir near Billings is growing. The construction of Valley Creek Reservoir near Park City has been explored by Aquoneering (a consulting firm) for the Yellowstone County Commissioners and found economically feasible. The reservoir would occupy up to 2,500 acres with a depth of 134 feet. It could support a substantial warmwater fishery and reduce the pressure on other area reservoirs. Encouragement from local clubs could spur further studies and stimulate necessary fund-raising activities.

Table 3. Warmwater fishing opportunities, issues, and recommended management for smaller ponds and reservoirs in Region Five.

WATER NAME	COUNTY	PUBLIC OR PRIVATE [1]	WARMWATER SPECIES PRESENT [2]	ISSUES	ACTIONS AND NOTES
Conter's Bass Pond	Yellowstone	Private	LMB, CR, and C CAT	Shallow depth, occasional winter-kill.	Monitor and restock annually.
Big Black Lake	Yellowstone	Private	LMB	_____	Monitor and restock as needed.
De Jaeger's Reservoirs (3)	Musselshell	Private	LMB	Drought, rooted aquatics, litter, fires, etc.	Monitor and restock as needed. Respond to complaints.
Little Black Lake	Yellowstone	Private	LMB	_____	Monitor and restock as needed.
McCarty Pond	Big Horn	Private	LMB	_____	Monitor and restock as needed.
Padlock Ranch Ponds (5)	Big Horn	Private	LMB	On Crow Reservation so future access uncertain.	Monitor and restock as needed.
Rocky Ranch Ponds (3)	Yellowstone	Private	LMB	Supplied by thermal well.	Monitor and restock as needed.

[1] Private ponds are stocked with the understanding that the landowner will allow reasonable public access.
[2] C CAT = channel catfish; CR = crappie; LMB = largemouth bass.

LOWER BIGHORN RIVER

Management Objective

To provide a sauger and channel catfish fishery by improving fish passage from the lower Yellowstone River and planting sauger where appropriate and available.

History/Status

The Bighorn River downstream from Two Leggins Diversion near Hardin begins supporting more warmwater fish species, such as sauger, ling and channel catfish. Smallmouth bass were planted below Hardin in 1986, and 1989-91. Very few have been found since during sampling, and those were associated with scarce rock structure. Anglers have reported catching smallmouth in the Yellowstone River as far upstream as Huntley Diversion, and in the Little Bighorn River at Crow Agency.

Issues

Smallmouth bass appear to have moved out of the lower Bighorn River seeking more rocky habitat. Fish passage is restricted at Manning Dam, approximately 4 miles upstream from the mouth. The boat ramp at Manuel Lisa FAS is too shallow for launching large boats at all flows.

Action Plan

- Cease planting smallmouths in the lower Bighorn River. (Done)
- Continue to monitor the distribution of smallmouths in the Yellowstone River. (Ongoing)
- Work with USBR to improve fish passage over Cartersville Diversion in hopes of re-establishing a sauger run into the lower Bighorn. Use the expertise gained in providing Yellowstone River passage to approach the ditch company controlling Manning Dam. (1996-99)
- Consider planting additional warmwater game fish species, such as sauger, as a supplement to improved fish passage. (1998)
- Submit a request to build a second ramp at a better location at Manuel Lisa FAS, unless the present ramp improves. (1998)

MUSSELSHELL RIVER

Management Objective

To continue to seek adequate instream flows to support the best possible smallmouth bass and channel catfish fishery in the lower river, and to encourage sauger to run up from Fort Peck.

History/Status

Access is limited and sampling infrequent in the Musselshell River. Sauger runs from Fort Peck Reservoir have been reported, and channel catfish are a popular gamefish throughout the warmwater portion of the river. Smallmouth bass were introduced to the drainage from 1977 to 1982. Reports from anglers indicate the bass population is maintaining itself, at least at limited levels, despite chronic low water.

Issues

Chronic low water threatens fish survival in several river sections. Diversion dams restrict fish movement within the river upstream of the town of Musselshell.

Nearly all of the land along the Musselshell is privately owned with little public access. Poor access and patchy distribution of fish in often turbid waters make monitoring difficult.

Action Plan

- Continue working with the DNRC and Musselshell River Basin Commission to better allocate water and, thereby, leave more instream. (Ongoing)
- Employ techniques learned from the lower Yellowstone fish passage study to improve fish passage within the Musselshell.
- Obtain additional access through permission or purchase. (Ongoing)
- Enlist the help of anglers to gather data on warmwater game fish in the Musselshell.
- Explore better methods for sampling smallmouth bass. (1997)
- Evaluate the potential of stocking smallmouth bass and/or channel catfish above diversion dams at the upper end of their current range in the river.

LOWER YELLOWSTONE RIVER

Management Objective

To develop the best possible native warmwater fishery by seeking a means to devote more study to this valuable resource, by pursuing fish passage over diversions, and by planting native game fish species, such as sauger, where appropriate and available. To seek more public access to the river, especially near Pompey's Pillar.

History/Status

The character of the Yellowstone River changes dramatically where the Clarks Fork of the Yellowstone introduces its turbid water near Laurel. A more complete conversion of the fish community to warmwater species occurs at Huntley Diversion. Channel catfish are by far the most common gamefish downstream from Billings. Ling, sauger, largemouth bass and smallmouth bass are also present.

From Billings to North Dakota, this uniquely undammed large river contains at least 25 indigenous fish species including the endangered pallid sturgeon and several Species of Special Concern. It is a potential native species management area.

Issues

Relatively little is known about the warmwater fish populations in the lower Yellowstone River, including: population sizes, life history strategies, and limiting factors. One known factor is diversion dams which limit fish passage below and within the region. Harvest may be a factor limiting a sparse sauger fishery in the region.

Local anglers desire additional access for launching boats and fishing from shore. Some would like to see additional exotic game species, such as smallmouth bass, introduced.

Action Plan

- Obtain the efforts of a full-time biologist and fieldworker, through internal redirection, to work exclusively with Yellowstone River warmwater issues and problems. (1998)
- Work with USBR to develop fish passage over Intake Diversion, Cartersville Diversion, and eventually others. (Ongoing)
- Obtain additional access as the opportunity arises. (Ongoing)
- Consider planting additional native warmwater game fish species, such as sauger, as a supplement to improved fish passage. Native species should be considered first in this unique stretch of river.
- Consider more restrictive regulations on native species, such as sauger, if direct sampling and creel surveys indicate protection is warranted.

REGION SIX

Region Six includes the northeast corner of the state and contains a variety of fisheries associated with the Milk and Missouri River drainages. As with other areas of the state, interest in warmwater fishing in Region Six is increasing, with Fort Peck Reservoir receiving national attention from anglers. Walleye and northern pike are probably the most popular gamefish in the region, but a host of other warmwater species including largemouth and smallmouth bass, shovelnose sturgeon, paddlefish, channel catfish, and a mix of panfish also attract significant attention from anglers. A unique aspect of fish management in Region Six is a major emphasis on partnerships with private landowners to provide fishing opportunities for the public, particularly on farm ponds for largemouth bass, yellow perch, bluegill, and crappie.

OVERVIEW

Black Bass

Largemouth bass have been stocked in approximately 30 waters within the region, with six additional introductions planned for 1996. Populations are normally self-sustaining, unless drought reduces water levels, resulting in winterkill. In such instances, waters are usually re-stocked to reestablish populations. There are no special regulations for largemouth bass in Region Six, and all populations are managed with a daily bag limit of five fish. Special management efforts aimed at improving the region's largemouth bass fishery are directed primarily towards developing partnerships with landowners to gain public access on private waters. These efforts typically include installing informational signs and cattle guards, and improving access roads through the Private Fisheries Incentive Program.

Smallmouth bass populations are present in several larger reservoirs and rivers within the region. Limited stocking of fingerling fish has been conducted over the last 10 years, but most populations are believed to be self-sustaining. As with largemouth bass, there are no special regulations for smallmouth bass and all populations fall under the Eastern Fishing District regulation of a daily five fish limit. Special management efforts for the region's smallmouth bass fishery have focused on experimental supplemental stocking to enhance recruitment of adults. This practice is presently being evaluated, and will be refined or discontinued as more monitoring is completed.

