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

United States Department of the Interior

U.S. Fish and Wildlife Service

Region 6, Denver, Colorado

Revised May 2025

This page is left blank intentionally.

Acknowledgement

The Recovery Implementation Program for Threatened and Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) represents the collective work of many partners over many decades.

The Recovery Program was initiated in 1988 after more than three years of intense discussions, data analysis, and negotiations by representatives from the U.S. Fish and Wildlife Service; the U.S. Bureau of Reclamation; the states of Colorado, Utah, and Wyoming; and environmental and water development interests. The purpose of negotiations was to find a way to avoid potential conflicts between protection of four fish species listed under the Endangered Species Act (ESA) and water development and management in the upper Colorado River basin. The principal credit for the development of the Recovery Program goes to the following Task Group members: Louis Allen, State of Wyoming; Jeff Fassett, State of Wyoming; Reed Harris, U.S. Bureau of Reclamation; Max Haegele, U.S. Bureau of Reclamation; James Martin, Environmental Defense Fund; Laurie Mathews, State of Colorado; Barry Mulder, Task Group Chairman, U.S. Fish and Wildlife Service; Tom Pitts, Colorado Water Congress; Carse Pustmueller, National Audubon Society, Colorado Wildlife Federation; Barry Saunders, State of Utah; and Butch Slawson, Rocky Mountain Oil and Gas Association.

The issues faced by the Task Group were sensitive, complex, and of major importance to the water and fishery resources in the upper Colorado River basin. The professionalism and perseverance of those involved were the key factors that brought the process to an effective conclusion.

Since its implementation, the Recovery Program has been guided by a set of incredibly dedicated people who have made it what it is today. Although too numerous to name, we thank the many who have served as Program office staff, committee members, principal investigators, biologists, seasonal employees, and volunteers. We would not be here today without all of you.

The U.S. Fish and Wildlife Service extends its sincere thanks and appreciation to these and numerous other individuals who have contributed to the success of the Recovery Program and, in particular, those who have participated in the process of revising the authorization legislation and redrafting of the Program documents between 2019 and 2024. The collective effort to ensure the future of the Recovery Program has enhanced the recovery prospects of the upper Colorado River ESA listed fishes.

Photo 1. Boating along the Green River in Dinosaur National Monument. Photo credit Amy Washuta.

Executive Summary

The Recovery Implementation Program for Threatened and Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) is a collaborative effort of federal, state, Tribal, and nongovernmental partners. The partners are the U.S. Bureau of Reclamation (Reclamation), U.S. Fish and Wildlife Service (Service), National Park Service (Park Service), Western Area Power Administration (WAPA), Colorado River Energy Distributors Association (CREDA), the states of Colorado, Utah, and Wyoming, water user organizations (Colorado Water Congress, Utah Water Users Association, Wyoming Water Association), and conservation organizations (The Nature Conservancy [TNC] and Western Resource Advocates [WRA]). The Recovery Program aims to recover four Endangered Species Act (ESA) listed fish species in the upper Colorado River basin while water development and management activities continue in compliance with all federal, state, and Tribal laws.

Implementation of the Recovery Program requires support from all parties involved, effective governance through the committee structure, adequate funding, compliance with existing laws, sufficient time, and execution of all Recovery Program elements. Progress towards species recovery is routinely assessed. Research and monitoring are used to support decision making and adaptive management based on new scientific information.

Institutional Arrangements

All parties to the Recovery Program actively participate through governing, management and technical committees that oversee Recovery Program implementation, decision-making, and provide technical expertise. The committee structure facilitates collaboration and engagement. Timely and effective planning, implementation, and coordination of the Recovery Program occurs through the Program Office (PO), which is housed in Region 6 of the Service.

Formal voting processes ensure unanimous support for key decisions, while committee structures facilitate collaboration and stakeholder engagement. The program's success relies on ongoing commitment, coordination, and adherence to scientific principles to achieve its conservation goals.

ESA Listed Species and Recovery Elements

The four ESA listed fish species are the razorback sucker, Colorado pikeminnow, humpback chub, and bonytail. Recovery plans have been developed for each species, identifying specific population goals, threats and actions needed for recovery. These plans are regularly updated and guide the Recovery Program's activities. The goal is to restore self-sustaining populations and sufficient habitat to ensure long-term survival.

