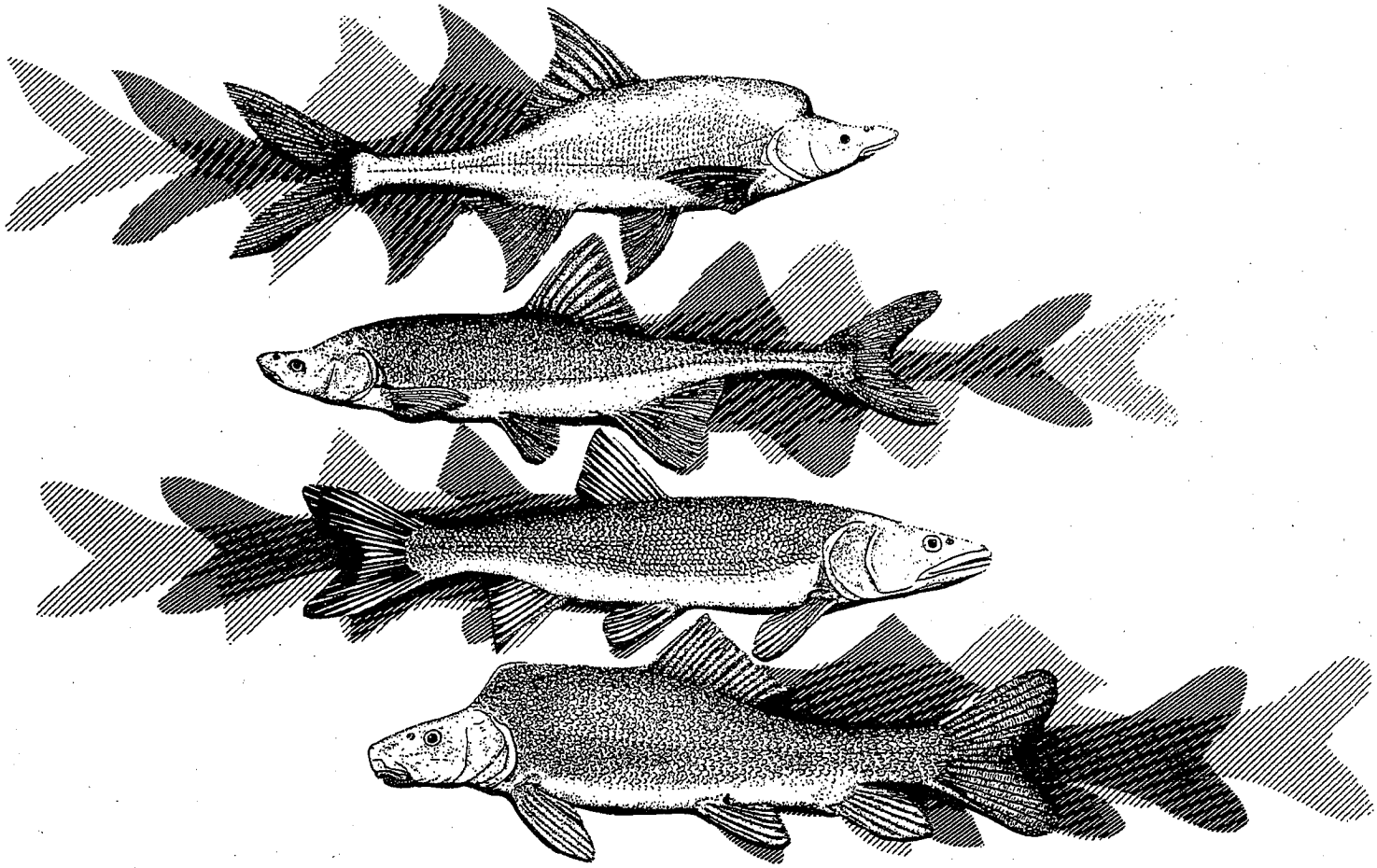

SECTION 7 CONSULTATION, SUFFICIENT PROGRESS,
AND HISTORIC PROJECTS AGREEMENT

AND

RECOVERY ACTION PLAN (RIPRAP)

RECOVERY IMPLEMENTATION PROGRAM FOR ENDANGERED FISH SPECIES IN THE UPPER COLORADO RIVER BASIN

United States Department of the Interior
Fish and Wildlife Service
Region 6, Denver, Colorado

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MARCH 8, 2000

PREFACE

This document was originally finalized on October 15, 1993. Part One received a minor revision on March 8, 2000 to accommodate programmatic biological opinions. Part Two has been revised to accommodate annual updates as well as the designation of critical habitat for the endangered fishes.

PART ONE: Section 7 Consultation, Sufficient Progress, and Historic Projects Agreement

Sections 4.1.5, 4.1.6, and 5.3.4 of the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) outline procedures for consultation pursuant to Section 7 of the Endangered Species Act on water projects in the Upper Colorado River. The Section 7 Consultation, Sufficient Progress, and Historic Projects Agreement (Section 7 Agreement), was developed by Recovery Program participants to clarify how Section 7 consultations will be conducted on water depletion impacts related to new projects and impacts associated with historic projects (existing projects requiring a new Federal action) in the Upper Basin.

PART TWO: Recovery Implementation Program Recovery Action Plan

The Recovery Implementation Program Recovery Action Plan (RIPRAP) was developed by the Recovery Program participants in support of the Section 7 Agreement using the best information available and the recovery goals established for the four endangered fish species. It identifies specific actions and time frames currently believed to be required to recover the endangered fishes in the most expeditious manner in the Upper Basin. The RIPRAP will serve as a measure of accomplishment so that the Recovery Program can continue to serve as the reasonable and prudent alternative to avoid the likelihood of jeopardy to the continued existence of the endangered fishes for projects undergoing Section 7 consultation as well as to avoid the likely destruction or adverse modification of critical habitat.

PART ONE:

RECOVERY IMPLEMENTATION PROGRAM SECTION 7 CONSULTATION, SUFFICIENT PROGRESS, AND HISTORIC PROJECTS AGREEMENT

Agreement

Section 7 Consultation, Sufficient Progress, and Historic Projects

Recovery Implementation Program for the Endangered Fish Species
in the Upper Colorado River Basin

October 15, 1993
Revised March 8, 2000

I. Background

The Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (RIP) is intended to go considerably beyond offsetting water depletion impacts by providing for the full recovery of the four endangered fishes. The RIP participants recognize that timely progress toward recovery in accordance with a well-defined action plan is essential to the purposes of the RIP, including both the recovery of the endangered fishes and providing for water development to proceed in compliance with State law, Interstate Compacts, and the Endangered Species Act (ESA). Recovery activities which result in significant protection and improvement of the endangered fish populations and their habitat need to receive high priority in future planning, budgeting, and decision making. The RIP participants accept that certain positive population responses to RIP initiatives are not likely to be measurable for many years due to the time required for the endangered fishes to reach reproductive maturity, limited knowledge about their life history and habitat requirements, sampling difficulties and limitations, and other factors. The RIP participants also recognize that further degradation of endangered fish habitats and populations will make recovery increasingly difficult.

II. RIP Recovery Action Plan (RIPRAP)

The Recovery Action Plan (RIPRAP) identifies actions currently believed to be required to recover the endangered fishes in the most expeditious manner possible in the upper basin. It has been developed using the best information available and the recovery goals established for the four endangered fish species. By reference, the RIPRAP is incorporated and considered part of this agreement. The RIPRAP will be an adaptive management plan because additional information, changing priorities, and the development of the States' entitlement may require modifications to the RIPRAP. The RIPRAP will be reviewed annually and modified or updated, if necessary, by September 30 of each year or prior to adoption of the annual work plan, whichever comes first. The RIPRAP will serve as a guide for all future planning, research, and recovery efforts, including the annual work-planning and budget decision process.

The RIP is intended to provide the reasonable and prudent alternatives for projects undergoing Section 7 consultation in the upper basin. While some recovery actions in the RIPRAP are expected to have more direct or immediate benefits for the endangered fishes than others, all are considered necessary to accomplish the objectives of the RIP. Recovery actions which protect or improve habitat conditions and result in more immediate, positive population responses will be most important in determining the extent to which the RIP provides the reasonable and prudent alternatives for projects undergoing Section 7 consultation. In general, these actions will be given highest priority in the RIPRAP.

The Fish and Wildlife Service (FWS) will determine whether progress by the RIP provides a reasonable and prudent alternative based on the following factors:

a. Actions which result in a measurable population response, a measurable improvement in habitat for the fishes, legal protection of flows needed for recovery, or a reduction in the threat of immediate extinction.
b. Status of fish population.
c. Adequacy of flows.
d. Magnitude of the impact of projects.

Therefore, these factors were considered in the development and prioritization of the recovery actions in the RIPRAP.

III. Framework for Agreement

The following describes the agreement among RIP participants on a framework for conducting Section 7 consultations on depletion impacts related to new projects (as defined in Section 4.1.5 a. of the RIP) and impacts[1] associated with historic projects in the Upper Colorado River Basin. This agreement is meant to supplement and clarify the process outlined in Sections 4.1.5, 4.1.6 and 5.3.4 of the RIP. This agreement applies only to the four Colorado River endangered fishes in the Upper Colorado River Basin, excluding the San Juan River, and is not a precedent for other endangered species or locations.

1. Activities and accomplishments under the RIP are intended to provide the reasonable and prudent alternatives which avoid the likelihood of jeopardy to the continued existence of the endangered Colorado River fishes (hereinafter the "reasonable and prudent alternative") resulting from depletion impacts of new projects and all existing or past impacts related to historic projects with the exception of the discharge by historic projects of pollutants such as trace elements, heavy metals, and pesticides. However, where a programmatic biological opinion applies, the appropriate provisions of such an opinion will apply to future individual consultations.

   The RIP participants intend the RIP also to provide the reasonable and prudent alternatives which avoid the likely destruction or adverse modification of critical habitat, to the same extent as it does to avoid the likelihood of jeopardy. Once critical habitat for the endangered fishes is formally designated, the RIP participants will make any necessary amendments to the RIPRAP to fulfill such intent.

2. The RIP is intended to offset both the direct and depletion impacts of historic projects occurring prior to January 22, 1988 (the date when the Cooperative Agreement for the RIP was executed) if such offsets are needed to recover the fishes. Under certain circumstances, historic projects may be subject to consultation under Section 7 of the ESA. An increase in depletions from a historic project occurring after January 22, 1988, will be subject to the depletion charge. Except for the circumstances described in item 11 below, depletion charges or other measures will

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[1] All impacts except the discharge of pollutants such as trace elements, heavy metals, and pesticides.

not be required from historic projects which undergo Section 7 consultation in the future.

3. The Bureau of Reclamation (BR) and the Western Area Power Administration will operate projects authorized and funded pursuant to Federal reclamation law consistent with its responsibilities under Section 7 of the ESA and with any existing contracts. No depletion charge will be required on depletions from BR projects as long as BR continues its contributions to the RIP's annual budget.

4. The FWS will assess the impacts of projects that require Section 7 consultation and determine if progress toward recovery has been sufficient for the RIP to serve as a reasonable and prudent alternative. The FWS will use accomplishments under the RIP as its measure of sufficient progress. The FWS will also consider whether the probable success of the RIP is compromised as a result of a specific depletion or the cumulative effect of depletions. Support activities (funding, research, information and education, etc.) in the RIP contribute to sufficient progress to the extent that they help achieve a measurable population response, a measurable improvement in habitat for the fishes, legal protection of flows needed for recovery, or a reduction in the threat of immediate extinction. Generally, sufficient progress will be evaluated separately for the Colorado and Green River subbasins (but not individual tributaries within each subbasin). However, the FWS will give due consideration to progress throughout the upper basin in evaluating sufficient progress.

5. If sufficient progress is being achieved, biological opinions will identify the activities and accomplishments of the RIP that support it serving as a reasonable and prudent alternative.

6. If sufficient progress is not being achieved, biological opinions for new and historic projects will be written to identify which action(s) in the RIPRAP must be completed to avoid jeopardy. Specific recovery actions will be implemented according to the schedule identified in the RIPRAP. The FWS will confer with the Management Committee on the identification of these actions within established timeframes for the Section 7 consultation. For historic projects, these actions will serve as the reasonable and prudent alternative as long as they are completed according to the schedule identified in the RIPRAP. For new projects, these actions will serve as a reasonable and prudent alternative so long as they are completed before the impact of the project occurs. The FWS has ultimate authority and responsibility for determining whether progress is sufficient to enable it to rely upon the RIP as a reasonable and prudent alternative and identifying actions necessary to avoid jeopardy.

7. Certain situations may result in the FWS determining that the recovery action in previously rendered biological opinions are no longer serving as a reasonable and prudent alternative. These situations may include, but are not limited, to:

    a. Critical deadlines for specified recovery actions are missed;
    b. Specified recovery actions are determined to be infeasible; and
    c. Significant new information about the needs or population status of the fishes becomes available;

8. The FWS will notify the Implementation and Management Committees when a situation may result in the RIP not serving as a reasonable and prudent alternative.

The Management Committee will work with the FWS to evaluate the situation and develop the most appropriate response to restore the RIP as a reasonable and prudent alternative (such as adjusting a recovery action so it can be achieved, developing a supplemental recovery action, shortening the timeframe on other recovery actions, etc.).

9. The RIP is responsible for providing flows which the FWS determines are essential to recovery of the endangered fishes. Whether or not a Section 7 review is required, the RIP will work cooperatively with the owners/operators of historic projects on a voluntary basis to implement recovery actions needed to recover the endangered fishes.

10. The responsibility for the efficiency and effectiveness of the RIP, and for its viability as a reasonable and prudent alternative, rests upon RIP participants, not with individual project proponents. RIP participants fully share that responsibility.

11. If the RIP cannot be restored to provide the reasonable and prudent alternative per item 8, above, as a last resort the FWS will develop a reasonable and prudent alternative, if available, with the lead Federal Agency and the project proponent. (RIP participants recognize that such actions would be inconsistent with the intended operation of the RIP). The option of requesting a depletion charge on historic projects or other measures on new or historic projects will only be used in the event that the RIPRAP does not or can not be amended to serve as a reasonable and prudent alternative. In this situation, the reasonable and prudent alternative will be consistent with the intended purpose of the action, within the Federal Agency's legal authority and jurisdiction to implement, and will be economically and technologically feasible.

12. This agreement becomes effective upon adoption of the RIPRAP by the Implementation Committee. Until the RIPRAP is adopted, the FWS will use the procedures in this agreement and the January 1993, draft RIPRAP as the basis for identifying reasonable and prudent alternatives.

13. Experience may dictate a need to modify this agreement in the future. This agreement may be modified or amended by consensus of all the RIP participants. A review of the agreement may be initiated by any voting member of the Implementation Committee.

PART TWO:

RECOVERY IMPLEMENTATION PROGRAM
RECOVERY ACTION PLAN
(RIPRAP)

RECOVERY IMPLEMENTATION PROGRAM
RECOVERY ACTION PLAN
(RIPRAP)

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1.0 INTRODUCTION

1.1 RECOVERY PROGRAM PURPOSE

The purpose of the Recovery Implementation Program for Endangered Fishes in the Upper Colorado River Basin (Recovery Program) is to recover the endangered fishes while providing for existing and new water development to proceed in the Upper Basin (Cooperative Agreement, 1988) in compliance with the Endangered Species Act. Further, the Recovery Program is intended to serve as a reasonable and prudent alternative to avoid the likelihood of jeopardy to the continued existence of the endangered fishes and to avoid the likely destruction or adverse modification of critical habitat in Section 7 consultations on depletion impacts related to new projects and all impacts (except the discharge of pollutants such as trace elements, heavy metals, and pesticides) associated with historic water projects in the Upper Basin.

1.2 SPECIES RECOVERY GOALS

The overall goal for recovery of the endangered fishes is to achieve naturally self-sustaining populations and to protect the habitat on which they depend. Attainment of this goal will result in recovery and delisting of the of the four species: Colorado pikeminnow (formerly called the Colorado squawfish) (Ptychocheilus lucius), razorback sucker (Xyrauchen texanus), humpback chub (Gila cypha), and bonytail (Gila elegans). The goal of the Recovery Program is recovery and delisting of the four endangered fishes in the upper basin.

The Service has developed recovery goals for each species, which are described in the Service's recovery plans. These recovery plans, developed under Section 4(f) of the Endangered Species Act, provide a biological and research-oriented approach to species recovery and include a recommendation for detailed management and site-specific implementation plans. Since the recovery plans refer to species recovery in both the upper and lower basins, their recovery goals apply to both basins. The Recovery Program provides for the coordinated implementation of these recovery plans in the Upper Basin.

As described in the recovery plans, the primary recovery goals for the Colorado pikeminnow and humpback chub are to establish and maintain natural self-sustaining populations and their habitat. Because of the critical population status of the bonytail in the upper basin, the immediate goal for this species is to prevent its extinction. The first recovery priority for the razorback sucker is to prevent their extinction in the wild, since there has been limited evidence of successful recruitment of young fish into the populations. More specific recovery goals for the four endangered fishes are in development.