Walleye/Sauger

The region has a mix of self-sustaining and artificially stocked walleye populations in several Milk and Missouri River impoundments. The most notable walleye fishery is Fort Peck Reservoir, which also provides virtually all the walleye fry and fingerlings for statewide stocking through annual spawn-taking operations conducted at the reservoir. Other notable walleye fisheries within the region include Nelson, Fresno, and Beaver Creek Reservoirs.

There are no special regulations on walleye in the region and all populations are managed with a daily bag limit of five fish. Special management efforts for managing walleye include annual or periodic stocking in waters where walleye are not naturally recruiting and limited habitat improvement work to enhance spawning success.

Sauger populations occur primarily in the main stem of the Missouri River. All sauger populations are self-sustaining within the region and there is no stocking of this species or any other special management directed at sauger.

Northern Pike/Tiger Muskie

Northern pike occur in approximately 12 lakes and reservoirs and 10 creeks and streams within the region. There are also 15 private fishing ponds with northern pike populations that are open to public fishing. Virtually all of these populations are self-sustaining, with the notable exception of Fort Peck Reservoir, where the population is augmented with an annual fingerling stocking to ensure satisfactory recruitment. Northern pike are managed with one of two angling regulations; most waters have a standard daily limit of five fish, and Beaver Creek, Fresno, and Nelson Reservoirs have no limit due to overabundant populations.

Little Warm Reservoir is presently the only water body in the region with a tiger muskie population. It is stocked on a periodic basis to provide adequate population densities for angling. This water is managed with a 30-inch minimum length limit and one fish daily bag limit.

Sturgeon/Paddlefish

Shovelnose and pallid sturgeon occur within the region in the Yellowstone and Missouri Rivers. No stocking of either species is conducted, and shovelnose sturgeon are managed with a 40 inch maximum length limit to avoid accidental harvest of the larger pallid sturgeon, which is a federally-listed endangered species.

Paddlefish also occur in the Yellowstone and Missouri rivers and one fish per season is the limit in the Yellowstone River and Missouri River downstream of Fort Peck Dam, while the limit is two fish per season in the Missouri River above Fort Peck Reservoir. To further protect the paddlefish population, an annual harvest quota of 3,000 fish is in effect for the Yellowstone and lower Missouri Rivers for Montana and North Dakota. No quota has been set for the paddlefish stock above Fort Peck Dam as present fishing pressure and annual harvest appear to be sustainable.

Burbot

The primary burbot fisheries are in the upper Milk River, Fort Peck Reservoir, and the Missouri River below Fort Peck Dam. No stocking of burbot occurs in the region as all

populations are self-sustaining. Fishing pressure appears to be holding steady for this species and no special management efforts are planned.

Channel Catfish

Channel catfish are commonly found in mainstem reservoirs and rivers throughout the region. Most of these populations are self-sustaining, but some annual stocking is done to introduce or maintain channel catfish in public ponds and reservoirs, and private waters open to the public. A recent stocking effort to reestablish channel catfish in the middle reaches of the Milk River appears to have been successful. No special regulations apply to channel catfish in Region Six and all waters are managed with a standard daily bag limit of 20 fish. No special management efforts, other than stocking, are currently directed towards this species in the region.

Panfish

Key panfish include yellow perch, bluegill, and black and white crappie. Most populations of these species occur in smaller lakes and ponds, although Nelson and Fort Peck Reservoirs also have yellow perch fisheries. Virtually all panfish populations are self-sustaining and stocking is limited to reestablishing populations that have been eliminated due to drought or for new reservoir/pond introductions. None of these species are gamefish in Montana, consequently there are no special regulations or daily bag limits imposed. The main management efforts for improving panfishing in the region are reducing population density to avoid stunting by trapping or seining and obtaining fishing access in private waters through the Private Fisheries Incentive Program.

MANAGEMENT PLANS FOR MAJOR WATERS

FORT PECK RESERVOIR

The existing fisheries management plan for Fort Peck is scheduled for revision in 1998, issues and actions will be addressed when the plan is revised. The present management objective is to maximize angler opportunity on Fort Peck Reservoir by maintaining the unique species diversity, continuing special emphasis on walleye and maintaining/improving existing access.

Fort Peck is the largest body of water in Montana and has a diverse fishery with nearly 50 different species. The reservoir is managed to provide a variety of fishing opportunities. Game fish species include; walleye, sauger, northern pike, smallmouth bass, lake trout, and chinook salmon. Paddlefish adults reside predominately in the upper reach of the reservoir and juveniles appear to rear in the headwaters. The principal forage fish is cisco, with spottail and emerald shiners being abundant as well. Yellow perch and other forage fish are common during years with rising spring water levels.

Walleye receive the primary management effort due to angler interest. The scarcity of suitable spawning substrate in Fort Peck results in very limited natural reproduction of walleye. Annual stocking of fingerlings and fry is necessary to sustain present catch rates.

FRESNO RESERVOIR

Management Objective

To maximize angler opportunity on Fresno Reservoir, with particular emphasis on walleye, associated prey species and improving fishing access.

History/Status

Fresno is a 5,757 surface acre reservoir on the Milk River and is managed by the Bureau of Reclamation for irrigation. The water level fluctuates 10-25 feet annually, and the reservoir has a maximum depth of 48 feet. Over the years, low water levels and high rates of discharge have been documented to be detrimental to the fishery and dictate the success of all fishery management efforts.

Walleye receive the majority of management emphasis, with northern pike second. The walleye population is sustained by natural reproduction, but is supplemented with periodic stocking contingent on year-class strength. The northern pike population is sustained solely by natural reproduction. The forage base consists mainly of spottail shiners, yellow perch, lake whitefish, crayfish, and mayflies. Though forage fish production appears good in most years, production is probably only marginally adequate to support the large predator population. Growth of gamefish might be improved by increasing forage fish abundance and/or diversity.

Issues

Fluctuating water levels and high rates of discharge are a hindrance to successful management of the fishery. There is a need to improve the forage base. The public has requested stocking large numbers of walleye. There is a need to provide better access and accommodations for anglers in cooperation with the Bureau of Reclamation.

Action Plan

- Plant walleye fingerlings in alternate years on an experimental basis, based on established walleye stocking rates (20/acre), beginning in 1997. To determine if future stocking rates should be altered, evaluation of growth, condition, age composition, and relative abundance of walleye will be conducted on an annual basis. Forage abundance will also be monitored. A creel survey is scheduled for 2002 to determine catch rates, total harvest, and to estimate population size.

- Complete an environmental assessment to evaluate suitable forage fish species for introduction into Fresno. (1997)
- Encourage anglers to keep all northern pike they catch by informing local media and posting signs at access sites on Fresno. (1997)
- Secure approval from fish health committee to transplant white suckers from Bear paw lake to Fresno to augment forage base, trap, and transport. (1997)
- Pursue spearing and snagging as legal means of taking lake whitefish. Require proposal to change regulations and statutes (1997), implementation (1998).
- Improve spawning habitat for yellow perch by seeding shoreline with vegetation that can sustain inundation during high water and/or by placement of woody vegetation at key locations. (1997 -1998)
- Construct yellow perch rearing ponds adjacent to Fresno to augment reservoir production. (Contingent on approval by BOR and available funding.)
- Utilize supplemental stocking of walleye fry and fingerlings following years with poor natural reproduction as per the stocking contingency plan developed in 1988. (on as needed basis)
- Continue to recommend to bureau of Reclamation that at least minimal reservoir water levels be maintained. (Ongoing)
- Work with Bureau of Reclamation to improve access roads, develop more camping sites, boat ramps and docks, fish cleaning stations and latrines. (Attempt to coordinate with BOR's Recreation Management Plan)
- Continue to obtain baseline information on reservoir water quality characteristics via cooperative studies with MSU-Northern. Will aid in making management decisions effective forage base. (1997-1998)
- If appropriate, implement size limits to reduce walleye harvest in certain length groups. Requires proposal to change regulations (1997), implementation (1998).

NELSON RESERVOIR

Management Objective

To maximize angler opportunity on Nelson Reservoir, with primary emphasis on walleye, and associated prey species, and improving existing access.

History/Status

This 4,500 surface-acre reservoir is operated by the Bureau of Reclamation for off-stream storage of irrigation water. Water levels have fluctuated significantly over the last 10 years and low levels have negatively impacted the fishery. The reservoir is managed primarily for walleye. The species is sustained chiefly by natural reproduction, but some supplemental walleye fingerling stocking has occurred in recent years. Northern pike also reproduce naturally and no supplemental stocking is required to sustain the population. The major forage fish species are believed to be yellow perch, spottail shiners and white suckers, though numerous other forage species are present.