Each species faces unique challenges such as habitat loss, nonnative species predation and competition, and changes in flow regimes. Efforts to recover these species are categorized into recovery elements, which include instream flow management, habitat development and maintenance, propagation, management of nonnative species, research/monitoring, and outreach. The Recovery Action Plan (RAP) guides recovery efforts, prioritizing actions based on

scientific data and their potential to benefit endangered fish populations. The RAP is updated annually to incorporate new scientific information.

ESA Compliance

The Recovery Program is intended to provide ESA compliance for all water development and management activities in the upper Colorado River basin. The Service independently assesses the Recovery Program's progress annually to determine its adequacy as a reasonable and prudent alternative for ESA compliance, considering factors such as population response, habitat improvement, flow adequacy, and project impacts. As of December 2024, the Recovery Program has provided ESA compliance for consultations on approximately 2,200 water projects.

Funding

Funding reliability is crucial for continuous Recovery Program operations and high-priority recovery actions. Congress has authorized federal cost sharing through Public Law 106-392 as amended. Annual base funding and capital project funding is appropriated to Reclamation. The Service provides funds for operation of federal hatcheries and Service offices that support the Recovery Program. State partners will contribute annual funding, capital funding when funds allow, and in-kind services to the Recovery Program though projects that benefit the ESA listed species. Additional resources are provided by water project proponents (through depletion fees), hydropower interests and conservation organizations. Annual base funding supports research and monitoring, operation of capital projects, implementation of recovery actions, and management of the Recovery Program. Capital funds are used to construct hatcheries, fish screens, passages, reservoir screens, acquisition of permanent water supplies and other critical infrastructure. Funding administration provides accountability, with annual budget reviews to assess progress and recommend adjustments as needed.

Conclusion

The Recovery Program is a comprehensive and integrated approach to conserving and recovering ESA listed fish species in the upper Colorado River Basin. This basin wide approach is essential for conservation of the species. Through collaboration and adaptive management, stakeholders are working together to ensure the long-term survival and recovery of these imperiled species while meeting water development needs.

Contents

1 INTRODUCTION

1.1 PURPOSE

The Recovery Implementation Program for Threatened and Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) was initiated in 1988 to conserve and recover populations of four fish species listed under the Endangered Species Act (ESA) while water development and management activities proceed in compliance with all applicable federal, State, and Tribal laws, interstate compacts, and court decrees (U.S. Department of the Interior 1988). The Recovery Program is intended to provide the measures for compliance with the ESA for water development and management activities in the upper Colorado River basin (upper basin). This Recovery Program applies to the upper Colorado River basin above Glen Canyon Dam[1], which includes the Green River and upper Colorado River subbasins, and excludes the San Juan River basin (see Figure 1).

1.2 IMPLEMENTATION

The Recovery Program is an interdependent and collaborative, comprehensive, and ambitious effort. Each component of the Recovery Program is necessary to achieve recovery of the four listed species. Successful implementation of the Recovery Program is dependent on support and participation by all parties, including:

- operation of effective working committees.
- availability of adequate funding to implement all elements.
- implementation within the framework of all existing state, Tribal, and federal laws.
- sufficient period for implementation; and
- implementation of all program elements.

Progress towards recovery is assessed annually through the Service's sufficient progress review process to ensure compliance with the ESA (see Section 6).

Implementation of the Recovery Program is documented on the website (www.coloradoriverrecovery.org/uc/). The website contains information about the development of the program, Section 7 compliance information, adaptive management information including funded scopes of work and annual reports, scientific literature, links to the database, meeting summaries and committee membership.

1.3 HISTORICAL CONTEXT

Four fish species in the Colorado River are federally listed as endangered or threatened under the ESA: Colorado pikeminnow, bonytail, razorback sucker, and humpback chub. While these four species were once all abundant in the upper Colorado River basin, each drastically declined

[1] The Colorado River Compact division point is at Lee Ferry, Arizona, below Glen Canyon Dam.

Figure 1. Map of the upper Colorado River basin with outlines of the Recovery Program's extent which includes all the Green and Colorado River subbasins.

in number as modern human development expanded across the basin. Several factors accounted for the imperiled status of these species at the time of listing, ranging from the construction of multiple dams, water development, habitat alteration and loss, and the introduction of nonnative species that compete with and prey on native species. In a series of ESA section 7 consultations beginning in 1978, the Service concluded that operation of existing federal water projects in the upper basin would likely jeopardize the continued existence of the listed species and, for these projects to go forward, the proponents would need to take actions to offset their projects' impact on the four fish species. The initial consultations covered the continued operation of Reclamation projects through the establishment of the Colorado River Fisheries Project (housed in the Service and funded by Reclamation).