1.3 RECOVERY ACTION PLAN PURPOSE

This Recovery Implementation Program Recovery Action Plan (RIPRAP) has been developed using the best information available and the recovery goals established for

the four endangered fish species. The RIPRAP is intended to provide an operational plan for implementing the Recovery Program, including development of the Program's annual work plan and future budget needs. Specifically, the RIPRAP identifies the feasible actions which are necessary to recover the endangered fishes, including schedules and budgets for implementing those actions. The RIPRAP also identifies the specific recovery actions which must be accomplished in order for the Recovery Program to serve as the reasonable and prudent alternative to jeopardy to the continued existence of the endangered fishes and to avoid the likely destruction or adverse modification of critical habitat in Section 7 consultations for depletion impacts of new projects and all existing or past impacts related to historic water projects (except impacts from contaminants) in the Upper Basin, in accordance with the October 15, 1993 Section 7 Agreement (Revised March 8, 2000). The RIPRAP was developed in support of that Agreement.

1.4 ESTIMATED COST OF RECOVERY ACTIONS

The estimated total budget for the Recovery Program from FY 2000 - FY 2005 is approximately $90 million (see Section 5.0 on page 51). Funding for the Recovery Program is expected to come from the following sources:

a. An annual operating budget of approximately $3.3 million (adjusted annually for inflation, thus totaling approximately $21.4 million through FY 2005) will be contributed by the U.S. Bureau of Reclamation (including hydropower revenues); the U.S. Fish and Wildlife Service; and the States of Colorado, Utah, and Wyoming. Additional annual funding will come from water development depletion fees. Under the Recovery Program, proponents of new water projects which undergo Section 7 Endangered Species Act consultation have agreed to pay a one-time depletion fee based on a project's average annual depletion. The rate is adjusted annually for inflation and as of October 1, 1999 it is $14.36 per acre foot. The actual rate of water development has not been projected.

   Annual operation and maintenance for refugia and hatchery facilities and fish passage facilities considered in Section 5.0 is expected to cost approximately $6.5 million through FY 2005.

b. Approximately $62 million will be needed through FY 2005 for capital projects, including: acquisition of water and water rights to implement and maintain adequate instream flows for the fish; building fish passages and hatcheries; and restoring flooded bottomlands. Long-term funding legislation has been introduced in Congress to cover a portion of these costs. The capital funding total is capped; however, the actual cost of any one capital project will depend on final planning, design and budgeting. Costs for individual projects will be modified to more accurately reflect expected costs as the work plans are updated annually.

1.5 MEASURING PROGRESS TOWARD RECOVERY AND SCHEDULING RIPRAP ACTIVITIES

To achieve recovery in the upper basin, it will be essential to fully implement all of the actions in the RIPRAP; this will be accomplished only through cooperation by all Program participants. In general, actions will be scheduled such that recovery will be achieved in the most expeditious and cost-effective manner possible. However, decisions associated with ongoing Section 7 consultation may require some adjustment in the schedule to insure that both goals of the Recovery Program are met.

Recovery actions which result in a measurable population response, a measurable improvement in habitat for the fishes, legal protection of flows needed for recovery, or a reduction in the threat of immediate extinction have been determined by the Service to be most important in determining the extent to which the Recovery Program provides the reasonable and prudent alternatives to jeopardy for projects undergoing Section 7 consultation. These actions are identified by the carat ">" in the Action Plans. Actions which the Service believes will contribute to the RIPRAP serving as a reasonable and prudent alternative to adverse modification of critical habitat are identified by an asterisk (*). These carated and asterisked actions will generally be given highest priority.

The Recovery Program will need to continually evaluate the outcome of completed RIPRAP actions to determine their effectiveness in helping to achieve recovery. Ultimately, success of recovery efforts will be measured by species response (change in population size, distribution, composition, etc.). However, it may be many years before such responses are evident. In the interim, the Recovery Program also will gage its progress towards recovery by accomplishment of the actions identified in the RIPRAP.

1.6 RECOVERY ACTION PLAN STRUCTURE

The substance of the RIPRAP is in Section 4.0, the Recovery Action Plans. It is here that the specific recovery actions are listed. The first Recovery Action Plan identifies general recovery program support activities important to the success of the Recovery Program. The following two Recovery Action Plans for the Green and Colorado rivers and their subbasins in the upper basin. Each action plan is arranged by specific activities to be accomplished within the "recovery elements" listed below:

I. Identify and protect instream flows;
II. Restore and protect habitat;
III. Reduce negative impacts of nonnative fishes and sportfish management activities;
IV. Conserve genetic integrity and augment or restore populations;
V. Monitor populations and habitat and conduct research to support recovery actions;
VI. Increase public awareness and support for the endangered fishes and the Recovery Program(in the General Recovery Program Support Action Plan only); and

VII. Provide program planning and support (in the General Recovery Program Support Action Plan only).

The Recovery Action Plans (Section 4.0) have been formatted as tables for ease of scheduling and tracking activities. A general discussion of activities under each recovery element and of recovery priorities in each subbasin is found in Section 2.0 and 3.0, respectively. Projected budgets are broken out in Section 5.0.

2.0 DISCUSSION OF RECOVERY ACTION PLAN ELEMENTS

The Recovery Action Plan tables (Section 4.0) contain only very brief descriptions of recovery actions planned in each subbasin. In this section, recovery activities are explained in more detail, as they apply basin wide.

2.1 I. IDENTIFY AND PROTECT INSTREAM FLOWS

Recovery cannot be accomplished without protecting and managing sufficient habitat to support self-sustaining populations of the endangered fishes. Protecting instream flows is key to protecting the habitat of these fishes. The first step in instream flow protection is to identify the flow regimes needed by the fish. In the Recovery Program, determining flow needs is primarily the responsibility of the Fish and Wildlife Service (in cooperation with other participants). Factors considered in determining flow needs include: flow effects on reproduction and recruitment; flow effects on food supplies and nonnative fishes; and interrelationships between flow and other habitat parameters believed to be important for the fish, such as channel structure, sediment transport, substrate characteristics, vegetative encroachment, and water temperature. Flow recommendations (for all or certain seasons) have been or are being developed for most river reaches targeted for recovery in the upper basin. Flow recommendations often are made in stages, with initial flow recommendations based on the best available scientific information, historic conditions, and extrapolation from similar reaches. Recommendations then are refined following additional field research. Below the Flaming Gorge and Aspinall Unit dams, test flows were provided while research was conducted to determine more precise flow recommendations.

Colorado

Flow protection mechanisms are organized according to their initial or dominant attribute. If a change in the ownership of a water right (by purchase, lease, etc.) is central to flow protection, then flow protection is placed under "Acquire." A change in water right ownership to protect flows will usually be accompanied by a legal proceeding to change the nature or use of the water right, but this proceeding is still considered to be part of the "acquisition" of flow protection. Except for acquisition of conditional water rights in Colorado, such water rights acquisition also will result in physical alteration of flow conditions and will not just protect existing conditions.

Where flow protection involves filing for a new water right, it is placed under "Appropriate." With this mechanism, the ownership of the water right is established in the first instance, rather than being conveyed to a subsequent owner. In Colorado, the appropriation of an instream water right follows a structured process developed by the Colorado Water Conservation Board in 1997. The process begins with a Service flow recommendation, which is reviewed by the Board and the Colorado Division of Wildlife. Then the Board issues a notice of intent to appropriate, followed by their approval to appropriate. Finally, the Attorney General must make a water court filing to confirm the appropriation and to avoid postponement of the appropriation's priority date. It may take three to four years from the notice of intent to appropriate to obtain a decree from the water court, depending on the nature of any litigation over the filing. In appropriation, the water right will have a relatively junior priority date (the date the Board issued the notice of intent to appropriate), and only existing flow conditions can be protected. In most cases, this process has lacked support and thus proven to have limited use in the Recovery Program. Therefore, the Program adopted a programmatic biological opinion (PBO) approach on the Colorado River and will apply a similar approach to other rivers (such as the Yampa and Gunnison). Program participants anticipate that this process will prove effective in protecting instream flows for the endangered fishes. The Program and the Colorado Water Conservation Board will reevaluate the need for instream flow filings five years after each PBO is in place.

Flows also may be protected through the physical alteration of flow conditions by reoperating a reservoir or other component of an existing or new water project. This kind of flow protection is placed under "Deliver" in the Recovery Action Plans and will usually involve both a change of water right ownership, including the lease of storage water, and a change in the legal nature of the water rights. (A management agreement between federal agencies also may be involved as in the case of the Aspinall Units, and compensation will be required where storage water is already under contract.)

Utah

Legal protection of flows in Utah will be achieved differently than in Colorado. Several approaches can be taken under Utah water law to protect instream flows, including: 1) acquiring existing water rights and filing change applications to provide for instream flow purposes; 2) withdrawing unappropriated waters by governor's proclamation; 3) approving presently filed and future applications subject to minimum flow levels; and 4) with proper compensation, preparing and executing contracts and subordinating diversions associated with approved and perfected rights. Although current Utah water law may not fully provide for all aspects of instream flow protection, Utah does believe they can provide an adequate level of protection.

Utah examined available flow protection approaches and determined that the strategy they will use most commonly will be to condition the approval of presently filed and new applications, making them subject to predetermined streamflow levels. To accomplish this, the State Engineer adds a condition of approval to water right applications (within the area) filed after the policy is adopted. The condition states that whenever the flow of the Green River (or other stream) drops below the predetermined streamflow level,

then diversions associated with water rights approved after the condition is imposed are prohibited. Based on past legal challenges to the State's authority to impose conditions associated with new approvals, it was determined that this is within the authority of the State Engineer. This approach does not specifically recognize an instream flow right; however, it does protect the flows from being diverted and used by subsequently approved water rights. This approach was adopted as policy by the State Engineer. The policy requires that presently filed and new applications to be approved are subject to the summer and fall flow recommendations. As flow recommendations are finalized and accepted (e.g. winter and spring flows in the Green River), the policy will be applied to address these flows, as well. This strategy of conditioning the approval of presently filed and new applications also may be combined with the others listed above and with appropriately contracted reservoir reoperations.

2.2 II. RESTORE AND PROTECT HABITAT

Important elements of habitat protection include restoring and managing in-channel habitat and historically flooded bottomland areas, restoring passage to historically-occupied river reaches, preventing entrainment at diversion structures (if warranted), enhancing water temperatures, and reducing or eliminating the impacts of contaminants.

Historically, upper Colorado River basin floodplains were frequently inundated by spring runoff, but today much of the river is channelized by levees, dikes, rip-rap, and tamarisk. Fish access to these flooded bottomlands has been further reduced by decreased peak spring flows due to upstream impoundments. Numerous studies have suggested the importance of seasonal flooding to river productivity, and flooded bottomlands have been shown to contain large numbers of zooplankton and benthic organisms. When these habitats are available, razorback suckers use them extensively for feeding prior to and after spawning, and may also have spawned in such sites. Colorado pikeminnow also use these areas for feeding prior to migrating to spawning areas.

The Recovery Action Plans contain tasks to identify and restore important flooded bottomland habitats. During 1994, the Recovery Program completed an inventory of floodplain habitats for 870 miles of the Colorado, Green, Gunnison, Yampa, and White rivers. From the list of inventoried habitats, sites have been (and will continue to be) selected to visit and screen for restoration potential. Site restoration began in 1994 and will continue until at least 2003. Success will be measured by the response of the endangered fish populations.

The General Recovery Program Support Action Plan contains tasks to develop an issue paper on floodplain restoration and protection. This paper will identify legal, institutional, and political strategies to enhance and protect floodplain habitats for endangered fish and ameliorate the effects of levees, diking, rip-rap, gravel mining, and other forms of floodplain development. Phase 1 of the issue paper identified what floodplain restoration and protection is needed for endangered fish; Phase 2 will determine how to accomplish that restoration and protection. The issue paper will

evaluate responsibilities of the Recovery Program, Program participants, and other agencies involved in floodplain development, regulation, and management, and their roles and responsibilities with respect to endangered species.

Passage barriers have fragmented endangered fish populations and their habitats, resulting in confinement of the fishes to 20 percent of their former range. Blockage of Colorado pikeminnow movement by dams and water-diversion structures has been suggested as an important cause of the decline of this species in the upper basin (Tyus 1984, USFWS 1991). Restoring access to historically-occupied habitats via fish passage ways has been identified in the Colorado Squawfish [Pikeminnow] Recovery Plan as one of several means to aid in Colorado pikeminnow recovery (USFWS 1991).

The Recovery Action Plans contain tasks to assess and make recommendations for fish passage at various dams and diversion structures. The need for passage already has been determined at Redlands, Hartland, Grand Valley Irrigation Company (GVIC), Price Stubb, and Government Highline (5 sites). Passage has been restored at the Redlands Diversion Dam on the Gunnison River and at the GVIC diversion on the mainstem Colorado River near Palisade, Colorado. Activities are underway to restore passage at Price-Stubb, Grand Valley Project, and Hartland.

A number of potentially harmful contaminants (including selenium, petroleum derivatives, heavy metals, and uranium) and suspected contaminant "hot spots" have been identified in the upper basin. It is the intent of the Recovery Program to support and encourage the activities of entities outside the Recovery Program that are working to identify problem sites, evaluate contaminant impacts, and reduce or eliminate those impacts.

2.3 III. REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES

Fifty-two fish species occur in the upper basin, but only 13 of those are native species. Many of the nonnative fishes have been successful due to changes in the river system that favor their survival over that of native fishes. Competition with and predation from nonnative species (not including salmonids) is widely assumed to have played a role in the decline of the endangered fishes (Tyus and Saunders 1996). However, evidence of direct impacts of introduced species on native fishes is difficult to obtain (Schoenherr 1981) and often is masked by man-caused habitat alterations (Moyle 1976).

Recovery Program activities related to nonnative fishes initially focused on identifying impacts/interactions and developing nonnative fish stocking procedures. A nonnative fish control strategy has been developed to identify and prioritize options for controlling or removing nonnative fishes from the river. Through 2003, emphasis will be focused on the control activities identified in the strategy.

The states and the Service also have developed final procedures for stocking of nonnative fishes in the upper basin. The procedures are designed to reduce the impact of stocking of nonnative fishes on native fishes in the upper basin and clarify the role of

the states, the Service, and others, in the review of stocking proposals. A memorandum of understanding has been signed by the States and the Service implementing the Stocking Procedures.

2.4 IV. CONSERVE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS

Species recovery depends on protecting and managing species genetic resources. This is a complex activity that includes: determining the genetic stocks of the endangered fishes; protecting those stocks in refugia; planning, developing, and operating propagation facilities; propagating genetic stocks for research, information and education, and augmentation or restoration; and planning, implementing, and evaluating augmentation or restoration of genetic stocks in the wild. Stocking is only an interim tool in the Recovery Program since recovery, by definition, implies that the populations or stocks will be self-sustaining in the wild. The success of augmentation and restoration stocking is dependent on prior or concurrent implementation of other recovery actions such as flow protection, habitat restoration, and management of nonnative fishes. This dependency is reflected in the schedule of subbasin-specific actions in Section 4.0.

The Program has recognized the need to increase augmentation and restoration stocking, both for recovery of the fish and to establish fish in the system to be able to demonstrate that habitat and instream flow activities are having an effect on endangered fish recovery. Early stocking efforts concentrated on razorback suckers and bonytails. The Program now is concentrating on implementing a 5-year stocking plan for razorback sucker, Colorado pikeminnow, bonytail and humpback chub in the Yampa and upper Colorado rivers developed by Colorado Division of Wildlife and a multi-year stocking plan for razorback sucker and bonytail in the Green and Colorado rivers developed by Utah Department of Wildlife Resources.

Conducting studies to confirm presumed genetic stocks is vital to genetics management of the endangered fishes. Once identified, stocks may be protected in refugia to guard against catastrophe or to develop broodstocks. Representatives of stocks thought to be in immediate danger of extinction are brought into refugia immediately, rather than waiting until they have been confirmed as unique stocks through genetic studies. Refugia populations of genetic stocks are developed using paired breeding matrices to maximize genetic variability and integrity.

Most of this work is included under the General Recovery Program Support Action Plan, because it applies basinwide. Subbasin-specific activities of augmenting or restoring genetic stocks are placed under the subbasin Action Plans. As additional needs for augmentation or restoration are clearly identified, plans will be developed, fish produced, river reaches restored and augmented with those fish, and the results monitored and evaluated.

Four basic documents are used to plan, implement, and coordinate genetics management and artificial propagation for the endangered fishes. These are the

Genetics Management Guidelines, Genetics Management Plan, Annual Propagation Operations Plan, and Coordinated Hatchery Facility Plan. All four of these plans have been developed and will be revised or updated as needed.

The Genetics Management Guidelines document provides the rationale, genetics concepts, and genetic risks to be considered in genetics management planning and implementation. For example, it indicates that a fish population is the fundamental unit of genetics management and that its definition and characterization, relative to other populations, are important. Genetic surveys are part of the identification and characterization process. Further, the prioritization and genetics management required for each population is determined by its relative population status, demographic trends, and genetics data derived from the surveys.