Issues

Need to improve forage base and occasionally supplement walleye production. Need to provide better access/accommodations for anglers in cooperation with Bureau of Reclamation.

Action Plan

- Improve spawning habitat for yellow perch by seeding shoreline with vegetation that can tolerate inundation during high water and provide spawning substrate. (1997-1998)
- Increase natural reproduction of walleye by expanding artificial spawning shoals. (1996-1997)
- Utilize supplemental stocking of walleye fry and fingerlings as necessary, especially during years with poor natural reproduction. (on as needed basis)
- Endeavor to maintain at least, minimal reservoir water levels with cooperation from Bureau of Reclamation. (ongoing)
- Work with Bureau of Reclamation to improve boat ramp for low water periods. Also, improve access with more boat ramps and docks. Build fish cleaning stations and latrines. (projects, time frame, priorities, funding, will be determined through cooperative effort of local angler groups, other public organizations and BOR, action plan developed by fall '97)
- Conduct creel survey to determine catch rates and estimate harvest. (depending on FWP Roving Creel FTE availability, tentatively '98)
- Determine utilization of forage species by walleye and northern pike. (information contingent on '98 creel survey)
- Reduce fish loses due to irrigation canals by installing fish screens or other devices in cooperation with Bureau of Reclamation. (ongoing)

MISSOURI RIVER BELOW FORT PECK

Management Objective

To recommend discharges from Fort Peck Reservoir that will best meet the needs of the diverse Missouri River fishery and to improve angler access.

History/Status

Boat access to the Missouri River downstream of Fort Peck Reservoir to the North Dakota border (180 river miles) is very limited. Anglers and other recreationists have asked for improved access.

The existing fishery is self-sustaining and is composed mainly of native gamefish species such as sauger, paddlefish, ling and northern pike. Other non-native gamefish species

include walleye lake trout and rainbow trout. Endangered species include pallid sturgeon, which are presently being studied to determine life history, movements, reproductive status and actual abundance.

Issues

Need to develop more boat access for anglers. Need to provide suitable water levels to enhance, or at least sustain existing fish populations with cooperation of Corps of Engineers. Need additional information on status of game and forage fish populations in lower Missouri.

Action Plan

- Work with individuals from local communities, governments and the Fort Peck Tribe to improve public access to the lower Missouri River. Develop access roads, boat ramps, parking facilities and latrines at strategic sites. (contingent on developing plan with cooperation of all interested parties)
- Work with Corps of Engineers to maintain existing fishery with suitable discharges. Discharge recommendations will be amended as more information becomes available through pallid sturgeon research. (ongoing)
- Hire fisheries biologist to monitor fish populations (other than species of special concern or pallid sturgeon) on the lower Missouri and evaluate impacts of various discharges.

BEAVER CREEK RESERVOIR

Management Objective

To maximize angler opportunity in Beaver Creek Reservoir, maintain game fish diversity and forage base.

History/Status

This 200-surface-acre reservoir south of Havre, was completed in 1973 and was initially managed as a trout fishery. Its close proximity to town has resulted in significant public use. Overpopulation of suckers and illegal introductions have necessitated intensive management with a variety of fish species in recent years. Northern pike, walleye, rainbow trout and yellow perch comprise the sport fish population, while white suckers, longnose suckers, yellow perch, and spottail shiners provide a diverse forage base. The reservoir appears to be productive, and the existing composition of the fishery is expected to continue with year to year variations in population size.

Issues

Natural reproduction of walleye has not been documented since their introduction in 1987. A large under utilized crayfish population exists

Action Plan

- Consider alternate-year stocking of walleye fry and/or fingerlings to sustain population.
- Stock smallmouth bass to utilize crayfish and maintain fishing diversity.

DRY FORK RESERVOIR

Management Objective

To maximize angler opportunity on Dry Fork Reservoir, with special emphasis on northern pike and largemouth bass.

History/Status

This 200-surface-acre reservoir is on private, state and federally owned land in Blaine County. It is managed by FWP as a cool/warmwater fishery with northern pike, largemouth bass, yellow perch and crappie.

Issues

Need for improved boat access. Potential for largemouth bass production is good but population is low at present.

Action Plan

- Work with State Lands and private owners to improve signing and boat access. ('97)
- Stock largemouth bass to establish a viable self sustaining population. ('97)

BOX ELDER RESERVOIR

Management Objective

To maximize angler opportunity on Box Elder Reservoir, with primary emphasis on walleye and associated forage fish species.

History/Status

This 90-surface-acre reservoir at Plentywood was constructed in 1964 as a joint venture between the Dept. of Fish, Wildlife and Parks, the Corps of Engineers, and the Natural

Resource and Conservation Service. It was originally developed as a flood control project, but was later expanded to include recreation. Initially it was managed as a trout fishery, but illegal introductions sometime in the late 70's required a shift in fisheries management toward warm/coolwater species. Presently, the reservoir contains an abundant walleye population, with yellow perch and fathead minnows as forage.

Issues

Walleye abundance may have surpassed the ability of the present forage base to sustain population. Periodic draw downs for golf course irrigation and downstream agricultural irrigation.

Action Plan

- Continue to monitor status of walleye population and impact on forage abundance.
- Supplemental stocking of large yellow perch should be attempted on an as needed basis to assure a sufficient number of spawners are present to take advantage of good spawning conditions.
- Consult with DNRC to determine accuracy of existing water use claims.

ESTER RESERVOIR

Management Objective

To maximize angling opportunity in Ester Reservoir.

History/Status

This 90-surface-acre reservoir in south Phillips County is located on private and state land. It is managed as a cool/warm water fishery by FWP. Game fish include walleye, northern pike, black crappie, yellow perch, largemouth bass; with the forage base consisting primarily of yellow perch, black crappie, fathead minnows, Iowa darters, and carp.

Issues

Walleye do not appear to reproduce naturally.

Action Plan

- Continue to stock walleye fry bi-annually to sustain population.

BAILEY RESERVOIR

Management Objective

To maximize angler opportunity on Bailey Reservoir by maintaining critical balance between predator and prey species.

History/Status

This privately owned, 70 acre reservoir, was constructed in the mid-1970's and has a maximum depth of 28 feet. Though privately owned, public fishing is allowed and FWP manages the fishery. Initially, trout were introduced and provided a good fishery, until northern pike were illegally stocked in 1980. Due to difficulties in managing the fishery with these two species, FWP began to develop a cool/warm water fishery. Trout stocking was discontinued and yellow perch, black crappie were introduced in 1987, largemouth bass in 1988.

Issues

Northern pike reproduction has been poor in recent years resulting in inadequate predator abundance to control yellow perch population. Yellow perch are over abundant and stunted.

Action Plan

- Continue to survey and monitor fish population to determine species abundance and condition. (annually)
- Continue to supplement northern pike population as conditions warrant.

LITTLE WARM RESERVOIR

Management Objective

To maximize angling opportunity on Little Warm Reservoir by managing primarily for walleye and tiger muskie, while maintaining suitable forage base.

History/Status

This privately owned reservoir is approximately 70 surface acres and is utilized primarily for watering stock and irrigation. The landowner allows public fishing and the FWP to manage the fishery. Walleye and crappie provide sport fishing, with the rest of the fish population consisting of brook stickleback, Iowa darters, white suckers, golden shiners, yellow perch, black bullhead and fathead minnows. White suckers have become over-abundant in recent years and tiger muskie were introduced in 1993.

Issues

White sucker population appears to be increasing in recent years.

Action Plan

- Continue alternate year stocking of walleye fry and tiger muskie fingerlings to control sucker population and provide adequate sportfishing opportunity.

COW CREEK RESERVOIR

Management Objective

To maximize angler opportunity on Cow Creek Reservoir by attempting to utilize an over-abundant sucker population to produce a diverse gamefish population.

History/Status

This 65 surface acre, privately owned, impoundment on Cow Creek is located on the southeastern slopes of the Bears Paw Mountains. The maximum depth is 45 feet, water is released in summer for irrigation purposes. New landowners have agreed to allow public fishing and FWP to manage the fishery. The reservoir is inhabited by white suckers, fathead minnows, lake chubs, longnose dace, silvery/plains minnows and crayfish. No sport fishery or stocking effort occurred until 1994, when walleye and channel catfish were introduced.