In the early 1980s, a potential conflict arose between the protection of threatened and endangered fish species in the upper Colorado River basin and water development and management in accordance with state water law, interstate compacts, and federal trust responsibilities to Native American Tribes. Interested parties recognized that such a confrontation was unlikely to result in progress toward recovery of ESA listed species and would also lend a measure of uncertainty to future water resource development in the upper basin. As a result, the parties endeavored to accommodate their competing interests through cooperation, discussion and negotiation.

The forum for these discussions was the Upper Colorado River Basin Coordinating Committee (Coordinating Committee). The Coordinating Committee was formally established in late summer 1984 by a Memorandum of Understanding among the Service, Reclamation, and the states of Colorado, Wyoming, and Utah. The memorandum also established a technical steering committee and subcommittees which were responsible for compiling and assessing data and for making final recommendations to the Coordinating Committee. Representatives of water users and water development proponents, as well as of conservation organizations, were members of these committees.

The Coordinating Committee's formal charge was a narrow one. Earlier consultations under Section 7 of the ESA had found that proposed federal actions related to water projects would likely jeopardize the continued existence of the four listed fish species. The committee was to identify reasonable and prudent alternatives[2] that would avoid jeopardizing the species while allowing new water development to proceed in the upper basin in compliance with the ESA. However, during their discussions, the parties concluded that both the biological requirements of the four species and the hydrology and management of the upper Colorado River basin are

[2] Reasonable and Prudent Alternatives refer to alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the federal agency's legal authority and jurisdiction, that is economically and technologically feasible, and that the Service Director believes would avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat. Sourced from 50 CFR 402.02 (1986).

exceedingly complex. It was determined that project by project Section 7 consultations would not likely provide long-term certainity that the parties sought. Instead, a cooperative, programmatic, basin wide approach was proposed to implement a program designed to recover the species while providing a reasonable and prudent alternative that would allow continued water resource management and development in the upper basin. This would best be achieved through a concerted and cooperative effort to recover all four species. As a consequence, the parties determined that a comprehensive Recovery Program was needed to implement a broad range of measures designed not only to prevent extinction of the listed species but to ensure their full recovery and eventual delisting under the ESA. Those measures would be considered by the Service as providing reasonable and prudent alternatives for the impacts of existing and new water development and management activities requiring ESA compliance.

The result of these discussions was the creation of the Recovery Program via a Cooperative Agreement among the Secretary of the Interior (Secretary), the Administrator of WAPA, and the Governors of Colorado, Utah and Wyoming (U.S. Department of the Interior 1987). The Recovery Program currently serves as a reasonable and prudent alternative or applicant committed conservation measure[3] for water depletion consultations throughout the upper Colorado River basin.

In 1992, a second recovery program was implemented in the San Juan River basin called the San Juan River Basin Recovery Implementation Program (SJRIP or San Juan Program). The San Juan Program provides the same compliance for water depletions and seeks recovery of two species, Colorado pikeminnow and razorback sucker. The two programs share outreach tools, including a public facing website (www.coloradoriverrecovery.org) which shares general information about both recovery programs and extensive histories of the programs through documentation. The programs also share a database allowing tracking of fish that move from basin to basin.

[3] Conservation Measures are actions to benefit or promote the recovery of listed species that are included by the federal agency as an integral part of the proposed action. These actions will be taken by the federal agency or applicant, and serve to minimize or compensate for, project effects on the species under review. These may include actions taken prior to the initiation of consultation, or actions which the federal agency or applicant have committed to complete in a biological assessment or similar document. Sourced from the FWS Section 7 Handbook.

Photo 2. Sampling equipment along a sandbar in Island Park along the Green River. Photo credit Melissa Trammell.

2 INSTITUTIONAL ARRANGEMENTS

2.1 INTRODUCTION

This Recovery Program was developed as a cooperative effort involving agencies and organizations with an interest in how the ESA listed fish in upper Colorado River basin and its water resources are managed. Partners include the states of Colorado, Utah, and Wyoming; Reclamation; the Service; the Park Service; water development interests; WAPA; hydropower interests; and conservation organizations. The Recovery Program provides a framework for identifying and implementing a broad range of measures to achieve recovery of the four listed fish species in the upper Colorado River basin, which are documented and implemented through the Recovery Action Plan (RAP).