The Genetics Management Plan is the operational document. It tells the "what, who, when, where" of implementation. It identifies specific objectives, tasks, activities, and type of facilities necessary to accomplish Recovery Program goals, i.e., protect population genetic integrity or restore a self-sustaining population in nature. It is the action plan developed for implementation, directed by the Recovery Program goals, and structured along the format presented in the Genetics Management Planning Guidelines document.

Genetics management requires a great deal of operational activity. Refugia and propagation facilities must be planned, built, and operated in a coordinated fashion. For this reason, the General Recovery Program Support Action Plan contains a task to produce an annual Propagation Operational Plan. Based on the Genetics Management Plan, this annual Propagation Operational Plan provides specific annual guidance for propagation: numbers of adults and family lots needed from each population, number of fish needed in each family lot, and where these fish will be raised and maintained.

Additional facilities are required to meet short-term (within five years; experimental stocking) propagation needs, and plans are being formulated to meet long-term (five years or more; augmentation and restoration stocking) needs. The plan for these facilities is the Coordinated Hatchery Facility Plan. This Plan, in accordance with the Genetics Management Plan, defines facilities required to meet propagation needs, identifies fish needs that can be met by existing facilities, discusses the need for additional facilities, recommends expansion or modification of existing facilities or new constructions, and estimates costs for construction and operation of these facilities.

2.5 V. MONITOR POPULATIONS AND HABITAT AND CONDUCT RESEARCH TO SUPPORT RECOVERY ACTIONS

This category consists primarily of research and monitoring activities which have application to more than one of the foregoing elements. In the General Recovery Program Support Action Plan, this element includes: monitoring populations and habitat and annually assessing changes in habitat and population parameters; determining gaps in existing life history information and recommending and conducting research to fill those gaps; and improving scientific research and sampling techniques.

Research activities are identified for each subbasin only to the extent that such activities are related to another recovery action in that subbasin. Such identification now, however, does not preclude further research in that subbasin that may be identified later or that is identified in the General Recovery Program Support Action Plan.

2.6 VI. INCREASE PUBLIC AWARENESS AND SUPPORT FOR THE ENDANGERED FISHES AND THE RECOVERY PROGRAM

Public information and education is crucial to the Recovery Program's success. A multi-faceted information and education program is being implemented to: educate the public about the endangered fishes; increase public understanding and support regarding recovery of the fishes (including support at the local, state, and national levels); involve the public in implementation of Recovery Program activities; and promote communication and cooperation among members of the Recovery Program.

Numerous site-specific activities are undertaken to promote understanding of, and support for, Recovery Program actions and to involve the public in decisions which may impact specific locations in the Upper Basin. These include public meetings, presentations, exhibits and distribution of Program publications.

The information and education program continues to develop a number of products, including an annual report; a newsletter (two to three times per year); an up-to-date program brochure and fact sheets; educational video(s); educational signs and displays; bookmarks; Congressional briefing documents; and a public web site. In addition, the Program actively seeks news media coverage of its activities. Special educational publications are produced as needed. An example is a "plumbing map" that illustrates the diversions in place along the Colorado River and its tributaries.

2.7 VII. PROVIDE PROGRAM PLANNING AND SUPPORT

This work also is placed entirely under the General Recovery Program Support Action Plan. Recovery Program planning and support includes planning and tracking recovery activities, participation in Recovery Program committees, and managing, directing, and coordinating the overall Recovery Program. Another important program support activity involves securing the funding necessary to implement the Recovery Program.

3.0 DISCUSSION OF SUBBASIN RECOVERY PRIORITIES

Following is a summary of the importance of the various subbasins in the Upper Colorado River Basin to the endangered fishes and a brief discussion of the major actions directed at recovering the endangered fishes in these subbasins. A more detailed accounting of the activities, including funding requirements and schedules is found in Sections 4.0 and 5.0.

3.1 GREEN RIVER

3.1.1 Importance

The importance of the Green River to the endangered fishes has been established by the Recovery Program and recognized by many biologists. The Green River was listed as the highest priority area for recovery of Colorado pikeminnow in the Colorado Squawfish [Pikeminnow] Recovery Plan (USFWS 1991). The Green River in Desolation and Gray canyons and in Dinosaur National Monument (Dinosaur) is considered important to the recovery of humpback chub in the Humpback Chub Recovery Plan (USFWS 1990a). The Bonytail Recovery Plan (USFWS 1990b) indicates that one of the last known riverine concentrations of bonytail was in the Green River within Dinosaur and identifies the Green River in Desolation/Gray Canyon and within Dinosaur as high priority recovery and/or restoration sites. In addition, the Green River supports the largest known population of razorback sucker in their natural riverine habitat (Lanigan and Tyus 1989).

3.1.2 Recovery Actions

Recovery actions in the Green River will focus on refining the operation of Flaming Gorge dam to enhance habitat conditions for the endangered fishes. A biological opinion was issued on the operation of Flaming Gorge Dam in 1991. This opinion contained flow recommendations for the Green River at Jensen, Utah for the months of July-October, and specified a range of experimental test flows for the remainder of the year. The effects of the test flows on the endangered fishes and their habitat were evaluated through a variety of studies through 1997, and a revised biological opinion (including flow recommendations) will be issued in 2000. NEPA compliance on reoperation of Flaming Gorge Dam will be completed within 18 months of the final biological opinion; however, this will not prevent operation of the dam in accordance with the opinion in the interim.

Flow recommendations are also being developed for some tributaries to the Green River, such as the White and Duchesne rivers. Tributary and mainstem flow recommendations will be carefully coordinated to address recovery needs from a basin-wide perspective.

An element of the Flaming Gorge biological opinion identified the need to protect releases from Flaming Gorge from possible diversion in the occupied habitat of the endangered fishes. The initial focus of this effort was to legally protect Flaming Gorge releases in the Green River down to the confluence of the Duchesne River for the months of July through October. Flow protection for the remainder of the year (November - June) and downstream to Canyonlands National Park will be addressed following issuance of the revised biological opinion in 2000.

Other Green River activities will involve restoration of bottomlands adjacent to the Green River which flood in the spring and provide important habitat for razorback suckers and Colorado pikeminnow. Old Charlie Wash on the Ouray National Wildlife

Refuge near Ouray, Utah has been restored, as well as five sites on BLM lands, and three additional sites on the Ouray Refuge.

Refuge (captive) populations of razorback suckers collected from the Green River are being developed and maintained at the Endangered Fish Hatchery at Ouray, Utah. A plan for augmenting razorback suckers into the Green River using hatchery propagated fish was developed and is currently being implemented.

Contamination of water in Stewart Lake and Ashley Creek near Jensen, Utah with the heavy metal, selenium, has been identified as a source of impact to the razorback sucker. The Fish and Wildlife Service, the Environmental Protection Agency and the Bureau of Reclamation are actively pursuing clean-up activities in these areas independent of the Recovery Program.

3.2 YAMPA RIVER AND LITTLE SNAKE RIVER

3.2.1 Importance

The Yampa River, a tributary to the Green River, is essential for the maintenance and recovery of the endangered fishes in the Green River basin. The relatively unaltered flows of the Yampa River are responsible for providing a natural shape to the hydrograph of the Green River. Catch rates of adult and sub-adult Colorado pikeminnow which occupy the river year-round are high when compared with other areas of occupied habitat in the basin. The Yampa River contains one of four primary Colorado pikeminnow spawning areas in the Upper Basin (excluding the San Juan River) and is a major producer of fish for the entire Green River basin (Tyus and Karp 1989). The Colorado Squawfish Recovery Plan (USFWS 1991) has identified the Yampa River as one of the essential habitat areas that must be protected before the Colorado pikeminnow can be considered eligible for delisting. A small but apparently self-sustaining population of humpback chub exists in the Yampa River in Dinosaur National Monument (Tyus and Karp 1989). The Humpback Chub Recovery Plan (USFWS 1990a) identified the Yampa River in Dinosaur as one of the primary recovery areas for the humpback chub. Adult and larval razorback suckers have been captured in the mouth of the Yampa River. Adult razorback suckers have been captured upstream to the mouth of the Little Snake River (Tyus and Karp 1989). The lower portion of the Yampa River was part of the historic range of the bonytail and is associated with some of the most recent captures of this very rare fish. The Bonytail Recovery Plan (USFWS 1990b) identifies the Yampa River within Dinosaur as high priority recovery and/or restoration site for the bonytail.

The Little Snake River provides approximately 28 percent of the Yampa River's flow and 60 percent of the river's sediment supply. The sediment supply of the Little Snake is believed to be important to the maintenance of backwater nursery areas utilized by young Colorado pikeminnow in the Green River (Smith and Green 1991). Adult Colorado pikeminnow have been captured up the Little Snake River to near Baggs, Wyoming. Humpback chub have been captured in the lower 10 miles of the Little Snake River.

3.2.2 Recovery Actions

Recovery actions in the Yampa River are focused on maintaining and legally protecting the natural flow regime required to recover the endangered fishes. To achieve this objective, the Recovery Program is participating in the development of a Yampa River Management Plan. The purpose of the plan will be to provide and protect the instream flow needs of the endangered fishes while providing water to meet human needs in the Yampa River basin.

Colorado filed for a junior instream flow water right for the Yampa River between the confluences of the Williams Fork and the Little Snake River in December 1995. Forty-eight statements of opposition were filed against these filings in State water court.

As a result of concerns expressed by the Service and other Program participants, the CWCB withdrew the baseflow and recovery flow instream flow filings on the Colorado and Yampa rivers. With the recent approval of the Programmatic Biological Opinion for the Upper Colorado River above the Gunnison River, the Colorado Division of Wildlife staff has been instructed to develop new flow recommendations. The current methodology for instream flow filings may not apply to warm water rivers.

Beginning 5 years after the Management Plan and a PBO are completed for the Yampa River, the Recovery Program and CWCB will review the CDOW's new flow recommendations and the performance progress of the PBO. On completion of this review, a determination will be then be made regarding the need for instream flow protection needs for the endangered fishes. During the fourth year of the first 5-year period, the Recovery Program and CWCB will develop a process for assessing the need for further instream flow protection for endangered fish.

The Recovery Program has explored rehabilitation of several low-level agriculture water diversion dams on the Yampa River to provide for Colorado pikeminnow passage. A variety of existing diversions between Craig and Dinosaur National Monument were inventoried in 1994-5. Several diversions were identified as possible barriers to fish migration under certain conditions. However, due to uncertainties about whether these were in fact barriers to Colorado pikeminnow movement during the migration period, a study was conducted to determine threshold flows for adult Colorado pikeminnow passage on the Yampa River between Craig and Dinosaur National Monument. It was determined that these barriers present little if any problem to fish movement.

In studies on the Green River, researchers documented that young pikeminnow constituted 5% of the diet of northern pike, even though pikeminnow made up a much smaller portion of the available food base in the river. Researchers estimated that a single northern pike could consume 100 or more pikeminnow per year. Also, northern pike are known to prey on native roundtail chub and may also feed on humpback chubs in the Yampa River. Colorado has completed a fisheries management plan for the Yampa Basin. The Recovery Program began removing nonnative sportfish from certain reaches of the Yampa River to more acceptable waters in 1999.

Initial flow recommendations for the Little Snake River will be developed and opportunities for improving late summer-early fall base flows will be evaluated in 1999. Inflows from the Little Snake River in Colorado and Wyoming that are necessary to recover endangered fishes on the lower Little Snake and Yampa rivers will need to be legally protected.

Colorado has prepared a plan to stock bonytail in the Yampa River. Stocking is expected to occur in 2000 as fish become available at the appropriate size.

3.3 DUCHESNE RIVER

3.3.1 Importance

Colorado pikeminnow and razorback suckers regularly utilize the mouth of the Duchesne River especially during spring runoff. Fishery surveys conducted in 1993 documented the use of the lower 15 miles of the Duchesne River by Colorado pikeminnow and razorback suckers. More recently, fish surveys conducted in the lower 33 miles of the Duchesne River between May and October of 1997 and 1998 resulted in the capture of 23 Colorado pikeminnow and 3 razorback suckers.

3.3.2 Recovery Actions

Initial flow recommendations were developed for the Duchesne River in 1995 to address immediate concerns of several proposed water projects being considered in the Duchesne River basin. A follow up study to evaluate and refine these flow recommendations began in 1997 and will be completed in 2001. A water availability study was completed which identified sources of water to meet the flow recommendations. The Duchesne Biological Opinion was issued in 1998. A coordinated reservoir operations study has been initiated. Agreements will be developed to provide flows in the Duchesne River for endangered fishes.

3.4 WHITE RIVER

3.4.1 Importance

Adult Colorado pikeminnow occupy the White River below Taylor Draw dam near Rangely, Colorado in relatively high numbers. Adult Colorado pikeminnow which reside in the White River spawn on the Green and Yampa Rivers. Juvenile and subadult Colorado pikeminnow also utilize the White River on a year-round basis. Incidental captures of razorback suckers have been recorded on the lower White River. Construction of Taylor Draw dam in 1984 blocked Colorado pikeminnow migration to the upper portions of the White River.

3.4.2 Recovery Actions

A work plan for the White River was developed to synthesize current information about the endangered fish and provide recommendations for specific recovery actions,

including the merits of providing fish passage at Taylor Draw dam. Interim flow recommendations are scheduled to be developed for the White River by June, 2000. Instream flow filings are on hold pending re-evaluation of how flows will be legally protected in Colorado.

3.5 COLORADO RIVER

3.5.1 Importance

The mainstem Colorado River from Rifle, Colorado to Lake Powell, Utah supports several very important populations of the endangered fishes. The recovery plans for the Colorado pikeminnow, humpback chub, and bonytail all recognize the Colorado River (or portions thereof) as being high priority recovery areas. A relatively large and healthy population of humpback chubs occurs at Black Rocks and Westwater Canyon near the Utah-Colorado state line. A smaller population of humpback chubs occurs in Cataract Canyon. All life stages of Colorado pikeminnow occur in the section of river from Palisade, Colorado downstream to Lake Powell. The upper reach of the Colorado River between Palisade and Rifle, Colorado is currently unoccupied Colorado pikeminnow habitat, presumably the result of three diversion dams near Palisade which have blocked upstream migrations since the early 1900's. Razorback sucker populations in the mainstem Colorado River have declined precipitously in the past 20 years and only a few wild adult razorbacks have been captured from the river in the past 5 years. In 1993, 67 adult razorbacks were collected from isolated ponds adjacent to the Colorado River near Debeque, Colorado. There is no evidence of successful razorback reproduction in the Colorado River. A few (less than 10) suspected wild bonytail have been captured from the Colorado River in the Black Rocks area, near Moab, Utah and in Cataract Canyon over the past decade. However, this represents the highest catch rate of bonytails anywhere in the Upper Basin.

The 15-mile reach of the Colorado River immediately upstream of the confluence of the Gunnison River has been a focal point of recovery efforts to date. Catch rates of adult Colorado pikeminnow in the 15-mile reach are approximately double that of other areas in the Colorado River. In addition, concentrations of adult razorback suckers in spawning condition were found in the 15-mile reach prior to their precipitous decline over the past decade. Instream flows in the 15-mile reach have been heavily impacted as a result of several major agricultural water diversions during the late summer and early fall.

3.5.2 Recovery Actions

A variety of recovery actions are planned for the Colorado River. Numerous approaches are being taken to restore flows in the 15-mile reach to levels recommended by the Fish and Wildlife Service. The Bureau of Reclamation has made available 5,000 acre-feet annually plus an additional 5,000 acre-feet 4 out of 5 years from Ruedi Reservoir to support flow augmentation in the 15-mile reach during July, August and September. In addition, water made available by the leases for release of 10,825 acre-feet/year of water from Ruedi Reservoir and the permanent dedication of

10,825 acre-feet/year from Colorado Water Division Number 5 facilities will be delivered and protected to the 15-mile reach during the late summer period. These agreements will accommodate environmental commitments agreed to by Reclamation in the Environmental Impact Statement on Round II sales and any constraints of the reservoir's authorizing legislation. Concerns about repayment of Ruedi construction costs to Reclamation remain an issue to be resolved. Additional water is being provided through an MOU wilth the Colorado River Water Conservation District for delivery of up to 6,000 acre feet of water from Wolford Mountain Reservoir.

In 1992, Colorado filed an application in State water court for a 581 cfs instream flow right in the 15-mile reach for the months of July, August, and September. A final decree was issued in 1997. Colorado filed for a junior instream flow right for the 15-Mile Reach in December 1995, which was opposed in State water court.

As a result of concerns expressed by the Service and other Program participants, the CWCB withdrew the baseflow and recovery flow instream flow filings on the Colorado and Yampa rivers. With the recent approval of the Programmatic Biological Opinion for the Upper Colorado River above the Gunnison River, the Colorado Division of Wildlife staff has been instructed to develop new flow recommendations. The current methodology for instream flow filings may not apply to warm water rivers. Based upon these developments, the Management Committee has agreed that the need for further instream flow filings will be evaluated every 5 years.