Issues

White sucker biomass was estimated to be 300 lbs./ surface acre, and walleye may not be able to control large numbers of adult suckers by themselves. Stocking of introduced channel catfish appears to be successful. Access to the reservoir needs to be developed.

Action Plan

- Introduce tiger muskie to help control abundant sucker population. (1997)
- Continue annual monitoring to assess predation and growth.
- Work with the landowner, State Lands and Blaine County to develop a long-term easement and boating access. (1996-1997)

FORT PECK DREDGE CUT POND

Management Objective

To maximize angler opportunity on the Dredge Cut Pond by periodically sampling resident fish populations and stocking predator or prey species to augment resident populations when appropriate.

History/Status

This pond was formed by closing off one of the dredge cuts, which was created during the original construction of Fort Peck Dam. The surface area is approximately 60 acres, and was managed as a trout fishery during the 60's and early 70's. Since that time the fishery has been managed as a cool/warm water fishery and stocked with yellow perch, walleye, northern pike and largemouth bass. Northern pike, yellow perch, largemouth bass occasionally reproduce, as do blue gill, which were illegally stocked in the early 80's.

Issues

Occasional yellow perch overpopulate and must be controlled. Dense growth of cattails and bulrush along shoreline limits angler access.

Action Plan

- Yellow perch may be removed by seining or trapping. Predatory fish may also be stocked when necessary to augment existing populations.
- Additional docks should be strategically located to function as fishing piers.

BEAR PAW LAKE

Management Objective

To maximize angler opportunity on Bear Paw Reservoir, with special management emphasis on trout.

History/Status

This 45 surface-acre reservoir on Beaver Creek in the Bear Paw Mountains is managed by FWP as a trout fishery. However, problems with interspecific competition with trout and an over-abundant white sucker population, resulted in poor growth rates for stocked rainbow trout. Despite sucker removal efforts, the sucker biomass has not been brought under control. Recent introductions of smallmouth bass and walleye appear to have reduced juvenile sucker abundance significantly.

Issues

Fishing pressure has declined due to small size and condition of trout. Public prefers to catch large fish over smaller, more abundant fish. Public prefers to catch cutthroat trout over rainbow trout. Drawdown and chemical rehabilitation has been attempted, but with undesirable results. Removal of white suckers with traps alone has not been satisfactory in reducing sucker biomass. Suckers and smallmouth bass occupy different habitats depending on season, resulting in marginal level of predation.

Action Plan

- Continue McBride strain cutthroat stocking at reduced rates.
- Continue Arlee catchable stocking at current rates.
- Continue to make population estimates of white sucker and crayfish to determine impacts by smallmouth bass and walleye.
- Determine food competition overlap between species and evaluate extent of bass and walleye predation on suckers. (ongoing)
- Continue stocking of walleye and smallmouth bass until control objectives are met.
- Attempt placement of rock around reservoir to provide additional habitat for smallmouth to maximize association and predation on young suckers. (1996-1997)
- Investigate physical removal of adult suckers to hasten biomass reduction in conjunction with predation on juvenile population. (1997-1998)

SMALL SIZE RESERVOIRS
(less than 30 surface acres)

Management Objective

To maximize angler opportunity on small ponds and reservoirs, with primary emphasis on maintaining fish species diversity and providing additional reservoirs by various methods.

History/Status

Small reservoirs and ponds in Region 6 provide the public with a wide diversity of fishing opportunities and future management will continue the tradition of sustaining this unique resource.

Issues

Lack of sufficient variety of species and abundance to meet all small pond and reservoir management needs. Difficult to provide public with new fishing ponds and reservoirs especially near population centers.

Action Plan

- Continue to make a variety of fish species available to landowners who allow public fishing. Improve availability of warmwater fish species through Miles City Hatchery. (ongoing)
- Maintain and improve public access to private fish ponds through inducements to private landowners (Private Fisheries Incentive Program). (ongoing)
- Provide technical assistance to other government agencies (COE, BLM) in developing and designing new ponds. (ongoing)

REGION SEVEN

Region Seven consists of a large portion of southeastern Montana and contains diverse fisheries in farm ponds, reservoirs, and streams associated with the Yellowstone and Little Missouri River drainages. Besides providing sportfishing opportunities, the lower Yellowstone River in Region Seven also provides an upstream "refuge" for several fish species such as paddlefish and blue sucker that were once common in the lower reaches of the drainage but are now rare because of habitat modification. Liberal angling regulations for most gamefish reflect the relatively light fishing pressure received in the region, although there is growing interest in warmwater fishing. Walleye are probably the most popular gamefish in the region, but a variety of other species such as sauger, channel catfish, crappie, and paddlefish also attract anglers. As with Region Six, small waters play an important role in satisfying anglers, particularly those interested in largemouth bass and panfish. Cooperating with landowners to gain public access on private waters has also been a vital fish management activity.

OVERVIEW

Black Bass

Largemouth and smallmouth bass have been used extensively in management of small (2-50 acre) stockwater impoundments throughout the region. Presently about 40 reservoirs contain one or both of these species, with about 20 of these waters having largemouth bass as the only species present. Favorite largemouth bass waters include Castle Rock Lake, and Haughian and Homestead Reservoirs. Largemouth bass populations are usually self-sustaining, but smallmouth bass often do not recruit well and must be periodically stocked to provide satisfactory densities for angling. Self-sustaining smallmouth bass fisheries are also present in Tongue Reservoir, the Tongue River, and the Yellowstone River upstream of the Tongue River. There are no special regulations on largemouth or smallmouth bass in Region Seven and both species fall under the Standard Eastern Fishing District daily bag limit of five fish in the aggregate. Special management efforts directed at black bass have included supplemental stocking and limited prey introductions.

Walleye/Sauger

These two species are probably the most sought after fish of the warmwater species in the region. They are most abundant in the Yellowstone River and some of its tributaries. Walleye are also present in seven reservoirs; all of these populations are maintained by annual stockings of fry and fingerling walleye. Castle Rock Lake, and Tongue and Sandstone Reservoirs are among the better walleye fisheries in the region. All walleye and sauger populations are managed with a standard daily bag limit of five fish in any combination; there are no length limits on either species. The only notable special

management effort directed towards walleye and sauger has been the holding of an instream flow reservation of water in the Yellowstone River to provide suitable habitat.

Northern Pike

Northern pike are present in 11 regional waters and the Yellowstone River and seasonally in some of its small tributaries where much of the spawning occurs. Several smaller lakes and ponds also have northern pike populations. The population with the highest density is probably in Castle Rock Lake, where northern pike are naturally recruiting but growth is very slow. A number of waters where northern pike spawning habitat is lacking receive periodic stocking to maintain adequate densities for angling. Otherwise, there are no special management efforts directed towards northern pike.

Sturgeon/Paddlefish

Shovelnose sturgeon are abundant in the Yellowstone River downstream from the Cartersville Diversion Dam at Forsyth; they also make spawning runs in late spring up the Tongue and Powder Rivers. The Cartersville Diversion Dam is a barrier to upstream migration, and measures for providing upstream access are being investigated, including modification of the diversion dam.

Pallid sturgeon are seasonally present in the lower Yellowstone River, but sport harvest is not allowed due to its status as a Federally-listed endangered species.

Region Seven has a significant paddlefish fishery based on adult fish that migrate from Lake Sakakawea (North Dakota) into the Yellowstone River in spring. Much of the harvest occurs at the Intake Fishing Access site near Glendive. Management of this fishery is based on a cooperative interstate agreement between Montana and North Dakota which includes an annual harvest quota system giving both states equal shares of the harvest. In Region Seven, paddlefish are managed with a one fish season limit, and there is also a catch and release period at the Intake Dam Fishing Access Site.

Burbot

Burbot are common in the Yellowstone River and several tributaries including the Tongue and Powder Rivers and Rosebud Creek. Angler interest appears to be low and most burbot are taken incidentally to fishing for walleye, sauger, and channel catfish. There are no special regulations applying to burbot in Region Seven, and a 10 fish daily bag limit applies to all waters within the region.

Channel Catfish

Eastern Montana is on the northwestern fringe of the channel catfish's native range. This species is abundant in the lower Yellowstone drainage. Channel catfish have not been

stocked in many regional reservoirs, but they are common in the Tongue River Reservoir where they are naturally recruiting. Most angling for channel catfish takes place in streams and rivers in Region Seven, with a liberal daily bag limit of 20 fish applying to all waters. There are presently no special management efforts planned for channel catfish within the region.