Recovery requires a coordinated, long-term program supported by involvement of partners and stakeholders. For this reason, the Recovery Program is coordinated by the Service, primarily through the PO, working closely with multiple committees made up of representatives of Recovery Program partners. Each of the federal, state, and nongovernmental partners plays an important role in ensuring the successful implementation the Recovery Program.

The states of Colorado, Wyoming, and Utah play a key role in determining how Colorado River system's water resources are developed and have a corresponding interest in legal requirements that could constrain water resource development and management. At the same time, the states have historically been responsible for management of fish and wildlife resources, including threatened and endangered species, that occur within their jurisdictions.

Reclamation is responsible for the operation of federal water infrastructure projects in the upper Colorado River basin, ranging from large multiple-purpose projects to smaller reservoirs that provide a continuing supply of water for beneficial use. WAPA markets hydropower produced by Reclamation at many of these federal reservoirs. The amount of power produced is dependent on how flows are released out of a given reservoir. The Park Service, which joined the Recovery Program in 2000, manages multiple park units affected by Recovery Program management actions, including Dinosaur National Monument and Canyonlands National Park, and has an interest in maintaining intact species compositions and habitat conditions within park boundaries. In addition, all federal agencies are bound by the requirements of the ESA.

The Service is responsible for administering the ESA and for the protection and recovery of endangered and threatened species (ESA, 16 U.S.C. 1531 et seq.), including the four ESA listed fish species of the Colorado River basin. The Service provides the organizational focus needed to implement the Recovery Program in furtherance of its duties under the ESA.

Representatives of non-federal water resource development organizations (Colorado Water Congress, Utah Water Users Association, Wyoming Water Association) also participate in the Recovery Program. The water resource organizations value practical and meaningful ways to manage and recover the four ESA listed fish species in a manner consistent with state and Tribal

policies for administering water rights, interstate compacts, and court decrees that allocate Colorado River water among water users, states, and Tribes.

Colorado River Storage Project (CRSP) hydropower customers are represented on Recovery Program by the Colorado River Energy Distributors Association (CREDA), which became a voting member in 2000 at the same time as the Park Service. CREDA values practical and meaningful ways to manage and recover the four ESA listed fish species while allowing for maximum power production and value from CRSP dams.

Conservation organizations participated in the founding of the Recovery Program. These organizations are interested in assuring the preservation of ecosystems, including native and ESA listed fish species, while assuring the Recovery Program is implemented in an effective and prudent manner. The conservation perspective is currently represented by Western Resource Advocates and The Nature Conservancy.

Each of these interests participated in the drafting of Recovery Program foundational documents. Each participating organization is committed to the successful implementation of a program that will support recovery of the four ESA listed fish species, consistent with all applicable federal, state, and Tribal laws and policies for water resource development and use.

2.2 COOPERATIVE AGREEMENT

The Secretary, the Administrator of WAPA, and the governors of the three upper basin states executed a Cooperative Agreement endorsing and adopting the Recovery Program. The Cooperative Agreement incorporates the terms, objectives, and scope of the Recovery Program and commits each party to its timely implementation. The Cooperative Agreement is executed under the statutory authority of the ESA and other applicable federal and state laws. The Cooperative Agreement for Recovery Program was originally signed executed in 1988 and renewed in 2001, 2009, 2023 and 2024 (U.S. Department of the Interior 1988, 2001, 2009, 2023, 2024).

Beyond the commitment of the Secretary and the governors, it is apparent that a commitment on the part of conservation organizations, water development interests, and hydropower customers is also required for successful implementation of the Recovery Program. All nongovernmental organizations (water development, conservation, and hydropower customers) submit supporting resolutions that state their support, expectations, and responsibilities as formal participants in the Recovery Program.

2.3 COMMITTEES

The Recovery Program operates using a committee structure with representatives from each of the ten formal partnering organizations serving on each of five committees. Partners include the states of Colorado, Utah, and Wyoming, Reclamation, the Service, the Park Service; water development interests, WAPA, hydropower interests, and conservation organizations.