Beginning in 2005 the Recovery Program and CWCB will review the CDOW's new flow recommendations and the performance progress of the PBO. On completion of this review a determination will be then be made regarding the need for instream flow protection needs for the endangered fishes. During the fourth year (2004) of the first 5-year period, the Recovery Program and CWCB will develop a process for assessing the need for further instream flow protection for endangered fish." Flow protection for the Colorado River below the confluence of the Gunnison River will be addressed following completion of the Biological Opinion on the Aspinall Project in 2000.

Other promising sources of water for the 15-mile reach being explored include utilizing water saved by more efficiently managing water in the government-operated Grand Valley irrigation system. In addition, Reclamation has initiated coordinated operation of Federal and private projects (Colorado-Big Thompson Projects, Green Mountain, Ruedi, Williams Fork, etc.) in the headwater areas of the Colorado River to help meet the flow needs of the fish. A study of options for providing additional water primarily for spring peak flows has been initiated.

The Bureau of Reclamation has constructed a fish passage at the Grand Valley Irrigation Company Diversion Dam (Palisade), is preparing the environmental assessment for a passage structure at the Price-Stubb dam, and has initiated plans for passage at the Government Highline (Roller Dam) on the upper Colorado River. Successfully providing fish passage at these diversion dams would benefit both Colorado pikeminnow and razorback suckers by providing access to approximately 50 miles of the river that was used historically by these fish. Four floodplain sites on the

Colorado River have been restored: a gravel pit at 29 5/8 Road in Grand Junction; a site at Walter Walker State Wildlife Area on the Colorado River downstream of Grand Junction; an area near Adobe Creek downstream of Walter Walker; and the Jarvis Site in Grand Junction.

Broodstock/refuge populations of Colorado pikeminnow and razorback sucker have been developed from Colorado River stocks. Colorado has prepared a plan to stock bonytail in the Colorado River. Stocking is expected to occur in 2000 as fish become available at the appropriate size.

3.6 GUNNISON RIVER

3.6.1 Importance

The Gunnison River is currently occupied Colorado pikeminnow habitat and is historical habitat for the razorback sucker and bonytail chub. Several adult Colorado pikeminnow were captured in the Gunnison River in fishery surveys conducted in 1992 and 1993. Unrestricted migration of fish has been limited by the 10-foot high Redlands diversion located two miles above the mouth of the Gunnison River. Several larval Colorado pikeminnow have been collected in the Gunnison River immediately downstream of the Redlands diversion. Kidd (1977) reported that razorback suckers were collected frequently by commercial fishermen near Delta between 1930 and 1950. No razorbacks have been collected in the Gunnison River in recent times, although the reach near Delta, Colorado is considered a priority razorback restoration site.

3.6.2 Recovery Actions

Recovery activities on the Gunnison River are focused on operating and evaluating a fish ladder at the Redlands diversion dam, reoperating the Aspinall Unit to improve flow/habitat conditions in the Gunnison, and restoring flooded bottomland habitats near Delta, Colorado. Construction of a fish ladder at the Redlands diversion dam was completed in 1996 and has provided for passage of pikeminnow and other native fishes (as well as allowing exclusion of nonnative fishes).

A 5-year research plan to evaluate the effects of the Aspinall Unit on the endangered fishes and their habitat was completed in 1997. During this research period, the Bureau of Reclamation and Western Area Power Administration provided test flows. The research culminates with a biological opinion on the operation of the Aspinall Unit in 2001. Legal protection of Aspinall releases and state protection of instream flows in the Gunnison River will be addressed as the biological opinion on the Aspinall Unit is developed.

Beginning in 1995, the Service experimentally stocked razorback suckers in the Gunnison River near Delta, Colorado. Colorado's stocking plan calls for more significant numbers of razorback suckers to be stocked.

3.7 DOLORES RIVER

3.7.1 Importance

The Dolores River is historical habitat of the Colorado pikeminnow; both adult and young-of-the-year fishes were captured in the 1950's and 1960's. Recent studies have only documented pikeminnow use in the lower mile of the river (Valdez et al., 1991). Uranium processing facilities operated during the late 1940's through the 1960's severely impacted the river and may have contributed to the decline of the Colorado pikeminnow in the Dolores drainage.

3.7.2 Recovery Actions

Recovery actions for the Dolores drainage have been limited to preventing escapement of nonnative sport fish (smallmouth bass, perch, kokanee salmon, etc.) from McPhee Reservoir. Environmental contaminant clean-up is being pursued by state and Federal agencies independent of the Recovery Program. Inflows from the Dolores River that are necessary to recover the endangered fishes on the mainstem of the Colorado River will need to be legally protected. Colorado has prepared a plan to stock Colorado pikeminnow in the Dolores River. Stocking is expected to begin in 2001 and continue for 5 years, based on an evaluation after 3 years.

4.0 RECOVERY ACTION PLANS

The tasks in these Recovery Action Plans are prioritized by their schedules. Schedules are shown where they have been identified (if all the year columns for an activity are blank, then the activity has not yet been scheduled). If a completion date has been identified, it is shown under the appropriate fiscal year. Where specific dates have not been identified, but an action is ongoing, beginning, or ending in a year, an "X" appears in that year's column. The "who" column identifies the lead responsible agency (listed first) and any cooperating agencies. The status column is used where additional narrative is needed to explain the duration, status, etc. of an activity. Once again, the carat ">" identifies those recovery actions which are expected to result in a measurable population response, a measurable improvement in habitat for the fishes, legal protection of flows needed for recovery, or a reduction in the threat of immediate extinction. An asterisk (*) identifies those activities which will contribute to the RIPRAP serving as a reasonable and prudent alternative to the likely destruction or adverse modification of critical habitat.

The Recovery Action Plans are formatted in stepdown-outline tables. This is reflected in the numbering system and indenting. Some actions which assess options or the feasibility of a recovery action are followed by a subsequent implementation step, and others are not, depending on how feasible the implementation step is considered to be at this time.

The following abbreviations are used to identify lead/cooperating agencies:

BR	Bureau of Reclamation
CO	State of Colorado
CDA	Colorado Department of Agriculture
CDOPR	Colorado Department of Parks and Recreation
CDOW	Colorado Division of Wildlife
CRWCD	Colorado River Water Conservation District
CWCB	Colorado Water Conservation Board
FWS	Fish and Wildlife Service
-ES	Ecological Services
-FR	Fishery Resources
-RW	Refuges and Wildlife
-WR	Water Resources
LFL	Larval Fishes Laboratory
NWCD	Northern Water Conservancy District
PD	Recovery Program Director
TBD	To be determined
UT	State of Utah
UDWR	Utah Division of Wildlife Resources
UTWR	Utah Division of Water Resources
WYGF	Wyoming Game and Fish Division

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Evaluate methods for defining habitat-flow needs and select methods most appropriate to specific stream reaches.									
	I.A.1.	Review instream flow methodologies and assess the technical adequacy of current flow recommendations.	PD	Complete							
	I.A.2.	Develop recommendations for integrating geomorphology and food web studies into Recovery Program.	PD	Complete							
	I.A.3.	Evaluate CDOW's instream flow methodologies and flow recommendations for warmwater native fishes as they relate to flows needed for endangered fish recovery.	FWS					X	X	X	
	I.B.	Develop and select methods for modifiable protection of instream flows in Colorado.									
	I.B.1.	Develop, evaluate and select, as appropriate, options for interim protection of instream flows until uncertainty concerning habitat needs and water availability can be resolved.									
	I.B.1.a.	Colorado Attorney General review.	CO	Complete							
	I.B.1.b.	CWCB approval/recommended action.	CWCB	Complete							
	I.B.1.c.	Adopt legislation or regulation, if necessary. (CWCB adopted the Statement of Policy and Procedure Regarding the Appropriation of Instream Flows for the Recovery of Endangered Fishes of the Upper Colorado River Basin on March 9, 1994 and S.B. 96- 064 concerning instream flow appropriations of the CWCB was passed in May '96.)	CWCB	Complete							
	I.B.2.	Evaluate options for allocating Colorado's compact entitlement among the five subbasins, the implications for water available to recover the endangered fishes, and implications of full protection of recovery flow recommendations on development of Colorado;s compact entitlement.	CWCB	Complete							
	I.B.3.	Assess need for retirement of senior conditional water rights.	CWCB/FWS	On hold							
	I.C.	Develop an enforcement agreement between the Service and appropriate State agencies to protect instream flows acquired under the Recovery Program for the endangered fishes.									
>*	I.C.1.	Colorado.	FWS/CWCB	Complete							
	I.D.	Develop tributary management plan.									
	I.D.1.	Convene workshop to determine the scope of a tributary management plan.	PD			12/00					
	I.D.2.	Develop tributary management plan for tributaries including the White, San Rafael, Price, and other tributaries, as needed.	FWS				X				
	I.D.3.	Conduct appropriate Section 7 and NEPA compliance to implement tributary management plan.	FWS					X			
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Restore flooded bottomland habitats.									
	II.A.1.	Conduct inventory of flooded bottomland habitat for potential restoration.	FWS-FR	Complete							
	II.A.2.	Screen high-priority sites for potential restoration/acquisition.	PD		X	X	X	X			
	II.A.3.	Conduct NEPA for floodplain restoration program.	BR		X	X	X				
	II.B.	Support actions to reduce or eliminate contaminant impacts. [NOTE: Contaminants remediation (in all reaches) will be conducted independently of and funded outside of the Recovery Program]									
	II.B.1.	Evaluate effects of selenium, petroleum derivatives, heavy metals, uranium, agriculture, and municipal, industrial, and carrier sources of potential contaminants throughout the Upper Basin.	PROGRAM/ FWS-ES	Ongoing	X	X	X	X			
	II.B.2.	Evaluate and correct pipelines that threaten endangered fishes throughout the Upper Basin.	FWS-ES	Ongoing	X	X	X	X			
	II.C.	Develop an issue paper on the desirability and practicability of restoring and protecting certain portions of the floodplain for endangered fishes.									
	II.C.1.	Identify what restoration and protection are needed by addressing: 1) biological merits of restoring the floodplain with emphasis on endangered fish recovery; 2) priority geographic areas; and 3) integration of a broader floodplain restoration initiative into the current Recovery Program floodplain restoration program.	PROGRAM	Complete							
	II.C.2.	Identify how to conduct restoration and protection by addressing: 1) restoration and protection tools/approaches; 2) institutional options for floodplain restoration; 3) costs/funding strategy; and 4) implementation steps and schedule.	PD/CO/UT		7/00						
	II.C.3.	Identify viable options and develop specific restoration strategies for selected geographic areas (e.g., Grand Valley, Ashley Valley).	TBD		7/00						
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative interactions between nonnative and endangered fishes.									
	III.A.1.	Where not already generally known, identify negative impacts (e.g., predation, competition) of problem species.									

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT YEARS
	III.A.1.a.	Determine role of nonnative fishes as potential competitors with bonytails and determine size-specific vulnerability of bonytails to nonnative fish predators.	UDWR	Complete							
	III.A.1.b.	Assess impact of northern pike predation on Colorado pikeminnow in the Green River.	UDWR	Complete							
	III.A.2.	Identify and implement viable active control measures.									
	III.A.2.a.	Identify options (including selective removal) to reduce negative impacts of problem species and assess regulations and options (including harvest) to reduce negative impacts on native fishes from nonnative sportfish.	PD	Complete							
	III.A.2.b.	Review options and develop agreement with appropriate States on strategies and locations for implementing control options.	FWS/STATES	Complete							
>*	III.A.2.c.	Implement and evaluate the effectiveness of viable active control measures.		Ongoing	X	X	X	X			
>*	III.A.2.d.	Close river reaches to angling where and when angling mortality is determined to be significant. (See specific river reaches.)		Ongoing, as needed	X	X	X	X	X	X	X
	III.B.	Reduce negative impacts to endangered fishes from sportfish management activities.									
	III.B.1.	Implementation Committee approval of Interim Nonnative Fish Stocking Procedures.	PD	Complete							
	III.B.2.	Implement Interim Nonnative Fish Stocking Procedures.									
	III.B.2.a.	Develop scope of work for evaluation of Interim Procedures.	PD	Complete							
	III.B.2.b.	Evaluate and revise Interim Procedures.	PD	Complete							
	III.B.3.	Finalize revised Nonnative Fish Stocking Procedures.									
	III.B.3.a.	Complete Biological Opinion/NEPA compliance.	FWS-ES/FR	Complete							
	III.B.3.b	Implementation Committee approval of revised Nonnative Fish Stocking Procedures.	PD	Complete							
	III.B.3.c.	State wildlife commissions approval, as necessary.	STATES	Complete							
	III.B.3.d.	Execute memoranda of agreement between Service and States.	FWS/STATES	Complete							
	III.B.4.	Incorporate final Procedures into State aquaculture permitting process.									
>*	III.B.4.a.	Colorado.	CDA/CDOW	Complete							
	III.B.4.a.(1)	Evaluate effectiveness of Colorado's stocking regulation.	CDOW		X	X	X				
>*	III.B.4.b.	Utah.	UDWR	Complete							
>*	III.B.4.c.	Wyoming.	WYGF	Complete							
	III.B.5.	Explore options for tribal acceptance of Nonnative Fish Stocking Procedures.	FWS-FR	Ongoing	X						
	IV.	**MANAGE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS (STOCKING ENDANGERED FISHES)**									
	IV.A.	Genetics Management.									
	IV.A.1.	Develop and approve Genetics Management Guidelines.	PD	Complete (update as needed)							
	IV.A.2.	Develop and implement Genetics Management Plan for all species and genetic stocks and update as needed.	PD	Ongoing (updated 6/99)	X	X	X	X	X	X	X
	IV.A.3.	Conduct genetic stock identification studies (includes Gila taxonomy studies) and confirm presumptive genetic stocks based on all available information.									
	IV.A.3.a.	Razorback sucker.	BR	Complete							
	IV.A.3.b.	Bonytail and humpback chubs.									
	IV.A.3.b.(1)	Morphological and allozyme analyses. (Draft 4/95)	PD		6/00						
	IV.A.3.b.(2)	Mitochondrial DNA analysis.	BR		6/00						
	IV.A.3.c.	Colorado pikeminnow.	PD	Complete							
>	IV.A.4.	Secure and manage the following presumptive genetic stocks in refugia (according to the Genetics Management Plan) (subject to change based on results of genetic stock identification studies).									
	IV.A.4.a.	Razorback sucker.									
	IV.A.4.a.(1)	Middle Green (including spawning bar at RM 311.5)	FWS-FR		X	X	X	X	X	X	X
	IV.A.4.a.(2)	Upper Colorado River.	FWS-FR		X	X	X	X	X	X	X
	IV.A.4.b.	Bonytail	UDWR		X	X	X	X	X	X	X
	IV.A.4.c.	Humpback chub.									
	IV.A.4.c.(1)	Black Rocks Canyon. (Broodstock currently represented by wild fish in the river.)	FWS-FR	On hold							
	IV.A.4.c.(2)	Westwater Canyon. (Broodstock currently represented by wild fish in the river.)	UDWR	On hold							
	IV.A.4.d.	Colorado pikeminnow.									