Panfish

Principal panfish in Region Seven are yellow perch, bluegill, and black and white crappie. Yellow perch are found in 16 reservoirs and numerous smaller waters where they are often stocked alone or with northern pike or largemouth bass. Yellow perch are often stocked in smaller waters that experience periodic winterkills which prevent fish from overpopulating and stunting. Adult yellow perch for stocking new waters are obtained by collecting fish from established populations, usually in larger waters. Yellow perch are undoubtedly the most popular panfish in the region.

Bluegill and crappie are not particularly common in Region Seven. The only notable bluegill fishery is at Castle Rock Lake, where a substantial proportion of the population is comprised of large fish over 8 inches. Tongue River Reservoir is the state's primary crappie fishery and has become a popular angling attraction. Fishing pressure at this reservoir has more than quintupled since the late 1970's and a daily bag limit of 15 fish has been applied to the crappie population to prevent overharvest.

MANAGEMENT PLANS FOR MAJOR WATERS

TONGUE RIVER RESERVOIR

Management Objective

Provide a quality, warmwater fishery through stocking, regulations, and restoration/ expansion of recreational facilities following completion of the reservoir rehabilitation project. Minimize negative effects of low water during rehabilitation project.

History/Status

Tongue River Dam was completed in 1940. In the early years of the reservoir, planted fingerling rainbow trout formed the principal fishery. The reservoir was chemically rehabilitated in 1957 to remove undesirable fish species. These species quickly built to pre-treatment levels and attempts to maintain a trout fishery were discontinued. Various warmwater fish species were introduced over the next several years. It has developed into Montana's only significant crappie fishery. Walleye fry and fingerlings are stocked each year. A self-sustaining smallmouth bass population is also of significance. Northern pike fry and fingerlings have been stocked periodically since 1963. Survival has always been

low and there is no natural reproduction. Tongue Reservoir is physically unsuited to good survival of small northern pike because it is almost completely lacking in weedy shallows.

Crappie make up the majority of the fish harvested and have undergone large changes in status and exploitation rate. As recently as 1983, fishing pressure was less than 7,000 angler days per year. It is presently near 25,000 angler days per year. In the early 1980's, crappie density was very high and growth was slow. Density of crappie is presently much lower and growth is more rapid. Angler harvest of crappie has increased by a factor of 25-30 from the late 1970's to the present time. An increased density of walleye has also played a role in the density decrease and growth rate increase of crappie.

In the early 1990's crappie began to show signs of overharvest. Relatively strong year classes of crappie in 1988 and 1990 disappeared at a relatively early age. Beginning in 1996, the first crappie limit (15 fish daily, 30 in possession) was instituted to avoid overharvest.

Issues

Recent issues at Tongue Reservoir include effects of the dam/spillway rehabilitation project, the crappie daily and possession limit, reservoir water levels and their effect on fish populations and recreation, very low abundance of northern pike and replacement of recreational facilities at a higher elevation following the rehabilitation project with its new four feet higher full reservoir pool. Public facilities at Tongue Reservoir, a state park, are actually a function of FWP's Parks Division.

Action Plan

Much of the planning related to this project has been completed. The following provisions have been agreed to by the project sponsors (MT Dept. of Natural Resources, U.S. Bureau of Reclamation, Northern Cheyenne Tribe) as part of project costs or internal department financing:

- Maintain a minimum pool of 9,000 acre-feet (700 surface acres) during construction to minimize fish loss.
- Supplemental walleye stocking following refilling of the reservoir of 10,000 - 8-inch yearling fish annually for a two-year period. (Fish to be planted in 1999 and 2000.)
- Replacement, at a higher level, of existing roads, parking areas, latrines, picnic shelters, concession building, existing well and septic system, camping areas and fire rings. (1999)
- Boat ramp at Campers Point will be rebuilt to 24 feet wide from present width of 12 feet; additional latrines and picnic shelters.
- New drinking water source and new boat ramp at north end of Pee Wee Point. (1999)
- Fish cleaning station and RV dump station at Campers Point.

Additional Action Items

- Reevaluate crappie limit each two years based on fishing pressure and year class strengths of young crappie, with objective of maintaining at least 10 percent of crappie in mid-summer gill net surveys at least 10 inches in length.
- Plant 1 million walleye fry and 50,000 fingerlings annually to maintain a catch rate of at least 2.0 walleye per gill net in mid-summer.
- Obtain an FWP seat on the reservoir operating committee or at least a member with strong biological interest to ensure an adequate minimum pool (25,000 acre-feet) for fish community.
- Sample fish populations each year will gill nets and beach seines to determine young crappie year class strengths, size structure of adult crappie and walleye abundance.
- When water levels and forage fish populations have returned to normal following the rehabilitation project, plant a few thousand 4-5" tiger muskie and a few thousand northern pike fingerlings, and monitor survival. (Begin in 1999)

INTERMEDIATE SIZE RESERVOIRS

Management Objective

Maintain strong fish population database. Plant, annually, or each two years, desired species for which reproduction is low or lacking. Reintroduce existing species if total winterkill occurs. As needed or as opportunities arise, improve public facilities and access.

History\Status

In the southeast region, FWP manages fisheries at five intermediate size reservoirs of 35-165 acres with full public access. These are South Sandstone Reservoir (FWP), Baker Lake (Fallon County), Castle Rock Lake (Montana Power), Gartside Reservoir (FWP) and Johnson Reservoir (Montana Department of Natural Resources). These waters range from very high fisheries quality (Castle Rock Lake) to low fisheries quality (Baker Lake). They are managed for various warmwater fish species consistent with their capabilities.

Issues

Most of the issues for this group of waters are at Castle Rock. Fishing pressure in the eight years from 1985 to 1993 has increased from approximately 1000 angler days per year to over 6000. This is a fishing pressure of 37 angler days per year per surface acre and is probably one of the most heavily fished reservoirs in the state on a per acre basis.

Most of the harvest is bluegill, and there is some basis for concern of overharvest of large bluegill. Other issues at Castle Rock Lake include lack of overnight camping in the area, lack of fish cleaning facilities, latrines only at the parking area, annual aquatic algicide use, possible planting of perch and tiger muskie and lack of underwater structure.

Johnson Reservoir rules require parking on the county road and a walk, over rough ground, of approximately 200 yards to the Reservoir. This makes boat fishing and ice house transport to the waters edge very difficult.

Action Plan

- Plant fish according to the following schedule:

Gartside Reservoir
5,000 smallmouth bass fingerlings annually
2,500 northern pike fingerlings annually
2,000 walleye fingerlings annually

Johnson Reservoir
4,000 smallmouth bass annually

South Sandstone Reservoir
200,000 walleye fry annually
5,000 walleye fingerlings annually
300,000 northern pike fry alternate years
1,500 northern pike fingerlings alternate years
10,000 smallmouth bass fingerlings alternate years

Baker Lake
1,500 northern pike fingerlings annually
100,000 northern pike fry - alternate years

Castle Rock Lake
5,000 walleye fingerlings annually
Monitor bluegill size structure. Consider ways of reducing harvest of larger bluegills if size structure begins to be altered by angler harvest. Despite some public interest in perch and tiger muskie, no new fish species will be introduced because of possible negative effects. Explore, with Montana Power Company, the possibilities of using a non-copper based herbicide and for constructing a fish cleaning station and additional latrines.

Gartside Reservoir
Determine need and consider constructing a handicapped accessible fishing pier, unloading platform and latrine.

Johnson Reservoir
Consider possibilities, with the Montana Trust Land Management Division, and the agricultural lessee, for improving access for boat fishing. Use partial rotenone treatment to cure yellow perch overpopulation and stunting.

- Sample fish populations annually at each reservoir.

SMALL RESERVOIRS

Management Objective

Maintain sportfishing for suitable species in approximately 100 small reservoirs on private and public lands. Add new reservoirs to the program to replace reservoirs that become unsuitable for fish production or unavailable for public access. Keep the angling public informed of small reservoir fishing opportunities.

History\Status

Beginning in the late 1950's and early 1960's, FWP began planting stockwater reservoirs on private lands, with the landowners agreement to allow public access. Some ponds on BLM and Forest Service land were also included. This program expanded in the 1970's so that by the early 1980's almost 250 reservoirs were listed in the public information fishing pond booklet. Many of these reservoirs were planted at a landowners request without any specific knowledge of the reservoir's ability to overwinter fish. This number was also so large that FWP personnel could not maintain timely and accurate information on fish populations and fishing opportunities for public information.