The five committees are the Implementation Committee, Management Committee, and three technical committees - Biology, Water Acquisition, and Outreach. All committee meetings are open to the public.

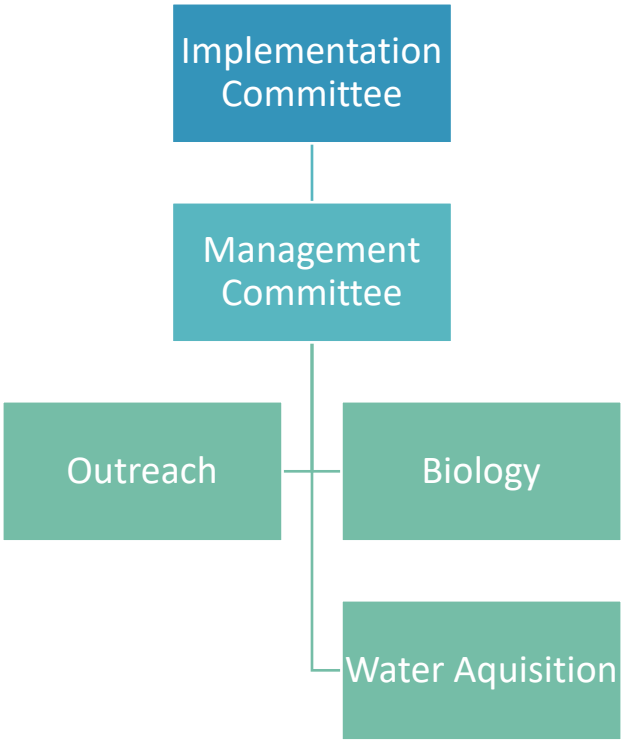


Figure 2. Organizational chart showing committee structure.

2.3.1 Implementation Committee (IC)

The original 1988 Cooperative Agreement established an Implementation Committee pursuant to Sections 2 and 4 of the ESA as well as other applicable laws. The Implementation Committee operates by unanimous consensus and is responsible for overseeing and ensuring implementation of the Recovery Program.

All participating parties carry out the Implementation Committee's recommendations if, in the independent judgement of each party, the recommendations are justified. If any party finds the recommendations are not justified, that party may report its position to the Implementation Committee in writing. The Implementation Committee will be given sufficient time to resolve any problems.

The authority of the Implementation Committee cannot, and does not in any way, diminish, detract from, or add to the authority and statutory responsibilities of the states, federal government, or any nongovernmental participating organization. In addition, each party assesses whether its expectations are being met. If any party declines to participate at any point during implementation, that party will report its reasons for withdrawal to the Implementation Committee in writing. The Implementation Committee will be given sufficient time to resolve any problems.

The Implementation Committee consists of the following participants which represent the cosigners of the Cooperative Agreement:

a. Regional Director for Region 6, U.S. Fish and Wildlife Service (or an appointed representative).
b. Regional Director of the Upper Colorado Region, U.S. Bureau of Reclamation (or an appointed representative).
c. representatives of Colorado, Utah, and Wyoming appointed by the governors of each state.
d. Area Manager of Western Area Power Administration (or an appointed representative); and
e. Regional Director for the Intermountain Region, National Park Service (or an appointed representative).

Nongovernmental parties also serve on the Implementation Committee. These parties are not cosigners of the Cooperative Agreement but have entered supporting resolutions to formally participate in the Program.

- One representative of water development interests in Colorado, Utah, and Wyoming that has executed an agreement in support of the Recovery Program; and
- One representative of conservation organizations that has executed an agreement in support of the Recovery Program with offices in Colorado, Utah, or Wyoming; and
- One representative of CRSP hydropower customers as represented by the Colorado River Energy Distributors Association.

Other entities (e.g., Tribes, other agencies) may become partners by executing the appropriate document (i.e., become a signatory to the cooperative agreement or execute a supporting resolution) in support of the Recovery Program. Any entities wanting to formally join the Recovery Program would need unanimous IC concurrence from existing members. Alternatively, other entities may participate in and observe committee meetings as appropriate without becoming formal partners of the Recovery Program. Only formal partners can vote as outlined in section 2.3.4.

The Implementation Committee is chaired by the Regional Director for Region 6 of the Service or the Director's designated representative. In addition, the Implementation Committee includes a nonvoting member: the Program Director (Service employee) who is appointed by the Regional Director for Region 6 of the Service upon consultation with the Implementation Committee (see section 2.4 for details).