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IV.A.4.d.(1)	Upper Colorado River above Westwater Canyon. (Broodstock currently represented by wild fish in the river.)	TBD	On hold							
IV.B.	Conduct annual fish propagation activities.									
IV.B.1.	Identify fish needs for genetic stock refugia, research, augmentation, and information and education.	PD	Annual	12/99	12/00	12/01	12/02			
IV.B.2.	Produce Annual Propagation Operational Plan.	PD	Annual	3/00	12/00	12/01	12/02			
IV.B.3.	Conduct NEPA compliance and develop biological opinion on disposal of excess captive- reared endangered fish.	FWS-ES/FR	Complete							
IV.C.	Operate and maintain facilities.		Ongoing							
IV.C.1.	Ouray.	FWS-FR		X	X	X	X	X	X	X
IV.C.2.	Grand Valley endangered fish facilities.	FWS-FR		X	X	X	X	X	X	X
IV.C.3.	Wahweap.	UDWR		X	X	X	X	X	X	X
IV.D.	Conduct independent review of Program endangered fish facilities and operations.	PD				X				
IV.E.	Plan, design, and construct needed facilities.									
IV.E.1.	Develop (and revise as needed) Coordinated Hatchery Facility Plan to meet long and short-term fish needs.	PD	Ongoing	12/99	12/00	12/01	X			
IV.E.2.	Design and construct appropriate facilities.									
IV.E.2.a.	Ouray expansion.	FWS/BR		2/00						
IV.E.2.b.	Wahweap.	UDWR/BR		X	X					
IV.E.2.c.	Grand Valley endangered fish facilities.	FWS/BR	Complete							
IV.E.2.d.	Secure and manage ponds for growout of endangered fishes.									
IV.E.2.d.(1)	25 acres of growout ponds in the Green River basin.	FWS/STATES		X	X	X	X	X	X	X
IV.E.2.d.(2)	575 acres of growout ponds in the Colorado River basin.	FWS/STATES		X	X	X	X	X	X	X
IV.F.	Conduct monitoring to evaluate effectiveness and continuation of endangered fish stocking.									
IV.F.1.	Assess the monitoring needed to evaluate the contribution to recovery of endangered fish stocking over relevant reaches, life stages, and generations.	TBD		X						
IV.F.2.	Determine how monitoring contribution to recovery will be conducted and how (or if) it will be consolidated with ISMP.	TBD/Program		X						
IV.F.3.	Implement monitoring to evaluate endangered fish stocking.	States			X	X	X	X	X	X
IV.F.4	Evaluate contribution to recovery and continuation of endangered fish stocking.	Program				X	X	X	X	X
V.	**MONITOR POPULATIONS AND HABITAT AND CONDUCT RESEARCH TO SUPPORT RECOVERY ACTIONS (RESEARCH, MONITORING, AND DATA MANAGEMENT)**									
V.A.	Measure and document population and habitat parameters to determine status and biological response to recovery actions.									
V.A.1.	Conduct standardized monitoring program.	FWS-FR/ STATES	Annual	X	X	X	X	X	X	X
V.A.1.a.	Evaluate and refine procedures periodically, as appropriate. (With emphasis on expanding ISMP to monitor response of fish community and endangered fishes to major recovery actions.)	FWS-FR/ STATES	Ongoing	X	X	X	X	X	X	X
V.A.2.	Conduct interagency data management program to compile, manage, and maintain all research and monitoring data collected by the Recovery Program.	FWS-FR	Annual	X	X	X	X	X	X	X
V.A.3.	Habitat monitoring.									
V.A.3.a.	Develop draft habitat monitoring plan.	PD			12/00					
V.A.3.b.	Implement habitat monitoring plan.	FWS-FR/ STATES			X	X	X	X	X	X
V.B.	Conduct research to acquire needed life history information.									
V.B.1.	Identify significant deficiencies in life history information and needed research.	PD		X	X	X	X	X	X	X
V.B.2.	Conduct appropriate studies to provide needed life history information.	FWS-FR/ STATES	Ongoing	X	X	X	X	X	X	X
V.B.2.a.	Evaluate need for imprinting based on reintroduction plans.	FWS-FR	Through 00	X						
V.C.	Develop and enhance scientific techniques required to complete recovery actions.									
V.C.1.	Conduct marking study of young-of-the-year Colorado pikeminnow.	FWS-FR	Complete							
V.D.	Establish sampling procedures to minimize adverse impacts to endangered fishes.									
V.D.1.	Assess electrofishing injury impacts to endangered fishes.	BR	Complete							
V.D.2.	Implement scientific sampling protocols to minimize mortality for all endangered fishes.	FWS-ES/ STATES	Ongoing	X	X	X	X	X	X	X
V.E.	Provide for long-term care, cataloging, and accessibility of preserved specimens.	PROGRAM	Ongoing	X	X	X	X	X	X	X

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	V.F.	Assess relative biological importance of tributaries and their potential contributions to endangered fish recovery.	Contract		6/00						
	VI.	**INCREASE PUBLIC AWARENESS AND SUPPORT FOR THE ENDANGERED FISHES AND THE RECOVERY PROGRAM.**									
	VI.A.	Conduct survey to measure public awareness of and attitudes toward endangered Colorado River fishes and the Recovery Program.	PD	Periodic		X					
	VI.B.	Train Recovery Program managers and researchers in media relations.	PD	Ongoing	X	X	X	X	X	X	X
	VI.C.	Plan and implement information and education and public involvement activities for all significant Recovery Program actions (e.g presentations, public meetings, public involvement training, etc.).	PROGRAM	Ongoing	X	X	X	X	X	X	X
	VI.D.	Promote technical publication of study results.	PD	Ongoing	X	X	X	X	X	X	X
	VI.E.	Produce, distribute, and evaluate information and education products (such as newsletter, brochures, etc); manage media relations, including contacting reporters, producing news releases, fact sheets, etc.	PD	Ongoing	X	X	X	X	X	X	X
	VI.F.	Participate in development and circulation of educational exhibits about the Recovery Program and the endangered fish.	PD	Ongoing	X	X	X	X	X	X	X
	VI.G.	Maintain Recovery Program technical library and library web page.	PD	Ongoing	X	X	X	X	X	X	X
	VII.	**PROVIDE PROGRAM PLANNING AND SUPPORT (PROGRAM MANAGEMENT)**									
	VII.A.	Determine actions required for recovery.									
	VII.A.1	Assure consistency of RIPRAP with currently approved recovery plans.	PD	Ongoing	X	X	X	X	X	X	X
	VII.A.2.	Recognize the role of the Upper Colorado River Recovery Program in revised recovery plans.	FWS	Ongoing	X	X	X	X	X	X	X
	VII.A.3.	Update, refine, and prioritize recovery actions (RIPRAP) annually.	PD	Annual	X	X	X	X	X	X	X
	VII.A.4.	Develop Interim Management Objectives (IMOs) for each species and presumptive stock and an index to population status.	PD	Complete; update every 5 years			X				
	VII.A.4.a.	Public and external peer review of IMOs.	FWS	Complete							
	VII.A.4.b.	Implementation Committee review and approval of IMOs.	ALL	Complete							
	VII.A.4.c.	Develop specific recovery goals.									
	VII.A.4.c.(1)	Convene Recovery Team.	FWS	Complete							
	VII.A.4.c.(2)	Develop recommended recovery goals.	Recovery Team		X						
	VII.A.4.c.(3)	Biology Committee review of recommended recovery goals.	Program		X						
	VII.A.4.c.(4)	Finalize recovery goals.	FWS/Recovery Team		X						
	VII.A.4.d.	Maintain and update IMO model to incorporate new life history information.	PD	Periodic			X				
	VII.A.5.	Monitor and assess Recovery Program accomplishments annually.	PD	Annual	X	X	X	X	X	X	X
	VII.A.6.	Develop annual work plan to address priority needs.	PD	Annual	X	X	X	X	X	X	X
	VII.B.	Actively participate in Recovery Program committees and secure funding for annual work plan and larger projects (e.g., water acquisition, capital construction, and long term operation and maintenance) in accordance with the recovery actions and milestones (Utah, Colorado, Wyoming, Bureau of Reclamation, Fish and Wildlife Service, Western Area Power Administration, Water Users, Environmental Groups, Colorado River Energy Distributors Association).	PD	Ongoing	X	X	X	X	X	X	X
	VII.C.	Manage, direct, and coordinate Recovery Program activities.	PD	Ongoing	X	X	X	X	X	X	X
	VII.C.1.	Review Information and Education program (Management Committee).	PD	Complete							

GREEN RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Green River above Duchesne River (Utah only; flows not threatened in Colorado because river is entirely within a National Wildlife Refuge and National Monument.)									
	I.A.1.	Initially identify year-round flows needed for recovery while providing experimental flows.									
	I.A.1.a.	Summer/fall.	FWS-ES	Complete							
	I.A.1.b.	Winter/spring.	FWS-ES		4/00						
	I.A.1.c.	Review summer/fall flow recommendation.	FWS-ES		4/00						
	I.A.2.	State acceptance of initial flow recommendations.									
	I.A.2.a.	Summer/Fall.	UT	Complete; may be revised based on new info.							
	I.A.2.b.	Winter/Spring.									
	I.A.2.b.(1)	Review scientific basis.	UT			12/00					
	I.A.2.b.(2)	Assess legal and physical availability of water.	UT			12/00					
	I.A.3.	Deliver identified flows.									
>*	I.A.3.a.	Operate Flaming Gorge pursuant to the Biological Opinion to provide summer and fall flows.	BR	Begin 93, ongoing	X	X	X	X	X	X	X
>*	I.A.3.b.	Operate Flaming Gorge to supply winter and spring test flows for research.	BR	Complete							
	I.A.3.c.	Complete NEPA on reoperation of Flaming Gorge pursuant to Biological Opinion.	BR				12/01				
>*	I.A.3.d.	Operate Flaming Gorge Dam to provide winter and spring flows and revised summer/fall flows, pursuant to Biological Opinion.	BR		X	X	X	X	X	X	X
	I.A.4.	Legally protect identified flows.									
	I.A.4.a.	Protect Summer/Fall flows.									
	I.A.4.a.(1)	Hold public meeting to establish future appropriation policy.	UT	Complete 10/94							
	I.A.4.a.(2)	Adopt and implement new policy (new appropriations subject to flow criteria).	UT	Complete 11/94							
>*	I.A.4.a.(3)	Prepare and execute contracts with water users as required to subordinate diversions associated with approved and/or perfected rights.	UT	As required	X	X	X	X	X	X	X
	I.A.4.a.(4)	Evaluate effectiveness of policy.	UT								
	I.A.4.b.	Protect Winter/Spring flows.									
	I.A.4.b.(1)	Hold public meeting to establish future appropriation policy.	UT		X						
	I.A.4.b.(2)	Adopt and implement new policy (new appropriations subject to flow criteria).	UT		X						
>*	I.A.4.b.(3)	Prepare and execute contracts with water users as required to subordinate diversions associated with approved and/or perfected rights.	UT	As required	X	X	X	X	X	X	X
	I.B.	Green River below the Duchesne River									
	I.B.1.	Initially identify year-round flows needed for recovery while providing experimental flows.	FWS-ES		Apr-00						
	I.B.2.	State acceptance of initial flow recommendations (dependent on development of initial flow recommendations).									
	I.B.2.a.	Review scientific basis.	UT			12/00					
	I.B.2.b.	Assess legal and physical availability of water from Green River and tributaries.	UT			12/00					
	I.B.3.	Legally protect identified flows (dependent on development of initial flow recommendations).									
	I.B.3.a.	Hold public meeting to establish future appropriation policy.	UT		X						
	I.B.3.b.	Adopt and implement new policy (new appropriations subject to flow criteria).	UT		X						
>*	I.B.3.c.	Prepare and execute contracts with water users as required to subordinate diversions associated with approved and/or perfected rights.	UT	As required	X	X	X	X	X	X	X
	I.C.	Price River									
	I.C.1.	Determine Endangered fish spring through autumn use of the Price River.	UT	Complete							
	I.C.2.	Determine winter use and seasonal flow needs for Colorado pikeminnow in the Price River.	UT/FWS			X	X				
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Restore and manage flooded bottomland habitat.									
	II.A.1.	Conduct site restoration.									
	II.A.1.a.	Old Charlie Wash.									

GREEN RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
>*	II.A.1.a.(1)	Construct water control structure and fish access.	BR	Complete							
	II.A.1.a.(2)	Update management plan.	PD		X	X	X	X			
	II.A.1.a.(3)	Monitor and evaluate success.	FWS-FR/BR		X	X	X	X			
	II.A.2.	Acquire interest in high-priority flooded bottomland habitats between Ouray NWR and Jensen to benefit endangered fish.									
	II.A.2.a.	Identify and evaluate sites.	FWS-FR		X	X	X	X			
	II.A.2.b.	Pre-acquisition planning and identification of acquisition options.	PD		X	X	X	X			
	II.A.2.c.	Conduct appraisal/NEPA compliance.	PD		X	X	X	X			
>*	II.A.2.d.	Negotiate acquisition and acquire.	PD		X	X	X	X			
	II.A.2.e.	Evaluate effectiveness of land acquisition activities and provide recommendations.	PD		X	X	X	X			
	II.A.3.	Implement levee removal strategy at high-priority sites.									
	II.A.3.a.	Preconstruction (contaminants screening, floodability assessments, environmental compliance, design, and engineering).	PD/BR		X	X	X	X			
>*	II.A.3.b.	Construction (levee breeching). [NOTE: Subject to review and approval for depression wetlands.]	BR		X	X	X	X			
	II.A.3.c.	Evaluation.	FWS		X	X	X	X			
	II.B.	Restore native fish passage at instream barriers.									
	II.B.1.	Assess and make recommendations for fish passage at low flows at Tusher Wash.	FWS-FR/ - WR/BR		2/00						
	II.B.2.	Evaluate and implement viable options to restore fish passage at Tusher Wash.	BR/FWS	On hold							
	II.B.2.a.	Design passage, conduct NEPA compliance.	BR	On hold							
>*	II.B.2.b.	Construct fish passage.	BR	On hold							
>*	II.B.3.	Operate and maintain fish passage.	TBD	On hold							
	II.B.4.	Monitor and evaluate success and reassess entrainment after passage is constructed at Tusher Wash.	FWS	On hold							
	II.B.5.	Screen Tusher Wash diversion to prevent endangered fish entrainment, if warranted.									
	II.B.5.a.	Assess need.	UDWR	Complete							
	II.B.5.b.	Design.	BR		X	X	X				
>*	II.B.5.c.	Construct.	BR					9/03			
	II.C.	Enhance water temperatures to benefit endangered fishes.									
	II.C.1.	Identify options to release warmer water from Flaming Gorge Reservoir to restore native fish habitat in the Green River.	BR		4/00						
	II.D.	Support actions to reduce or eliminate contaminant impacts at Ashley Creek and Stewart Drain. [NOTE: Contaminants remediation (in all reaches) will be conducted independently of and funded outside of the Recovery Program.]	FWS-ES		X	X	X	X	X	X	X
	III.	**REDUCE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative impacts to endangered fishes from sportfish management activities.									
	III.A.1.	Determine relationship between Flaming Gorge test flows and relative abundance of young Colorado pikeminnow and nonnative fishes in nursery habitat.	UDWR	Complete							
>*	III.A.2.	Control escapement of nonnative fishes from Ouray National Wildlife Refuge originating from Pelican Lake.	FWS-RW	Complete							
>*	III.A.3.	Identify and control sources of catfish and centrarchids in the middle Green River.	UDWR		6/00						
>*	III.A.4.	Remove small nonnative cyprinids from backwaters and other low velocity habitats.	UDWR		X	X					
	IV.	**MANAGE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS (STOCKING ENDANGERED FISHES)**									
	IV.A.	Augment or restore populations as needed, and as guided by the Genetics Management Plan.									
	IV.A.1.	Develop augmentation plan for the four endangered fishes in the Green River.									
	IV.A.1.a.	Prepare plan.	UDWR	Complete							
	IV.A.1.b.	Program acceptance.	UDWR	Complete							
>	IV.A.1.c.	Implement plan.	UDWR		X	X	X	X	X	X	X
	IV.A.1.c.(1)	Conduct high-priority lab/field studies identified in bonytail reintroduction plan.	UDWR		6/00						

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		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	V.	**MONITOR POPULATIONS AND HABITAT AND CONDUCT RESEARCH TO SUPPORT RECOVERY ACTIONS (RESEARCH, MONITORING, AND DATA MANAGEMENT)**									
	V.A.	Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.									
	V.A.1.	Verify additional Colorado pikeminnow spawning areas in lower Green.	UT	Complete							
	V.A.2.	Identify additional razorback sucker spawning areas in lower Green.	UT	Complete							

GREEN RIVER ACTION PLAN: YAMPA AND LITTLE SNAKE RIVERS

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Basin-wide activities									
	I.A.1.	Identify fish habitat and flow needs									
	I.A.1.a.	Complete Phase II feasibility study.	CRWCD/ CWCB/BR	Complete							
	I.A.1.b.	Revise and update estimates of basin water needs.	CRWCD/FWS	Complete							
	I.A.1.c.	Evaluate and recommend low flow and passage needs (also relates to restoration of fish passage, if needed -- Recovery Element II).	CDOW/FWS/ CRWCD	Complete							
	I.A.1.d.	Provide hydrology support to develop and evaluate flow augmentation alternatives.	CWCB	Ongoing	X	X	X	X			
	I.A.1.e.	Report synthesizing the results of water demand, low flow recommendations and hydrologic analyses.	FWS	Complete							
	I.A.1.f.	Install, operate, and/or maintain stream flow and sediment monitoring gages.	FWS	Ongoing	X	X	X	X			
	I.A.2.	Develop Yampa River management plan.	CWCB/FWS/ Wyoming		X						
	I.A.2.a.	Negotiate and sign MOU to implement the Yampa River management plan.	CWCB/FWS/ Wyoming		X						
	I.A.2.a.(1)	Complete intra-Service consultation pursuant to Section 7 of the ESA and NEPA compliance, based on FWS signing the MOU, resulting in a programmatic biological opinion (PBO) for the Yampa Basin.	FWS		X						
>*	I.A.2.a.(2)	Implement Yampa River management plan.	FWS/CDOW/ Wyoming			X	X	X	X	X	X
	I.A.3.	Develop public involvement plan.	FWS/CDOW	Complete							
	I.A.3.a	Implement public involvement plan.	FWS/CDOW	Ongoing	X	X	X	X			
	I.B.	Yampa River above the Little Snake River									
	I.B.1	Initially identify year-round flows needed for recovery.	FWS-FR	Complete							
	I.B.2	Provide augmentation of low flows.									
	I.B.2.a	Identify and acquire water source(s).									
	I.B.2.a.(1)	Steamboat Lake.									
	I.B.2.a.(1)(a)	Change decree (litigation dependent).	CDPOR+D22	Complete 5/97							
>*	I.B.2.a.(1)(b)	Lease up to 3,300 af. to augment late summer flows.	FWS-WR	Ongoing	X	X	X	X	X	X	X
	I.B.2.a.(1)(c)	Quantify transit losses.	CWCB		X						
>*	I.B.2.a.(2)	Water leases/exchanges with power companies, irrigators, etc. (as needed, pursuant to Yampa Management Plan).	TBD			X	X	X	X	X	X
	I.B.3.	Evaluate need for instream flow water rights.									
	I.B.3.a	Review scientific basis.	CWCB/CDOW	Complete							
	I.B.3.b	Assess legal and physical availability of water.	CWCB	Complete							
	I.B.3.c	Assess compact considerations.	CWCB	Complete							
	I.B.3.d	Five-year periodic review of progress under the PBO to determine if instream flow filings are necessary.	CWCB/FWS						X		
	I.B.3.d.(1)	If necessary, evaluate how identified flows will be legally protected.	CWCB						X		
	I.C.	Little Snake River (Colorado and Wyoming)									
	I.C.1.	Evaluate importance of Little Snake to endangered fishes and develop management action plan. (Determine if habitat exists to protect under Colorado's instream flow program.)	BR/LFL	Complete							
	I.C.2.	Initially identify year-round flows needed for recovery (needed).									
	I.C.2.a.	Develop work plan.	BR/LFL	Complete							
	I.C.2.b.	Identify flows.	FWS-WR			X					
	I.C.3.	Evaluate need for instream flow water rights.									
	I.C.3.a.	Review scientific basis.	CWCB/CDOW	Complete							
	I.C.3.b.	Assess legal and physical availability of water.	CWCB	Complete							
	I.C.3.c.	Assess compact considerations.	CWCB	Complete							
	I.C.3.d.	Five-year periodic review of progress under the PBO to determine if instream flow filings are necessary.	CWCB/FWS Wyoming						X		
	I.C.3.d.(1)	If necessary, evaluate how identified flows will be legally protected.	CWCB/ Wyoming						X		