Starting in 1984 the number of these reservoirs was soon reduced to 100-110. Ponds that had little ability to produce or overwinter fish were deleted form the program. Approximately half of these waters are planted with rainbow trout and half with various warmwater species. Each year a few reservoirs are deleted from the program at the landowners wishes or because the pond has become too shallow to winter fish. Also, each year a few new reservoirs are added. Better quality, deeper reservoirs are usually planted with warmwater fish species. A booklet for public distribution is updated and printed each year. This booklet describes fishing opportunities in each reservoir and locates each reservoir on a map. Presently 3,000 copies are printed each year.

Issues

Relatively few issues surround this program. Users seem relatively satisfied. There is a perception that there are too many trout reservoirs and too few with warmwater species. Actually, in Region Seven the two groups are about equal in number.

The five fish daily limit for bass is sometimes viewed as unnecessary and undesirable. Some bass reservoirs do winterkill every few years. For these reservoirs a higher limit would be appropriate, but for the sake of simplicity, the daily limit has been left uniform. There is some public interest in increasing structure in bass reservoirs. Most bass reservoirs grow a moderate to heavy annual crop of aquatic weeds. In these situations artificial structure has little value.

Illegal public fish planting of undesirable fish species has been a significant problem with a high cost of remedial action. Probably more emphasis should be given to prevention.

Action Plan

- Sample fish populations in at least 30 reservoirs annually.
- Emphasize yellow perch planting in any new reservoirs near towns.
- Continue to offer additional services (i.e. signing, cattle guards, road gravel, etc.) as an inducement to pond owners to open or keep open a reservoir for public fishing.
- Consider more liberal bass limits for bass ponds with winterkill history. (complete in 1997)
- Update regional pond booklet annually; print as many copies as can be distributed.
- Expand preliminary section in pond booklet to include a paragraph on negative effects of illegal fish transplanting. (begin in 1977)
- Give priority to largemouth bass over trout at all new ponds.

TONGUE RIVER AND BEAVER CREEK

Management Objective

Optimize warmwater fisheries management production by minimizing effects of the Tongue River Dam rehabilitation project, enhancement of stream flows, reduction of inadvertent fish entrainment, and development of additional angling access.

History/Status

Flows on the Tongue River are fully controlled by the Tongue River Dam, completed in 1940. There are only a few miles of river between the reservoir and the Wyoming border. The distance from Tongue River Dam to the mouth at Miles City is 189 miles. Tongue River has two high, full river width diversion dams: the T & Y Dam at 20 river miles above the mouth and the SH Dam at 70 river miles above the mouth. There are two smaller upstream diversion dams. The T & Y is a complete fish barrier. Goldeye, shovelnose sturgeon, blue sucker and a few smaller species are not found upstream of the T & Y.

FWP efforts on the Tongue River began in 1965 with the introduction of smallmouth bass and field studies to determine their establishment. In the 1970's considerable work was done to determine in-stream flow needs for Tongue River fishes. In 1978, the Board of Natural Resources granted an instream flow reservation of 75 cfs. This right is secondary to older agricultural uses, and is much less than the amounts of water FWP requested. In actuality, flows are maintained at desirable levels most of the time downstream to the T & Y diversion (20 miles upstream from the mouth). Mid-summer to early fall, flows downstream of the T & Y are sometimes much less than the 75 cfs instream reservation.

Fisheries efforts in the 1970's found large spawning runs of sauger (late March to early May) and shovelnose sturgeon (early May to early July) into the Tongue River from the Yellowstone River. These runs required minimums of 525 cfs for sauger migration and spawning and 600 cfs shovelnose sturgeon migration and spawning. These flows were mostly met in the 1970's, but beginning in about 1980 the sauger instream flows have usually not been met because of more conservative operation of the reservoir, low spring reservoir water levels, and lower early spring water releases from Tongue River Dam.

The smallmouth bass remains as the major game fish species, but sauger, walleye and channel catfish are also important.

A major project for Tongue River Dam is planned to begin in 1996 and continue through 1998. The primary spillway will be rebuilt and raised four feet, low-level outlet works will be considerably modified and parts of the dam will be modified to function as an emergency spillway.

Beaver Creek in Wibaux County has small populations of resident walleye and northern pike. These populations are probably limited by low flow, especially in spring. In many years low flows from late March to early May are thought to limit reproduction success.

Issues

The Tongue River Dam project requires lowering of the reservoir to 9,000 acre-feet in fall 1997. It may not refill until early 1999, after completion of the project. During this period there will be decreased ability to maintain normal flows in the Tongue River downstream. Significant effects on fish populations are possible, depending on amount and timing of inflow to the reservoir during the drawdown period. Mitigative fish planting for the river, if needed, is a part of project costs.

During the 1980's, May to early July spawning flows for the lower Tongue River have largely been met, but late March to early May spawning flows have not been met most years. This has resulted largely from the conservative operation of the reservoir and lack of storage in early spring.

Over five million dollars is available as a part of the Tongue Dam project to enhance fish and wildlife and their habitats. Money will be used to screen irrigation diversions and prevent loss of fish into canals.

Only two fishing access sites are available to the public. One is immediately downstream of the Dam and the other about 12 miles south of Miles City. There is no public access for the 160 river miles between these two sites.

Action Plan

- Monitor streamflows and watch for any fish loss during rehabilitation project. Determine fish loss using post project fish sampling and comparison with pre-project fish sampling results. Plant smallmouth bass and channel catfish fingerlings, if needed, to restore pre-project level fish populations.
- Improve sauger spawning flows in the lower Tongue River through negotiation with the Tongue Dam operating committee. Federal legislation authorizing the rehabilitation of Tongue River Dam requires that the project be operated to benefit fish and wildlife. Improvement of lower river mid-summer to early fall flow will be a secondary consideration.
- In cooperation with the Bureau of Reclamation fish habitat group, build fish excluding devices at the T & Y headgate and at the SH headgate if available funds allow. (complete by 1999)
- Develop a program to contact and interest landowners, to add new fishing access sites (FAS) between the Tongue River Dam and Twelve Mile Dam FAS south of Miles City.
- Plant 2,000 walleye fingerlings, if available, in Beaver Creek for at least 5 years; monitor status of walleye population. (complete by 1999)

YELLOWSTONE RIVER

Management Objective

Optimize management of warmwater fisheries with emphasis on improving biological information, fish passage, obtaining additional access, and maintaining/restoring native fish species.

History/Status

FWP has been involved in active biological investigations and management of the Lower Yellowstone River for only a little over twenty years. Intensive basic fisheries investigation were begun in the 1970's. Most of this work was directed toward obtaining an in-stream water reservation to benefit fish populations and other wildlife dependent on the Yellowstone River. This reservation was granted by the Board of Natural Resources in December 1978. Fisheries work since that time has been at a much lower level.

Fishing pressure on the Yellowstone River is poorly known in the 1970's, but recently has been as much as 50,000 angler days per years. Sauger are probably the most popular species. Sauger numbers decreased in the late 1980's and early 1990's so that by 1993 sauger abundance was only 10%-15% of abundance in 1985-1988. Reasons for this decrease are poorly known, but young-of-the-year sauger seemed to be entirely absent from the river in 1992 and 1993. Sauger have since rebounded with strong year classes in 1994 and 1995.

Daily limits are in effect for all the game and sport species. Limits were first added for channel catfish and shovelnose sturgeon in 1994.

A fishing access site program was begun in the late 1960's. There are presently 14 public sites in approximately 280 river miles from the Bighorn River to the North Dakota border.

Issues

The most prominent recent issue has been the sharp dip in sauger abundance from the late 1980's through the early 1990's, FWP's lack of understanding of reasons for this decline and its effect on angler catch rate of sauger. The decline caused some anglers to call for sauger planting and others to request more intensive fisheries work on the Yellowstone River. Gaps in the Fishing Access Site program, especially sites with boat ramps, is a continuing issue. The longest intervals between public boat ramps are from Fallon to Glendive (35 miles) and Myers to Forsyth (50 miles).

Other issues are fish passage at the Cartersville Diversion Dam and status of threatened, endangered and candidate native fish species. The Cartersville Diversion Dam eliminates shovelnose sturgeon from upstream points and severely limits upstream sauger density.