Recognizing the many competing demands upon Implementation Committee members' time, other committees have been established to support implementation of the Recovery Program. Descriptions of each of these committees follow.

2.3.2 Management Committee (MC)

The Management Committee consists of representatives from each of the entities serving on the Implementation Committee, appointed by their Implementation Committee member. Management Committee representatives are knowledgeable members of their corresponding organizations who work closely with Recovery Program staff.

The Management Committee reviews, amends, and approves all Recovery Program documents before presentation to the Implementation Committee. The Management Committee may accomplish tasks delegated by the Implementation Committee, including approval of proposed activities and expenditures in the annual workplan or from the National Fish and Wildlife Foundation (NFWF) account, and documents such as scopes of work, budgets, and progress assessments.

The Management Committee is typically chaired by one of the state's representatives. If no state representative is available, then another MC member may be elected as chair through the process outlined in section 2.3.5.2. The technical committees report to the Management Committee.

2.3.3 Technical Committees

The Recovery Program partners designate representatives to each of the technical committees. Technical committees provide technical input and guidance on various topics. The technical committees assist in development of proposed recovery actions, review of proposed scopes of work, development of proposed annual budgets, evaluation of Recovery Program activities in support of the sufficient progress assessment, and review and approval of final and technical reports as appropriate. Through these activities, the technical committees make recommendations for adaptive management and assure that recovery actions are scientifically based and effective. All Recovery Program documents are reviewed and amended by the technical committees before presentation to the Management Committee.

2.3.3.1 Biology Committee (BC)

The role of the Biology Committee is to ensure the Recovery Program is using the best available science to implement recovery actions for the ESA listed species. The BC generally provides guidance on the elements of instream flow, habitat, nonnative fish management, propagation, and research and monitoring. Biology Committee representatives are frequently trained biologists with sufficient knowledge of the upper Colorado River basin and its species to provide expertise and guide management actions to support recovery of the ESA listed fish species.

2.3.3.2 Outreach Committee (OC)

The role of the Outreach Committee is to provide technical guidance to the Recovery Program on the best strategies to provide information and education to stakeholders and the public regarding activities and benefits of the Recovery Program. Recommended strategies may change over time and vary by priority audience. In addition, Outreach Committee members are responsible for using their media networks to help distribute stories and information about the

Recovery Program. Outreach Committee representatives include trained outreach and public information specialists with knowledge of communications and the growing field of human dimensions. Outreach that builds and maintains public and stakeholder support is crucial to the Recovery Program's long-term success.

2.3.3.3 Water Acquisition Committee (WAC)

Water Acquisition Committee representatives include hydrologists, water rights specialists, and water managers with sufficient knowledge of the upper Colorado River basin to guide management actions to support recovery of the ESA listed fish species. The Committee recommends and supports innovative approaches to providing flows for the ESA listed fish that are consistent with state water law, Reclamation project authorizations, commitments of the United States to Tribal trust responsibilities, and other applicable regulations.

2.3.4 Decision Making

All Recovery Program committees operate by unanimous consent and formal voting.

Formal votes are required for:

1. Recovery Program expenditures
    a. Management Committee approval of NFWF expenditures and capital project expenditures.
    b. Implementation Committee approval of the annual workplan, based on recommendations of the Management and technical committees.
2. Management Committee approval of the RAP, after approval by the BC, WAC, and OC.
3. Approval of final or technical reports by the appropriate technical committee(s).
4. Approval of flow recommendations by the IC, after approval by the BC, WAC, and MC.
5. Amendments to this document by the IC, after approval by the MC.

The process for formal votes is as follows: the Program Office will present an item for consideration, along with supporting information, to the appropriate committee for consideration at one of the scheduled meetings. When no meeting is scheduled before a vote is needed, the PO may send out a request to vote by email with at least two weeks of time for review and voting. For any vote, committee members may request additional information to be provided before a vote is taken. Such a request may delay the vote until a subsequent meeting or may alter the vote format (e.g., meeting vs email). Once all committee member questions have been addressed, the committee chair will request a motion and a second from the committee members, both of which are necessary to advance the item to a full vote by the committee. Following a motion and a second, the committee chair will call for a vote on the motion. At a committee meeting, the committee chair shall call for ayes or noes through a voice vote or Committee members may vote via email. Any committee member may request a rollcall vote of the committee members present. Only a unanimous vote carries, though a member can abstain from voting without blocking passage of the item. Silence by a committee member during a voice vote or members who fail to respond to emails within the appropriate timeframe are considered to have abstained. Abstention does not indicate support or objection. Members

absent at the time of a committee meeting vote may submit their vote through email prior to the meeting if desired.