GREEN RIVER ACTION PLAN: YAMPA AND LITTLE SNAKE RIVERS

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.C.4.	Assess Wyoming's current and future water needs.	Wyoming		X						
	I.D.	Yampa River below Little Snake River									
	I.D.1.	Initially identify year-round flows needed for recovery.	FWS-FR	Complete							
	I.D.1.a.	Modify based on revisions to environmental baseline.	FWS-WR	Complete							
	I.D.1.b.	Update flow recommendations to include flows from the Little Snake River.	FWS			X					
	I.D.2.	Evaluate need for instream flow water rights.									
	I.D.2.a.	Review scientific basis.	CWCB/CDOW	Complete							
	I.D.2.b.	Assess legal and physical availability of water.	CWCB	Complete							
	I.D.2.c.	Assess compact considerations.	CWCB	Complete							
	I.D.2.d.	Five-year periodic review of progress under the PBO to determine if instream flow filings are necessary.	CWCB/FWS						X		
	I.D.2.d.(1)	If necessary, evaluate how identified flows will be legally protected.	CWCB						X		
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Yampa River from Dinosaur National Monument to Craig, Colorado									
	II.A.1.	Restore native fish passage at instream barriers and reduce impacts of maintaining diversion structures.									
	II.A.1.a.	Inventory potential barriers.	CRWCD	Complete							
	II.A.1.b.	Determine threshold (passage) flows between Craig and Dinosaur National Monument (low- flow dependent).	CDOW/FWS	Complete							
	II.A.1.c.	Develop guidelines to facilitate fish passage at new diversion structures.	CDOW/FWS			X					
	II.A.2.	Reduce/eliminate entrainment of Colorado pikeminnow at diversion structures.									
	II.A.2.a.	Identify and evaluate existing diversion structures for entrainment of Colorado pikeminnow	CDOW/FWS			X					
>*	II.A.2.b.	Develop and implement remedial measures, as necessary, to reduce or eliminate entrainment.	CDOW/FWS				X	X			
	II.A.2.c.	Develop guidelines to reduce or eliminate entrainment at new diversion structures.	CDOW/FWS				X				
	II.B.	Green River from Ouray to Jensen, Utah (see Green River Action Plan)									
	II.B.1	Acquire interest in high-priority flooded bottomland habitats between Ouray NWR and Jensen to benefit endangered fish (see Green River Action Plan : Mainstem II.A.2.)									
	II.B.2.	Implement levee removal strategy at high-priority sites (see Green River Action Plan : Mainstem II.A.3.).									
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Develop aquatic management plan (Colorado) to reduce nonnative fish impacts while providing sportfishing opportunities (also relates to nonnative fish management/control -- Recovery Element III).	CDOW	Complete							
>*	III.A.1.	Implement Yampa Basin aquatic wildlife management plan.	CDOW	Ongoing	X	X	X	X	X	X	X
	III.A.1.a.	Identify potential conflicts between present fisheries management in existing Elkhead Reservoir and endangered fishes and formulate alternative management plan.	CDOW	Complete							
>*	III.A.1.a.(1)	Evaluate control options and implement measures to control nonnative fish escapement from existing Elkhead Reservoir.	FWS-FR/ CDOW		X	X	X				
>*	III.A.1.b.	Remove and translocate northern pike and other sportfishes from Yampa River.	CDOW	Ongoing	X	X	X	X			
	III.A.1.c.	Reduce northern pike reproduction in the Yampa River.									
	III.A.1.c.(1)	Identify and evaluate natural and artificial spawning/nursery habitats for northern pike in the Yampa River.	CDOW			X					
>*	III.A.1.c.(2)	Implement remedial measures to reduce pike reproduction in Yampa River.	CDOW				X	X			
	III.A.1.c.(3)	Develop guidelines for new structures to minimize creation of habitat suitable for pike spawning/nursery.	CDOW				X				
>*	III.A.1.d.	Nonnative fish removal in Yampa Canyon.	FWS		6/00						
	III.A.1.e.	Remove bag and possession limits on warmwater nonnative sportfishes within critical habitat in Colorado.	CDOW	Ongoing							
	IV.	**MANAGE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS (STOCKING ENDANGERED FISHES)**									
	IV.A.	Yampa River in Dinosaur National Monument									
	IV.A.1.	Augment or restore populations as needed, and as guided by the Genetics Mgmt. Plan.									
	IV.A.1.a.	Develop stocking plan for bonytail in the Yampa River.	CDOW	Complete							
>	IV.A.1.a.(1)	Implement stocking plan.	FWS/CDOW		X	X	X	X	X	X	

GREEN RIVER ACTION PLAN: DUCHESNE RIVER

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Identify initial year-round flows needed for recovery.	FWS-ES	Complete							
	I.A.1.	Conduct hydrology/water availability study.	UT	Complete							
	I.A.2.	Conduct follow-up study to evaluate and refine flow recommendations.	FWS/UT		X	X					
	I.B.	State acceptance of initial flow recommendations (dependent on development of initial flow recommendations).									
	I.B.1.	Review scientific basis.	UT				X				
	I.B.2.	Assess legal and physical availability of water.	UT				X				
	I.C.	Legally protect and deliver identified flows.									
	I.C.1.	Strawberry Valley Project.									
	I.C.1.a.	Determine amount of water available from the Strawberry Valley Project for fish use. (This is part of the coordinated reservoir operation in I.D.)	USBR/DOI/PD/ Strawberry Water Users		X						
	I.C.2.	Management of Daniels Transbasin Diversion.									
	I.C.2.a.	Determine the amount of water available from the Daniels Diversion for endangered fish use and pattern and location for delivery.	DOI/IBAT/FWS/ Mitig. Comm./ CUWCD/ UteTribe		X						
>*	I.C.2.b.	Develop agreements if feasible to deliver and protect water available from the Daniels Diversion.	UT/IBAT /FWS/DOI/ Mitig.Comm./ CUWCD			X	X				
	I.D.	Coordinate reservoir operation.									
	I.D.1.	Determine feasibility and benefits of coordinated reservoir operation.	BR/CUWCD/ DOI		X	12/00					
>*	I.D.2.	Develop agreements if feasible to coordinate reservoir operations and protect flows to the Green River.	BR/CUWCD/ UT/Ute Tribe		X	X	X				
	I.E.	Examine the feasibility of other options for obtaining water.	BR/DOI/PD/ UteTribe				X				
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Support actions to reduce or eliminate contaminant impacts on the lower Duchesne. [NOTE: Contaminants remediation (in all reaches) will be conducted independently of and funded outside of the Recovery Program.]	FWS-ES		X						
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative interactions between nonnative and endangered fishes.									
	III.A.1.	Identify most damaging nonnative fishes.	UDWR	Complete							
	III.A.2.	Assess options to control negative interactions from nonnative fishes from the Duchesne River to benefit Colorado pikeminnow and razorback sucker young-of-the-year.	UDWR	Complete							
>*	III.A.3.	Implement and evaluate the effects of viable measures to control negative interactions from nonnative fishes. (See III.A.3. under Green River Mainstem Action Plan.)	UDWR		6/00						
	III.A.3.a.	Evaluate feasibility of screen on Bottle Hollow Reservoir to control nonnative fish escapement and explore alternative funding sources.	FWS-FAO/Ute Tribe/BOR			X					
	III.A.3.b.	Evaluate escapement of nonnative fishes from Starvation Reservoir and the feasibility of screening.	UDWR				X				

GREEN RIVER ACTION PLAN: WHITE RIVER

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Initially identify year-round flows needed for recovery.									
	I.A.1.	Develop work plan.	FWS-FR	Complete							
	I.A.2.	Identify flows.	FWS-FR		6/00						
	I.B.	Evaluate how identified flows will be legally protected.	CWCB	On hold							
	I.C.	State acceptance of initial flow recommendations (dependent on development of initial flow recommendations).									
	I.C.1.	Review scientific basis, dependent on development of flow recommendations by FWS.	UT/CO	On hold							
	I.C.2.	Assess legal and physical availability of water.	UT/CO	Complete							
	I.C.3.	Assess compact considerations (in Colorado).	CWCB	Complete							
	I.C.4	CWCB notice of intent to appropriate (in Colorado).	CWCB	On hold							
	I.D.	Legally protect identified flows (dependent on development of initial flow recommendations).									
	I.D.1.	Protect flows in Colorado.									
	I.D.1.a	Appropriate.									
	I.D.1.a.(1)	CWCB approval to appropriate.	CWCB	On hold							
>*	I.D.1.a.(2)	Colorado Attorney Generals Office file date.	CWCB	On hold							
>*	I.D.1.a.(3)	Water court adjudication (litigation dependent).	CWCB	On hold							
	I.D.2.	Protect flows in Utah.									
	I.D.2.a.	Hold public meeting to establish future appropriation policy.	UT			X					
	I.D.2.b.	Adopt and implement new policy (new appropriations subject to flow criteria).	UT			X	X				
>*	I.D.2.c.	Prepare and execute contracts with water users as required to subordinate diversions associated with approved and/or perfected rights.	UT	As required			X	X	X	X	X
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Restore native fish passage at instream barriers.									
	II.A.1.	Assess and make recommendations for fish passage at Taylor Draw.	PD	Complete							
	II.B.	Support actions to reduce or eliminate contaminant impacts of petroleum derivatives. [NOTE: Contaminants remediation (in all reaches) will be conducted independently of and funded outside of the Recovery Program.]	FWS-FR		X						
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative interactions between nonnative and endangered fishes.									
	III.A.1.	Monitor escapement of nonnative fishes from Kenney Reservoir (especially black crappie and channel catfish).	CDOW	Complete							
	III.B.	Reduce negative impacts to endangered fishes from sportfish management activities.									
	III.B.1.	Assess adequacy of current regulations and options (including harvest) to reduce negative impacts on native fishes from nonnative sportfish and options to reduce angling mortality on native fishes below Kenney Reservoir.	CDOW	Complete							
	III.B.1.a.	Assess management options to reduce escapement of black crappie from Kenney Reservoir.	CDOW			X					
	V.	**MONITOR POPULATIONS AND HABITAT AND CONDUCT RESEARCH TO SUPPORT RECOVERY ACTIONS (RESEARCH, MONITORING, AND DATA MANAGEMENT)**									
	V.A.	Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.									
	V.A.1.	Determine relative abundance and fate of Colorado pikeminnow congregation below Kenney Reservoir.	FWS-FR	Complete							
	V.A.2.	Monitor the White River fish community downstream of Kenney Reservoir to determine long-term effects of mainstream impoundment on the White River.	FWS-FR	Complete							

COLORADO RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Colorado River above Gunnison River									
>*	I.A.1.	Develop, issue and implement PBO.	FWS	Issued 12/20/99							
	I.A.2.	Initially identify year-round flows needed for recovery.									
	I.A.2.a.	Rifle to Roller Dam.	FWS-FR		3/00						
	I.A.2.b.	Roller Dam to 15-Mile Reach.	FWS-FR		3/00						
	I.A.2.c.	15-Mile Reach.	FWS-FR	Complete							
	I.A.3.	Provide a depletion accounting report as outlined in the 15-Mile Reach PBO (every 5 yrs. beginning in 2005).	CWCB							X	
	I.A.4.	Evaluate need for instream flow water rights.									
	I.A.4.a.	Rifle to Roller Dam (Dependent on initial flow recommendations).									
	I.A.4.a.(1)	Assess legal and physical availability of water.	CWCB	Complete							
	I.A.4.a.(2)	Assess compact considerations.	CWCB	Complete							
	I.A.4.a.(3)	Five-year periodic review of progress under the PBO to determine if instream flow filings are necessary.	CWCB/FWS						X		
	I.A.4.a.(3)(a)	If necessary, evaluate how identified flows will be legally protected.	CWCB						X		
	I.A.4.b.	Roller Dam to 15-Mile Reach (Dependent on initial flow recommendations).									
	I.A.4.b.(1)	Assess legal and physical availability of water.	CWCB	Complete							
	I.A.4.b.(2)	Assess compact considerations.	CWCB	Complete							
	I.A.4.b.(3)	Five-year periodic review of progress under the PBO to determine if instream flow filings are necessary.	CWCB/FWS						X		
	I.A.4.b.(4)	If necessary, evaluate how identified flows will be legally protected.	CWCB						X		
	I.A.4.c.	15-Mile Reach.									
	I.A.4.c.(1)	Instream flow water right secured - 581 cfs (July - September).		Complete							
	I.A.4.c.(2)	Irrigation season return flows legally protected - 300 cfs.		Complete							
	I.A.5.	Provide and legally protect instream flows pursuant to Colorado River PBO.									
>*	I.A.5.a.	Pursuant to Ruedi Biological Opinion, deliver 5,000af annually & an additional 5,000af 4 out of 5 years (ongoing and protect by short-term agreement).	BR/CWCB	Ongoing	X	X	X	X	X	X	X
>*	I.A.5.b.	Execute long-term lease for 10,825 af from Ruedi Reservoir.	BR/FWS/ CWCB		X						
>*	I.A.5.b.(1)	Provide water annually pursuant to long-term lease.	BR/CWCB		X	X	X	X	X	X	X
	I.A.5.c.	Execute 10-year agreement for delivery of 5,412.5 af by West Slope water users.	CRWCD/FWS		X						
>*	I.A.5.c.(1)	Provide and protect water deliveries from West Slope water users.	CRWCD/ CWCB		X	X	X	X	X	X	X
	I.A.5.d.	Execute 10-year agreement for delivery of 5,412.5 af by East Slope water users.	DWD/FWS		X						
>*	I.A.5.d.(1)	Provide and protect water deliveries from East Slope water users.	DWD/CWCB		X	X	X	X	X	X	X
	I.A.5.e.	Permanent delivery of 10,825 af of water in late summer/early fall to meet base flow needs.									
	I.A.5.e.(1)	Identify options.	CRWCD/ NWCD/ Denver Water			7/01					
	I.A.5.e.(2)	Select preferred alternative for delivery.	CRWCD/ NWCD/ Denver Water							7/05	
>*	I.A.5.e.(3)	Deliver and legally protect flows.	CRWCD/ NWCD/ Denver Water	Begin 7/08							Begin 7/08
	I.A.5.f.	Evaluate options for use of uncommitted Ruedi Reservoir water following Round II sales.	BR	Complete							
	I.A.5.g.	After Ruedi Round II water sales are completed, or commitments to contracts agreed to, resolve the disposition of remaining uncommitted water from Ruedi Reservoir.	BR/CWCB/ FWS	Complete							
>*	I.A.5.h.	Pursuant to Wolford Mountain (Muddy Creek) Biological Opinion, deliver up to 6,000 acre-feet of water.	CRWCD/FWS/ CWCB	Ongoing	X	X	X	X	X	X	X
	I.A.5.i.	Coordinated reservoir operations.									
	I.A.5.i.(1)	Evaluate (final report).	BR	Complete							