Action Plan

- Obtain the full-time efforts of a fisheries biologist and field aid through internal redirection, to work exclusively with Yellowstone River warm/coolwater fisheries issues and problems.
- In cooperation with the Bureau of Reclamation, obtain fisheries information that will lead to design options, with cost estimates, for improving fish passage at the Cartersville Diversion Dam. (Complete by 1998)
- In cooperation with the Bureau of Reclamation, obtain fish entrainment data to determine significance of fish loss in the Intake Canal. (Complete by 1998)
- Sample fish in the Intake high water bypass to determine its role in providing passage around Intake Diversion Dam. (Complete by 1998)
- Determine sauger spawning areas, production of sauger young-of-the-year and how they relate to Yellowstone River flows and water levels in Garrison Reservoir.
- Consider sauger planting from appropriate sources if population again declines.
- Evaluate present sauger harvest rates and determine potential fish population benefit of a sauger minimum size limit and/or numbers limit.
- Determine status, abundance and range of sturgeon chub, sicklefin chub, blue sucker and other species that could become candidates for threatened or endangered status.
- Evaluate need for fishing regulations, especially daily limits, based on new information generated by Yellowstone River fisheries biologist.
- Develop program to contact and interest landowners at key locations for development of new fishing access sites to ensure that a public access site is available at 10-12 mile intervals along the river.

APPENDIX A

Existing FWP lake management plans and expiration dates.

Existing FWP Lake Management Plans for warmwater fisheries and expiration dates.

Region	Water(s)	Expiration date
1	Thompson Chain of Lakes	2002
3	Canyon Ferry Reservoir	1998
6	Fort Peck Reservoir	1997
7	Paddlefish Management Plan; Missouri and Yellowstone Rivers	2004

APPENDIX B

Warmwater Fish Management Plan Survey Summary

Warmwater Fish Management Plan Survey Summary
prepared by Bob McFarland, Information Services Unit, FWP

The warmwater survey was designed to solicit comments from resident anglers on Montana's warmwater fishery. A packet was distributed that contained a short report explaining the present warmwater program, a summary of current issues, and a description of the process that FWP has designed to develop a new warmwater fish management plan (WFMP). A survey (attached to the end of this report) was included in the information packet for anglers to fill out and return in the postage paid cover sheet.

Two different types of surveys were conducted. The first was a random sample of anglers drawn from the total population of Montana residents that had purchased a current fishing license; and in the second survey, packets were distributed to any interested individuals through FWP Regional Offices and other advertised outlets.

Random Survey

A random sample of 1,000 anglers was selected from a list of all resident anglers that had purchased a Montana season fishing license for the 1995-96 license year. A survey was mailed to these anglers along with the remainder of the WFMP information package. The survey included a postage paid return cover sheet. These surveys were color coded so their responses could be kept separate from the general distribution survey.

Out of the 1000 questionnaires mailed, 47 were returned as undeliverable, leaving 953 total surveys. Only 119 anglers returned their survey for a 12.5% return rate.

General Distribution Survey

WFMP information packets (short report and a questionnaire) were distributed to each FWP region, anglers that requested a copy, cooperator lists, and organized angling groups. These surveys were color coded to keep track of the different groups. Since there was no way to track how many packets were distributed to anglers, it was not possible to track return rates for this portion of the survey. A total of 408 surveys were returned by the deadline of which 91 (22.3%) were from Walleye Unlimited clubs.

Results

Results of the survey are provided on the following pages. These results have been reported on the actual survey instrument that was distributed to the public.

WARMWATER FISH MANAGEMENT SURVEY

STATEWIDE ISSUES

Directions: Please circle response unless otherwise noted.

1. Do you generally prefer to fish for:

	warmwater species (e.g., bass, walleye, etc.)	or	coldwater species (e.g., trout, salmon)
Random	**32.7%**		**67.3%**
General	**90.1%**		**9.9%**

2. Please rank the following groups of fishes according to your interest, with "1" being highest and "7" being lowest.

Random	**General**	
2	4	largemouth/smallmouth bass
1	1	walleye/sauger
3	2	northern pike/tiger muskie
7	7	sturgeon/paddlefish
6	6	burbot
5	5	channel catfish
3	3	panfish (yellow perch, bluegill, crappie, etc.)

3. Overall, how do you feel about the number of special regulations on Montana's warmwater fisheries?

	Too Few	About Right	Too Many
Random	**10.4**	**79.2**	**10.4**
General	**17.9**	**68.5**	**12.1**

4. For each group of species listed below, which are over-regulated, appropriately regulated, or under-regulated? (Please X your response).

	Over-Regulated		Appropriately Regulated		Under-Regulated	
	Random	**General**	**Random**	**General**	**Random**	**General**
largemouth/smallmouth bass.	12.8%	7.5%	78.7%	78.8%	8.5%	13.7%
walleye/sauger. . . .	13.8%	11.7%	79.8%	66.4%	6.4%	21.1%
northern pike/tiger muskie .	14.6%	12.7%	80.2%	72.8%	5.2%	14.2%
sturgeon/paddlefish	11.2%	11.1%	73.0%	74.9%	15.7%	14.0%
burbot	10.1%	7.1%	82.0%	83.8%	7.9%	9.1%
panfish	12.9%	7.7%	80.6%	78.0%	6.5%	14.3%
panfish (yellow perch, crappie, etc.)	12.9%	7.7%	80.6%	78.0%	6.5%	14.3%

5. Which specific waters within the State would benefit by more regulations? (List a maximum of 5 waters)

Random			General		
Water	Number	%	Water	Number	%
Canyon Ferry Reservoir	8	7.6	Fort Peck Reservoir	60	9.9
Holter Reservoir	8	7.6	Holter Reservoir	50	8.2
Fort Peck Reservoir	7	6.7	Tiber Reservoir	46	6.6
Missouri River	6	5.7	Canyon Ferry Res	33	5.5
Hauser Reservoir	5	4.8	Lake Francis	29	4.8
Tiber Reservoir	5	4.8	Cooney Reservoir	24	4.0

6. Which specific waters within the State would benefit by less regulations? (List a maximum of 5 waters)

Random			General		
Water	Number	%	Water	Number	%
Flathead Lake	6	8.6	Fort Peck Reservoir	22	11.2
Canyon Ferry Reservoir	5	7.1	Tongue River Res	22	11.2
Fort Peck Reservoir	4	5.7	Holter Reservoir	17	8.7
Missouri River	4	5.7	Canyon Ferry Res	13	6.6
Bitterroot River	3	4.3	Tiber Reservoir	9	4.6
Yellowstone River	3	4.3	Tongue River	8	4.1

7. Are unauthorized introductions of fish in to Montana waters a problem?

	Yes	No Opinion	No
Random	66.0%	12.3%	21.7%
General	60.0%	23.3%	16.6%

8. What measures would you recommend to reduce the number of unauthorized fish introductions in Montana waters? (Please describe)

Measure	Number	%
Heavier/more severe fines	132	38.8
Educate people	76	22.3

9. Are there any specific waters you think would benefit by an introduction of a new fish species? (List a maximum of 5 waters)

Random Survey

Water	Species	Number of times water listed	Number of times Species listed
Canyon Ferry Res	walleye	7	5
Tiber Reservoir	forage fish	5	2

General Survey

Water	Species	Number of times water listed	Number of times Species listed
Tiber Reservoir	Cisco	114	62
Canyon Ferry Res	walleye	101	62
Deadman's Basin	Walleye	71	38
Fort Peck Res	Smallmouth bass	32	6
Yellowstone River	walleye	28	10

10. What specific waters do you feel would benefit from new/additional habitat management? (List a maximum of 5 waters)

Random Survey

Water	Habitat management	Number of times water listed	Number of times management listed
Tiber Reservoir	structure/cover	6	2
All waters	protect shoreline	4	2
Bynum Reservoir	spawning habitat for yellow perch	3	2
Canyon Ferry Res	water levels/more fish/limit perch	3	1/1/1
Hauser Reservoir	water levels/more fish/warm water species	3	1/1/1

General Survey

Water	Habitat management	Number of times water listed	Number of times management listed
Tiber Reservoir	spawn beds & reefs	96	20
Canyon Ferry Res	walleye	41	12
Fort Peck Res	Regulate water fluctuations	39	6
Cooney Reservoir	structures	23	7
Bynum Reservoir	water for spawning/ Reef structure	21	5/5