COLORADO RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
>*	I.A.5.i.(2)	Implement, evaluate process & hydrology, and provide annual report.	BR	Ongoing	X	X	X	X	X	X	X
	I.A.5.j.	Collbran Project.									
	I.A.5.j.(1)	Evaluate.	BR	Complete							
	I.A.5.j.(2)	Make recommendations	BR	Complete							
	I.A.5.k.	Silt Project.									
	I.A.5.k.(1)	Evaluate.	BR	Complete							
	I.A.5.k.(2)	Make recommendations.	CDOP/BR	Complete							
	I.A.5.l.	Grand Valley Water Management Project.									
	I.A.5.l.(1)	Evaluate.	BR	Complete							
	I.A.5.l.(2)	Complete Draft Grand Valley Water Management Environmental Assessment. The agreement to deliver Green Mountain Reservoir water to the Grand Valley Power Plant, pursuant to the Orchard Mesa Check Settlement, will also be covered in this draft environmental assessment.	BR	Complete							
>*	I.A.5.l.(3)	Design and construct features of the Grand Valley Water Management Project.	BR	Ongoing	X	X	4/02				
	I.A.5.l.(4)	Execute agreement for delivery of surplus Green Mountain Reservoir water up to the excess capacity of the Grand Valley Power Plant pursuant to the Orchard Mesa Check Settlement.	BR	Complete 7/99							
	I.A.5.l.(5)	Execute agreement (municipal water contract) to deliver additional Orchard Mesa Check Settlement water and Grand Valley Water Management Plan water to benefit endangered fish.	BR/City of Grand Jct.		X						
	I.A.5.l.(6)	Assess options and legally protect only additional Orchard Mesa Check Settlement water and Grand Valley Water Management Plan water.	BR	Complete							
	I.A.5.m.	Water Division 5 Coordinated Facilities Study.									
	I.A.5.m.(1)	Evaluate options for providing and protecting additional peak flows to the 15-Mile Reach.	CWCB		7/00						
>*	I.A.5.m.(2)	Deliver additional peak flows as determined feasible in the evaluation.	TBD				Beginning 5/02	X	X	X	X
	I.A.6.	Review implementation of RIPRAP items to determine timely compliance with applicable schedules (every 2 yrs. Beginning in 2003).	FWS				X		X		X
	I.B.	Colorado River from the Gunnison to the Colorado-Utah State line (Includes the 18-Mile Reach (Flow recommendation needed; expected with completion of Aspinall Unit biological opinion.)									
	I.B.1.	Initially identify year-round flows needed for recovery.	FWS-FR			12/00					
	I.B.2.	Evaluate how identified flows will be legally protected.	CWCB	On hold							
	I.B.3.	State acceptance of initial flow recommendations.									
	I.B.3.a.	Review scientific basis, dependent on development of flow recommendations by FWS.	CWCB/CDOW	On hold							
	I.B.3.b.	Assess legal and physical availability of water.	CWCB	Complete							
	I.B.3.c	Assess compact considerations.	CWCB	Complete							
	I.B.3.d.	CWCB notice of intent to appropriate (in Colorado).	CWCB	On hold							
	I.B.4.	Legally protect identified flows.									
>*	I.B.4.a.	Acquire (see Colorado River above Gunnison and Gunnison River).									
	I.B.4.b.	Appropriate.									
	I.B.4.b.(1)	CWCB approval to appropriate.	CWCB	On hold							
>*	I.B.4.b.(2)	Colorado Attorney Generals Office file date.	CWCB	On hold							
>*	I.B.4.b.(3)	Water court adjudication (litigation dependent).	CWCB	On hold							
	I.B.4.c.	Deliver and legally protect flows from Aspinall (see Colorado River above Gunnison and Gunnison River).									
>*	I.B.4.c.(1)	Operate Aspinall to provide test flows.	BR	Complete							
>*	I.B.4.c.(2)	Continue annual coordination (meeting 3 times/year) of Aspinall operation until biological opinion complete.	BR	Ongoing							
	I.B.4.c.(3)	Operate Aspinall to provide flows pursuant to biological opinion.									
	I.B.3.c.(3)(a)	Determine if change in water right and/or contract is needed.	BR	On hold							
	I.B.3.c.(3)(b)	Enter into contract if needed.	BR	On hold							
>*	I.B.3.c.(3)(c)	Deliver flows.	BR	On hold							
	I.C.	Colorado River from Colorado-Utah State line to Green River (Flow recommendations needed.)									
	I.C.1.	Initially identify year-round flows needed for recovery.	FWS-FR			12/00					
	I.C.2.	State acceptance of initial flow recommendations.									
	I.C.2.a.	Review scientific basis.	UT	On hold							
	I.C.2.b.	Assess legal and physical availability of water.	UT	On hold							
	I.C.3.	Legally protect identified flows.									

COLORADO RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.C.3.a.	Hold public meeting to establish future appropriation policy.	UT	On hold							
	I.C.3.b.	Adopt and implement new policy (new appropriations subject to flow criteria).	UT	On hold							
>*	I.C.3.c.	Prepare and execute contracts with water users as required to subordinate diversions associated with approved and/or perfected rights.	UT	On hold							
	I.D.	Colorado River below Green River									
	I.D.1.	Initially identify year-round flows needed for recovery.	FWS			X					
	I.D.2.	State acceptance of initial flow recommendations (dependent on development of initial flow recommendations).									
	I.D.2.a.	Review scientific basis.	UT			X					
	I.D.2.b.	Assess legal and physical availability of water.	UT			X					
	I.D.3.	Legally protect identified flows (dependent on development of initial flow recommendations).									
	I.D.3.a.	Hold public meeting to establish future appropriation policy.	UT			X					
	I.D.3.b.	Adopt and implement new policy (new appropriations subject to flow criteria).	UT				X				
>*	I.D.3.c.	Prepare and execute contracts with water users as required to subordinate diversions associated with approved and/or perfected rights.	UT	As required			X	X	X	X	X
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Restore and manage flooded bottomland habitat.									
	II.A.1.	29-5/8 Road Gravel Pit									
	II.A.1.a.	Develop and approve management plans.	FWS-FR	Complete							
	II.A.1.b.	Site design/complete environmental compliance.	BR	Complete							
>*	II.A.1.c.	Construct.	BR	Complete							
	II.A.1.d.	Operate and maintain.	BR	Ongoing	X	X	X	X	X	X	X
	II.A.1.e.	Monitor and evaluate success; modify as needed.	FWS-FR		X	5/01					
	II.A.2.	Adobe Creek.									
	II.A.2.a.	Develop and approve management plans.	FWS-FR	Complete							
	II.A.2.b.	Site design/complete environmental compliance.	BR	Complete							
>*	II.A.2.c.	Construct.	BR	Complete							
	II.A.2.d.	Operate and maintain.	BR	On hold							
	II.A.2.e.	Monitor and evaluate success; modify as needed.	FWS-FR	Complete							
	II.A.3.	Walter Walker.									
	II.A.3.a.	Develop and approve management plans.	FWS-FR	Complete							
	II.A.3.b.	Site design/complete environmental compliance.	BR	Complete							
>*	II.A.3.c.	Construct.	BR	Complete							
	II.A.3.d.	Operate and maintain.	BR/FWS/ CDOW	Ongoing	X	X	X	X	X	X	X
	II.A.3.e.	Monitor and evaluate success; modify as needed.	FWS-FR		9/00						
	II.A.4.	Develop and implement levee removal strategy at high-priority sites.									
	II.A.4.a.	Preconstruction (contaminants screening, floodability assessments, environmental compliance, design & engineering.	BR/FWS		X	X	X	X			
>*	II.A.4.b.	Construction (levee breaching) [NOTE: Subject to review and approval for depression wetlands.]	BR		X	X	X	X			
	II.A.4.c.	Operate and maintain.	BR/FWS		X	X	X	X			
	II.A.4.d.	Evaluation	FWS		X	X	X	X			
	II.A.5.	Acquire interest in high-priority flooded bottomland habitats.									
	II.A.5.a.	Identify and evaluate sites.	FWS		X	X	X	X			
	II.A.5.b.	Pre-acquisition planning and identification of acquisition options.	PD		X	X	X	X			
	II.A.5.c.	Conduct appraisal/NEPA compliance.	PD		X	X	X	X			
>*	II.A.5.d.	Negotiate and acquire.	PD		X	X	X	X			
	II.A.5.e.	Evaluate effectiveness of land acquisition activities and provide recommendations	PD		X	X	X	X			
	II.B.	Restore native fish passage at instream barriers.									
	II.B.1.	Restore passage at Grand Valley Irrigation Co. Diversion Dam (Palisade)									
	II.B.1.a.	Evaluate and implement viable options to restore fish passage.	BR/FWS	Complete							
	II.B.1.a.(1)	Obtain landowner consent/agreement.	BR	Complete							
	II.B.1.a.(2)	Site design/environmental compliance.	BR	Complete							
>*	II.B.1.a.(3)	Construct.	BR	Complete							
>*	II.B.1.a.(4)	Operate and maintain.	FWS-FR/BR	Ongoing	X	X	X	X	X	X	X
	II.B.1.a.(5)	Monitor and evaluate success.	FWS-FR/BR	Complete							

COLORADO RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	II.B.1.b.	Screen GVIC diversion to prevent endangered fish entrainment, if warranted.									
	II.B.1.b.(1)	Design.	BR		X						
>*	II.B.1.b.(2)	Construct.	BR			4/01					
	II.B.2.	Restore fish passage at Price Stubb.									
	II.B.2.a.	Evaluate and implement viable options.									
	II.B.2.a.(1)	Obtain landowner consent/agreement.	BR		X						
	II.B.2.a.(2)	Site design/environmental compliance.	BR		X	X	X				
>*	II.B.2.a.(3)	Construct.	BR						4/03		
>*	II.B.2.a.(4)	Operate and maintain.	TBD					X	X	X	X
	II.B.2.a.(5)	Monitor and evaluate success (if dam removed, no biological evaluation will be needed).	FWS-FR/BR					X	X	X	
	II.B.3.	Restore fish passage at Government Highline (Roller Dam).									
	II.B.3.a.	Evaluate and implement viable options.									
	II.B.3.a.(1)	Site design/environmental compliance.	BR		X						
>*	II.B.3.a.(2)	Construct.	BR				4/02				
>*	II.B.3.a.(3)	Operate and maintain.	BR				X	X	X	X	X
	II.B.3.a.(4)	Monitor and evaluate success.	FWS-FR/BR				X				
	II.B.3.b.	Screen Government Highline diversion to prevent endangered fish entrainment, if warranted.									
	II.B.3.b.(1)	Design.	BR					X			
>*	II.B.3.b.(2)	Construct.	BR					4/03			
	II.B.3.b.(3)	Evaluate screening.	FWS-FR/BR					X			
	II.C.	Support actions to reduce or eliminate contaminant impacts of heavy metals and selenium in the Grand Valley. [NOTE: Contaminants remediation (in all reaches) will be conducted independently of and funded outside of the Recovery Program.]			X	X	X	X	X	X	X
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative interactions between nonnative and endangered fishes.									
	III.A.1.	Determine relationship between Aspinall test flows and nonnative fish abundance.	UDWR/ FWS-FR		12/00						
>*	III.A.2.	Reclaim ponds in critical habitat.	CDOW		X	X	X	X			
	III.A.2.a.	Evaluate and make recommendations.	CDOW		X	X					
>*	III.A.3.	Remove small nonnative cyprinids from backwaters and other low velocity habitats.	CDOW/UDWR		X	X					
>*	III.A.4.	Remove nonnative centrarchids from backwaters and other low velocity habitats.	FWS		X	X					
	III.B.	Reduce negative impacts to endangeed fishes from sportfish management activities.									
>*	III.B.1.	Evaluate control options and implement measures to control nonnative fish escapement from Highline Reservoir.	CDOW/ CRWCD	Complete	X						
	III.B.1.a.	Operate and maintain Highline Reservoir net.	CDOPR		X	X	X	X	X	X	X
	III.B.1.b.	Evaluate Highline Reservoir net.	CDOW		X						
	III.B.2.	Remove bag and possession limits on warmwater nonnative sportfishes within critical habitat in Colorado.	CDOW	Ongoing							
	III.B.3.	Increase law enforcement activity to decrease angling mortality.	CDOW	Ongoing	X	X	X				
	III.B.4.	Develop basinwide aquatic management plan to reduce nonnative fish impacts while providing sportfishing opportunities.	CDOW		X						
>*	III.B.4.a.	Implement CDOW's Colorado River Fisheries Management Plan.	CDOW		X	X	X	X	X	X	X
	IV.	**MANAGE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS (STOCKING ENDANGERED FISHES)**									
	IV.A.	Augment or restore populations as needed,and as guided by the Genetics Management Plan.									
	IV.A.1.	Razorback sucker.									
	IV.A.1.a.	Develop experimental augmentation plan and seek Program acceptance.	FWS-FR	Complete							
	IV.A.1.b.	Implement experimental augmentation plan.									
>	IV.A.1.b.(1)	Stock fish.	FWS-FR		X	X	X	X			
	IV.A.1.b.(2)	Monitor and evaluate results; make recommendations regarding further augmentation.	FWS-FR		X	X	X	X			
	IV.A.2.	Monitor the fish community in the upper Colorado River (above Palisade) and develop management action plan, including recommendations for Colorado pikeminnow and razorback sucker augmentation.	CDOW	Complete							
	IV.A.2.a.	Develop augmentation plan for razorbacks in the Colorado River in Colorado.	CDOW/PD	Complete							
	IV.A.2.a.(1)	Program acceptance.	CDOW/PD	Complete							

COLORADO RIVER ACTION PLAN: MAINSTEM

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
>	IV.A.2.a.(2)	Implement razorback sucker augmentation plan.	CDOW/PD		X	X	X	X	X	X	
	IV.A.2.b.	Develop augmentation plan for pikeminnow in the Colorado River in Colorado.	CDOW/PD	Complete							
	IV.A.2.b.(1)	Program acceptance.	CDOW/PD	Complete							
>	IV.A.2.b.(2)	Implement Colorado pikeminnow augmentation plan.	CDOW/PD		X	X	X	X	X	X	
	IV.A.2.c.	Develop augmentation plan for bonytail in the Colorado River from Palisade to Loma.	CDOW	Complete							
	IV.A.2.c.(1)	Program acceptance.	CDOW/PD	Complete							
>	IV.A.2.c.(2)	Implement CDOWs bonytail augmentation plan.	FWS/CDOW		X	X	X	X	X		
	IV.A.3.	Develop augmentation plan for the four endangered fish in the Colorado River in Utah.									
	IV.A.3.a.	Prepare plan.	UDWR	Complete							
	IV.A.3.b.	Program acceptance.	UDWR	Complete							
>	IV.A.3.c.	Implement plan.	UDWR		X	X	X	X			
	V.	**MONITOR POPULATIONS AND HABITAT AND CONDUCT RESEARCH TO SUPPORT RECOVERY ACTIONS (RESEARCH, MONITORING, AND DATA MANAGEMENT)**									
	V.A.	Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.									
	V.A.1.	Determine Colorado pikeminnow larval drift into Lake Powell.	NPS	Complete							
	V.B.	Monitor populations per requirements in the 15-Mile Reach PBO.									
	V.B.1.	Determine initial baselines and indices for Colorado pikeminnow and humpback chub.	PD		4/00						
	V.B.1.a.	Evaluate population response based on ISMP data, per 15-Mile Reach PBO (every 5 years beginning in FY 05).	FWS							X	
	V.B.2.	Determine initial baselines and indices for razorback sucker and bonytail.	PD								12/05
	V.B.2.a.	Evaluate population response based on ISMP date, per 15-Mile Reach PBO (every 5 years beginning in FY 05).	FWS								X
	V.B.3.	Revise population indices to conform to recovery goals.	FWS			X					
	V.B.4.	Monitor incidental take.									
	V.B.4.a.	Develop plan to monitor incidental take of endangered fishes in diversion structures.	FWS			9/01					
	V.B.4.b.	Estimate amount of incidental take of young razorback and pikeminnow in the 15-Mile Reach.	FWS				X	X	X	X	X

COLORADO RIVER ACTION PLAN: GUNNISON RIVER

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	I.	**PROVIDE AND PROTECT INSTREAM FLOWS (HABITAT MANAGEMENT)**									
	I.A.	Initially identify year-round flows needed for recovery (Flow recommendations will be provided upon completion of Aspinall Unit studies.)									
	I.A.1.	Complete draft technical synthesis reports (FWS) and biological assessment (BR).	FWS/BR	Draft report complete; BA pending							
	I.A.2.	Complete final technical synthesis reports (FWS) and biological assessment (BR).	FWS/BR			12/00					
	I.A.3.	Complete draft biological opinion.	FWS			3/01					
	I.A.4.	Complete draft NEPA document .	BR			3/01					
	I.A.5.	Complete final biological opinion (FWS) and NEPA document (BR).	FWS/BR			9/01					
	I.B.	State acceptance of initial flow recommendations (Flow recommendations will be provided upon completion of Aspinall Unit studies.)									
	I.B.1.	Review scientific basis, dependent on development of flow recommendations by FWS.	CWCB/CDOW			6/01					
	I.B.2.	Assess legal and physical availability of water.	CWCB	Complete							
	I.B.3.	Assess compact considerations.	CWCB	Complete							
	I.C.4.	CWCB notice of intent to appropriate (in Colorado).	CWCB	On hold							
	I.C.	Legally protect identified flows.									
	I.C.1.	Acquire (flow recommendations will be provided upon completion of Aspinall Unit studies.)									
	I.C.1.a.	Assess, acquire and convert water rights to instream flows.	CWCB	Ongoing until flow recs. achieved.							
	I.C.2.	Appropriate (flow recommendations will be provided upon completion of Aspinall Unit studies.)									
	I.C.2.a.	CWCB approval to appropriate.	CWCB	On hold							
>*	I.C.2.b.	Colorado Attorney General's Office file date.	CWCB	On hold							
>*	I.C.2.c.	Water court adjudication (litigation dependent).	CWCB	On hold							
	I.C.3.	Deliver.									
>*	I.C.3.a.	Aspinall Unit supplemental releases to maintain 2,000 cfs minimum flow at Colorado-Utah state line 9 out of 10 years. Provide annual report.	BR	Ongoing through 01		9/01					
	I.C.3.b.	Flows from Aspinall Unit for research studies.									
>*	I.C.3.b.(1)	Deliver flows.	BR	Complete							
>*	I.C.3.b.(2)	Protect research flows.	FWS/BR/ CWCB	Complete							
	I.C.3.c.	Flows from Paonia Reservoir in accordance with FWS Horsethief Biological Opinion.									
>*	I.C.3.c.(1)	Deliver flows.	BR	Ongoing	X	X	X	X	X	X	X
	I.C.3.d.	Flows from Aspinall Unit pursuant to Aspinall Biological Opinion.									
	I.C.3.d.(1)	Determine if change in water right and/or contract is needed.	BR	On hold							
	I.C.3.d.(2)	Enter into contract if needed.	BR	On hold							
>*	I.C.3.d.(3)	Deliver flows.	BR	On hold							
	II.	**RESTORE HABITAT (HABITAT DEVELOPMENT AND MAINTENANCE)**									
	II.A.	Restore and manage flooded bottomland habitat.									
	II.A.1.	Develop management plan for Escalante State Wildlife Area.		Complete 5/94							
	II.A.2.	Develop and implement levee removal strategy at high-priority sites.									
	II.A.2.a.	Preconstruction (contaminants screening, floodability assessments, environmental compliance, design & engineering).	BR		X	X	X	X			
>*	II.A.2.b.	Construction (levee removal) [NOTE: Subject to review and approval for depression wetlands.]	BR		X	X	X	X			
	II.A.2.c.	Operate and maintain.	BR/FWS		X	X	X	X			
	II.A.2.d.	Evaluation.	FWS		X	X	X	X			
	II.A.3.	Acquire interest in high-priority flooded bottomland habitats.									
	II.A.3.a.	Identify and evaluate sites.	FWS		X	X	X	X			
	II.A.3.b.	Pre-acquisition planning and identification of acquisition options.	PD		X	X	X	X			
	II.A.3.c.	Conduct appraisal/NEPA compliance.	PD		X	X	X	X			
>*	II.A.3.d.	Negotiate & acquire.	PD		X	X	X	X			
	II.A.3.e.	Evaluate effectiveness of land acquisition activities and provide recommendations.	PD		X	X	X	X			
	II.B.	Restore native fish passage at instream barriers.									
	II.B.1.	Restore passage at Redlands.									

COLORADO RIVER ACTION PLAN: GUNNISON RIVER

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	II.B.1.a.	Assess and make recommendations for fish passage.	FWS	Complete							
	II.B.1.b.	Implement viable options to restore fish passage.									
	II.B.1.b.(1)	Design passage, conduct NEPA compliance.	BR	Complete							
>*	II.B.1.b.(2)	Construct fish ladder.	BR	Complete							
>*	II.B.1.c.	Operate and maintain fish ladder.	FWS-FR/BR	Ongoing	X	X	X	X	X	X	X
	II.B.1.d.	Monitor and evaluate success.	FWS-FR/BR	Ongoing	X	X					
	II.B.1.e	Identify minimum flows below Redlands Diversion Dam.	FWS-FR	Complete							
>*	II.B.1.f.	Deliver flows below Redlands.	BR	Ongoing	X						
	II.B.1.g.	Screen Redlands diversion structure to prevent endangered fish entrainment, if warranted.									
	II.B.1.g.(1)	Design.	BR				X				
>*	II.B.1.g.(2)	Construct.	BR					4/03			
	II.B.2.	Restore passage at Hartland.									
	II.B.2.a.	Assess and make recommendations for fish passage.	FWS-FR	Complete							
	II.B.2.b.	Evaluate viable options to restore fish passage.	BR		5/00						
	II.B.2.c.	Design passage, conduct NEPA compliance.	BR		X	X	X				
>*	II.B.2.d.	Construct fish passage.	BR					4/03			
>*	II.B.2.e.	Operate and maintain.	TBD					X	X	X	X
	II.B.2.f.	Monitor and evaluate success.	FWS						9/04		
	II.B.2.g.	Screen Hartland diversion to prevent endangered fish entrainment, if warranted.									
	II.B.2.g.(1)	Assess need.	BR			X	9/02				
	II.B.2.g.(2)	Design.	BR				X				
>*	II.B.2.g.(3)	Construct.	BR					4/03			
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative interactions between nonnative and endangered fishes.									
	III.A.1.	Evaluate angling mortality on endangered fishes below Redlands.	CDOW	On hold							
	III.A.2.	Increase law enforcement activity to decrease angling mortality.	CDOW	Ongoing	X	X	X	X	X	X	X
>*	III.A.3.	Remove small nonnative cyprinids from backwaters and other low velocity habitats.	CDOW	On hold							
>*	III.A.4.	Reclaim ponds in critical habitat	CDOW		X	X	X	X			
	III.A.4.a.	Evaluate and make recommendations.	CDOW		X	X					
	IV.	**MANAGE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS (STOCKING ENDANGERED FISHES)**									
	IV.A.	Augment or restore populations as needed and as guided by the Genetics Management Plan.									
	IV.A.1.	Razorback sucker.									
	IV.A.1.a.	Develop experimental augmentation plan and seek Program acceptance.	FWS-FR	Complete							
	IV.A.1.b.	Implement experimental augmentation plan. (Goal: 10 adults/river mile.)									
>	IV.A.1.b.(1)	Stock fish.	FWS-FR	Ongoing	X						
	IV.A.1.b.(2)	Monitor and evaluate results; make recommendations regarding further augmentation.	FWS-FR	Ongoing	X	X					
	IV.A.2.	Colorado pikeminnow.									
>	IV.A.2.a.	Implement Colorado's stocking plan.	FWS/CDOW				X	X	X	X	
	V.	**MONITOR POPULATIONS AND HABITAT AND CONDUCT RESEARCH TO SUPPORT RECOVERY ACTIONS (RESEARCH, MONITORING, AND DATA MANAGEMENT)**									
	V.A.	Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.									
	V.A.1.	Conduct Colorado pikeminnow and razorback sucker inventory in Gunnison River above Redlands.	FWS-FR	Complete							
	V.A.2.	Identify additional spawning sites of endangered fishes on the Gunnison River.	FWS-FR		X	X					

COLORADO RIVER ACTION PLAN: DOLORES RIVER

		ACTIVITY	WHO	STATUS	FY 00 10/99-9/00	FY 01 10/00-9/01	FY 02 10/01-9/02	FY 03 10/02-9/03	FY 04 10/03-9/04	FY 05 10/04-9/05	OUT-YEARS
	III.	**REDUCE NEGATIVE IMPACTS OF NONNATIVE FISHES AND SPORTFISH MANAGEMENT ACTIVITIES (NONNATIVE AND SPORTFISH MANAGEMENT)**									
	III.A.	Reduce negative interactions between nonnative and endangered fishes.									
	III.A.1.	Assess need and options to control nonnative fish escapement from McPhee Reservoir.	BR	Complete							
	III.B.	Reduce negative impacts to endangered fishes from sportfish management activities.									
	III.B.1.	Identify potential conflicts between present fish management practices in McPhee Reservoir and endangered fishes and formulate an alternative management plan.	CDOW	Complete							
	IV.	MANAGE GENETIC INTEGRITY AND AUGMENT OR RESTORE POPULATIONS (STOCKING ENDANGERED FISHES)									
	IV.A.	Augment or restore populations as needed and as guided by the Genetics Management Plan.									
	IV.A.1.	Colorado pikeminnow.									
>	IV.A.1.a.	Implement CDOW's stocking plan.	FWS/CDOW			X	X	X	X	X	

5.0 RECOVERY ACTION PLAN PROJECTED FUNDING NEEDS (IN THOUSANDS)

*ANNUAL OPERATING COSTS & FACILITY O&M:	Total	FY00	FY01	FY02	FY03	FY04	FY05
Annual Operating Costs	21,352	3,301	3,400	3,502	3,607	3,715	3,827
Facility Operation and Maintenance	6,532	976	1,041	1,079	1,144	1,146	1,146
ANNUAL AND O&M TOTAL	**27,884**	**4,277**	**4,441**	**4,581**	**4,751**	**4,861**	**4,973**

CAPITAL FUNDING:	Total	FY99	FY00	FY01	FY02	FY03	FY04	FY05
Yampa River Management Plan	14,750	113	66	500	5,150	8,921		
Grand Valley Water Management	5,221	97	2,906	1,068	1,150			
Coordinated Reservoir Operations	511	245	101	55	55	55		
Ruedi Water and Steamboat Sales	235	126	109					
Acquire New Water to Enhance Flows in the Green River Subbasin	4,772	42	40	418	972	3,300		
Bottomlands Restoration	7,973	2,847	2,069	1,667	1,391			
Hartland Fish Passage	1,800	57	0	143	350	1,200	50	
GVIC Fish Passage	28	28						
Price/Stubb Fish Passage	2,075	175	115	470	1,315			
Gov't Highline (Roller Dam) Passage	3,500	52	468	680	2,250	50		
Redlands Screening	2,300	6	7	587	1,700			
Hartland Fish Screening	200				45	155		
GVIC Fish Screening	1,850	2	260	1,588				
Gov't Highline (Roller Dam) Screening	5,000				1,550	3,450		
Tusher Wash Screening	1,565	31	300			1,234		
Endangered Fish Hatchery Facilities	5,186	2,077	898	800	800	611		
Colorado River Pond Reclamation	744	172	192	185	195			
Elkhead Screening	1,400		26	374	1,000			
Highline Reservoir Screening	260	255	5					
Capital Program Management	2,266	394	400	430	492	550		
Public Involvement Plans	363	79	44	80	80	80		
CAPITAL PROJECTS TOTAL	**62,000**	**6,799**	**8,005**	**9,045**	**18,495**	**19,606**	**50**	**0**

*Rough estimates; Program staff are working with Reclamation to more accurately estimate outyear O&M costs.

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APPENDIX: CRITICAL HABITAT ANALYSIS

BACKGROUND

The final rule determining critical habitat for the four endangered fishes was published in the Federal Register on March 21, 1994, and the final designation became effective on April 20, 1994. As stated in the Section 7 Agreement and in the RIPRAP, the Recovery Program is intended to serve as the reasonable and prudent alternative to avoid the likely destruction or adverse modification of critical habitat, as well as to avoid the likelihood of jeopardy to the continued existence of the endangered fishes resulting from depletion impacts of new projects and all existing or past impacts related to historic water projects with the exception of the discharge by historic projects of pollutants such as trace elements, heavy metals, and pesticides. Once critical habitat was designated, the Service reviewed the RIPRAP, and in coordination with the Recovery Program's Management Committee, developed modifications to fulfill this intent.

The Service's review concluded that many of the actions in the existing RIPRAP would not only contribute to allowing the Recovery Program to continue to serve as the reasonable and prudent alternative to avoid the likelihood of jeopardy to the continued existence of the endangered fishes, but also would avoid the likely destruction or adverse modification of critical habitat for the endangered fishes. Specifically, the RIPRAP already included several of the following kinds of habitat-related actions for each subbasin (except the Dolores River): instream flow acquisition, legal protection, and delivery from modified reservoir operations; fish passage restoration; and flooded bottomland restoration. Thus, the critical habitat modifications to the RIPRAP were not extensive. They were primarily intended to provide further definition to recovery actions already in the RIPRAP and to provide increased certainty that the Recovery Program can continue to serve as the reasonable and prudent alternative for projects subject to Section 7 consultations. Since many historic projects will be required to reinitiate Section 7 consultation with the Service due to the critical habitat designation, the Service encouraged Recovery Program participants to complete these RIPRAP actions as quickly as possible to facilitate fish recovery.

Destruction or adverse modification of critical habitat is defined at 50 CFR 402.02 as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Section 7 consultation is initiated by a Federal Agency when its action may affect critical habitat by impacting any of the primary constituent elements or reducing the potential of critical habitat to develop those elements. The primary constituent elements defined in the final rule as necessary for survival and recovery of the four Colorado River endangered fishes include, but are not limited to, 1) water (quantity and quality), 2) physical habitat (areas inhabited or potentially habitable, including river channel, bottom lands, side channels, secondary channels, oxbows, backwaters, and other areas); and 3) biological environment (food supply, predation, and competition). The Service reviewed the RIPRAP to determine if it addressed these constituent elements and to identify existing and new actions that will contribute to the RIPRAP serving as a reasonable and prudent alternative to the likely destruction or adverse modification of critical habitat. Then, in coordination with the Management Committee, the Service recommended additions

needed to address all of the constituent elements, to better define the expected result of the recovery action, and to increase the certainty that the constituent elements of critical habitat would be protected.

MODIFICATIONS

1. Instream Flow Protection: Modifications were made under this recovery element to protect the water quantity constituent element.

   a. Adjudication of the instream flow appropriations to be filed by the Colorado Water Conservation Board (on the Yampa, Little Snake, White, Colorado, and Gunnison rivers) was added since these instream flow appropriation filings will not be legally protected until they are adjudicated in water court. Adjudication may take up to three years after filing, depending on the amount of litigation.

   b. To provide more immediate habitat improvements in the Grand Valley area via instream flows, a modification was made under water acquisition for the 15-Mile Reach to enter into an interim agreement for uncommitted water remaining in Ruedi Reservoir after Round II water sales are completed or commitments to contracts are agreed to. If flow recommendations for the 15-mile reach are met from other sources during this interim agreement (thereby causing the additional water from Ruedi to exceed the flow recommendations) Ruedi would be relieved of this additional obligation. At the end of the interim agreement (whether the flow recommendations have been met or not), Reclamation may pursue additional water sales, however, these sales would be subject to review under Section 7 of the Endangered Species Act.

2. Habitat Restoration: Modifications were made under this recovery element to protect the physical habitat constituent element.

   a. Access to historically inundated floodplain habitats is believed to be very important to recovery of the razorback sucker and Colorado pikeminnow. Although the Recovery Program has begun a program to evaluate and restore flooded bottomland areas, the fishes riverine habitat has been and continues to be so channelized by levees, dikes, rip-rap, and tamarisk, that broader floodplain restoration and protection (e.g., through mechanisms such as landowner incentives, conservation easements, and perhaps zoning) is needed. Recovery Program participants are not yet sure exactly how such mechanisms might be implemented so development of an issue paper on restoration and protection of the floodplain has been recommended. The issue paper will first address what restoration and protection are needed and then how they might be accomplished. After completion of the issue paper, viable options will be identified and a restoration strategy developed for selected geographic areas (e.g. Grand Valley and Ashley Valley). Floodplain restoration activities may be

implemented by the Recovery Program or by Program participants individually. Responsibilities of other agencies will be identified in the issue paper and actions implemented consistent with their authorities outside the Recovery Program.

b. The Recovery Program has been evaluating agricultural diversion structures in the Yampa River and has discovered that although not all of these structures impede Colorado pikeminnow passage, the annual bulldozing in critical habitat in the river that is required to maintain many of these structures may destroy or adversely modify fish habitat. Upgrading these structures so that they are more secure would eliminate the need for this annual bulldozing and modification of critical habitat.

c. Fish passage structures are planned for a number of diversion dams in the Upper Basin in the current RIPRAP. However, without screens or "entrainment structures," adult fish, especially razorback suckers may go into the diversion canals. To keep fish in the more secure river habitat, a modification was made to include an entrainment structure on the proposed passage structure at the Government Highline diversion (Roller Dam). Also, the need for an entrainment preclusion structure at Redlands Diversion Dam will be evaluated after construction of the fish ladder there.

3. Reduction of Negative Impacts of Nonnative Fishes and Sportfish Management Activities: Modifications were made under this recovery element to protect the constituent element of the fishes biological environment.

a. Competition with and predation from introduced species is widely assumed to have played a role in the decline of the endangered fishes. The Recovery Program has been and continues to assess options to reduce negative impacts of problem nonnative species, sportfish management, and angling mortality. Although we cannot yet fully predict the results of implementing some of these management options, we need to begin to implement the most viable ones. Therefore, actions have been added to implement (in cooperation with the States) viable measures which will decrease negative impacts of certain nonnative fishes, sportfish management, and angling mortality. Specific actions were added to selectively remove northern pike from the Yampa River and northern pike and centrarchids from the Gunnison River and possibly Paonia Reservoir.