11. How do you feel about the amount of emphasis by FWP on native fish management? (See pages 7-8 in enclosed management plan)

	Too Little	About Right	Too Much
Random	20.0%	65.0%	15.0%
General	10.8%	54.1%	34.8%

12. Approximately what percent of your fishing is spent on private ponds?

	0%	1-10%	>10%
Random	51.4%	33.9%	14.7%
General	50.4%	36.1%	14.5%

13. Do you support/not support cooperative agreements between Montana FWP and landowners to open private waters to public fishing? (See page 9 in the enclosed management plan)

	Support	Not support	No opinion
Random	77.9%	12.4%	9.7%
General	82.3%	7.5%	10.2%

14. Do you approve/disapprove of fishing tournaments on public waters for warmwater fish species?

	Approve	Disapprove	No opinion
Random	66.5%	22.8%	16.7%
General	86.4%	9.2%	4.4%

15. What do you think about present regulations of tournaments for warmwater fish species?

	Under-regulated	About right	Over-regulated	No opinion
Random	22.0%	72.0%	4.0%	2.0%
General	14.1%	80.3%	5.4%	0.2%

REGIONAL FISH MANAGEMENT

MONTANA FWP REGIONS

Region One

Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Flathead Lake	65	12.6
Thompson Lakes	51	9.9
Echo Lake	49	9.5
Noxon rapids Reservoir	48	9.3
Swan Lake	26	5.0

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Echo Lake	(59)	boat ramps	(22)
Flathead Lake	(33)	boat ramps	(14)
Swan Lake	(21)	docks	(9)
Thompson Lakes	(18)	boat ramps	(10)
Noxon Rapids Reservoir	(17)	boat ramps	(7)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Echo Lake	32	21.5
Lake Blaine	11	7.4
Flathead Lake	9	6.0
Flathead River	7	4.7
Island Lake	7	4.7

4. Which waters in Region One would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Echo Lake	29	11.8
Thompson Lakes	29	11.8
Noxon Rapids Reservoir	27	11.0
Flathead Lake	26	10.6

Region Two

1. Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Seeley lake	32	15.0
Blackfoot River	27	12.7
Bitterroot River	23	10.8
Clark Fork River	22	10.3
Salmon Lake	17	8.0

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Upsata Lake	(10)	boat ramps	(5)
Seeley Lake	(9)	boat docks	(4)
Cooper Lake	(9)	docks	(3)
Salmon Lake	(4)	boat ramps	(1)
Placid Lake	(1)	dump station	(1)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Upsata Lake	6	22.2
Bitterroot River	5	18.5
Clark Fork River	3	11.1
Nevada Lake	3	11.1
Blackfoot River	2	7.4

4. Which waters in Region Two would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Seeley Lake	19	27.5
Salmon Lake	9	13.0
Upsata Lake	7	10.1

Region Three

1. Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Canyon Ferry	120	34.5
Madison River	29	8.3
Dailey Lake	22	6.3
Missouri River	22	6.3
Gallatin River	19	5.5

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Canyon Ferry	(58)	cleaning stations	(23)
Dailey Lake	(6)	cleaning stations	(3)
Hebgen Lake	(4)	cleaning stations	(2)
Ennis Lake	(2)	boat ramps	(1)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Canyon Ferry	12	31.6
Ruby River	3	7.9

4. Which waters in Region Three would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Canyon Ferry	87	74.4
Dailey lake	10	8.5
Three Forks Pond	6	5.1

Region Four

1. Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Tiber Reservoir	151	19.4
Holter Reservoir	117	15.0
Missouri River	84	10.8
Bynum Reservoir	71	9.1
Hauser Reservoir	67	8.6

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Tiber Reservoir	(187)	cleaning stations	(51)
Bynum Reservoir	(65)	cleaning stations	(51)
Petrolia Reservoir	(63)	boat ramps	(24)
Lake Francis	(40)	cleaning stations	(16)
Holter Reservoir	(32)	boat ramps	(12)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Tiber Reservoir	46	25.0
Missouri River	25	13.6
Petrolia Reservoir	24	13.0
Bynum Reservoir	16	8.7
Holter Reservoir	12	6.5

4. Which waters in Region Four would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Tiber Reservoir	90	24.5
Holter Reservoir	67	18.2
Hauser Reservoir	42	11.4
Lake Francis	40	10.9
Missouri River	24	6.5
Petrolia Reservoir	23	6.3

Region Five

1. Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Bighorn Lake	92	23.1
Cooney Reservoir	72	18.0
Yellowstone River	68	17.0
Deadman's Basin	32	8.0
Bighorn River	18	4.5

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Cooney Reservoir	(54)	cleaning stations	(23)
Yellowtail Reservoir	(32)	cleaning stations	(10)
Yellowstone River	(18)	boat ramps	(9)
Deadman's Basin	(15)	cleaning stations	(6)
Bighorn Lake	(6)	cleaning stations	(2)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Yellowstone River	17	23.3
Bighorn Lake	17	23.3
Musselshell river	7	9.6
Cooney Reservoir	5	6.8

4. Which waters in Region Five would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Deadman's Basin	39	24.5
Cooney Reservoir	38	23.9
Bighorn Lake	25	15.7

Region Six

1. Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Fort Peck	318	45.4
Nelson Reservoir	85	12.1
Missouri River	77	11.0
Fresno Reservoir	70	10.0
Milk River	38	5.4

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Fort Peck Reservoir	(317)	boat ramps	(77)
Nelson Reservoir	(79)	cleaning stations	(26)
Fresno Reservoir	(73)	cleaning stations	(18)
Missouri River	(30)	boat ramps	(15)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Fort Peck	186	66.4
Missouri River	27	9.6
Nelson Reservoir	14	5.0
Fresno Reservoir	9	3.2

4. Which waters in Region Six would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Fort Peck	110	44.7
Fresno Reservoir	34	13.8
Nelson Reservoir	34	13.8

Region Seven

1. Which waters do you fish most in this region? (List no more than 5 waters)

Water	Number of times listed	Percent for region
Yellowstone River	92	28.5
Tongue River Reservoir	84	26.0
Tongue River	42	13.0
Castle Rock Reservoir	25	7.7
South Sandstone	9	2.8

2. Are there any specific waters you feel are in particular need of facility development (e.g., boat ramps, docks, cleaning stations, etc.)? (List a maximum of 5 waters)

Number in parenthesis after body of water is the number of times it was listed for the region. The number after the proposed development is the number of times it was listed for the body of water.

Body of Water		Proposed Development	
Tongue River Reservoir	(82)	boat ramps	(29)
Yellowstone River	(46)	boat ramps	(15)
Castle Rock Reservoir	(6)	cleaning stations	(3)

3. Are there any bodies of water where access needs to be improved? (List a maximum of 5 waters)

Water	Number of times reported for region	Percent of regional total
Yellowstone River	22	34.9
Tongue River	12	19.0
Tongue River Reservoir	5	7.9

4. Which waters in Region Seven would you like to see more emphasis on warmwater fish management? (List no more than 5 waters)

Water	Number of times reported for region	Percent of regional total
Yellowstone River	37	26.2
Tongue River	23	16.3
Tongue River Reservoir	19	13.5

APPENDIX C

Projected Stocking Needs for Warmwater Fish

PROJECTED STOCKING NEEDS[1]

To determine future needs for additional warmwater fish production, fisheries managers in the seven FWP administrative regions developed projected fish-stocking needs to implement the new WFMP and adequately manage warmwater fisheries resources within the state. Following is a comparison of numbers of actual planted fish for 1995 with the projected future needs.

Species	Size	1997 Projected Number	1995 Actual Number Planted
Channel Catfish	fry	180,000	0
	fingerling	14,200	0
Largemouth Bass	fry	150,800	0
	fingerling	160,400	8,400
Smallmouth Bass	fry	140,000	0
	fingerling	37,200	0
Northern Pike	fry	512,000	200,000
Tiger Muskie	fingerling	15,000	0
Walleye	fry	38,450,000	27,800,000
	fingerling	2,123,000	1,954,500

[1]This information has been obtained from a report entitled, "State of Montana Fish Hatchery System Review," which was independently prepared by FWP by Piper Technology. A complete copy of this report may be obtained by contacting the FWP Fisheries Division, PO Box 200701, Helena, MT 59620-0701.