For all other items not specifically listed above, the Recovery Program operates by unanimous consent. Unanimous consent requires a clear statement by the committee chair as to the proposed action and a request to the committee for any objection to taking the desired action. If no member objects, the chair declares that the action has been agreed to.

Unanimous consensus is a foundational principle of the Recovery Program and has been implemented consistently since the Recovery Program's inception. In most cases, decision items require unanimous support to ascend from the technical committee level to the Management Committee, and from the Management Committee to the Implementation Committee. In a situation where consensus is not obtained at a previous level, any committee member from the Management Committee (if the lack of consensus is at the technical committee level) or the Implementation Committee (if the lack of consensus is at the Management Committee) may request a decision be considered in their committee. Any consideration by a committee of an item elevated for a vote in this way shall be conducted through a formal vote requiring a motion and a second from two committee members before a vote is called.

2.3.5 Committee Member Designations and Participation

Each Recovery Program partner is expected to participate in and designate a member to each standing committee who has sufficient knowledge and time available to effectively participate in the committee and guide Recovery Program implementation. Representatives to committees are expected to actively participate in the committees.

2.3.5.1 New Committee Members

To designate a new technical committee member, the Management Committee member will send an email to the Program's Deputy Director. Management Committee member designations will occur via email to the Deputy Director from the Recovery Program partner's Implementation Committee member. When an Implementation Committee position is vacated the signatory organization to the Cooperative Agreement will designate a representative to the Implementation Committee. Designation of Implementation Committee members will follow procedures in section 2.3.1.

Recovery Program partners may designate an alternative representative to any committee to serve in case of absence of the designated representative. If a Recovery Program partner designates an alternative representative, the same procedures apply to alternative representative as to designated representative. The Deputy Director will report any change in representatives or alternative representatives to the appropriate committee.

2.3.5.2 Committee Chairs and Vice Chairs

The Management and technical committees will elect a chair and may elect a vice chair. Committee chairs are responsible for assisting the PO with creating appropriate agendas for

committee meetings. In addition, the role of the chair is to preside over committee meetings and move the agenda forward as effectively as possible. The role of the vice chair, which is to assume the responsibilities of the chair if the chair is unavailable, may be served by the subsequent chair if defined. If no chair or vice chair is available, Program Office staff may preside over committee meetings. Even when serving in this role staff may not vote. Chairs and vice chairs are elected by unanimous consent after volunteering for the role. They may serve terms of one or more years as desired by the committee. Regular rotation among committee members of the position of chair is encouraged.

2.4 PROGRAM OFFICE

The Recovery Program is coordinated through the PO, which is housed in Region 6 of the Service. The mission of the PO is to ensure timely and effective planning, implementation, and coordination of the Recovery Program through the committee structure. A key aspect of the Recovery Program's success derives from maximizing engagement and trust among partners through open and timely communication, facilitated by the PO. The PO ensures cohesive and coordinated implementation of all Recovery Program activities to make the most effective use of available funds from all sources. The PO serves as liaison to the Service, providing up to date information that is used in assessing ESA compliance, and ensuring that the Recovery Program responds to Service concerns.

The PO has been delegated the role of day-to-day administration of the Program, which can otherwise be termed Recovery Program Management. The PO, with oversight by Recovery Program partners, accomplishes the mission through six main actions:

- identify and prioritize questions to guide recovery actions.
- facilitate planning and adaptive management through the RAP.
- allocate the Recovery Program budget to the biannual workplan to optimize resources.
- coordinate implementation and documentation of recovery activities in the workplan.
- evaluate implementation of recovery activities and progress toward recovery; and
- provide staff assistance to Recovery Program committees.

The PO is staffed with 8 positions: the Program Director, Deputy Director, Data Manager, and coordinators for Instream Flow, Habitat, Nonnative Fish Management, Propagation, and Outreach. Research and monitoring duties are divided among the coordinators based on species expertise. Staffing of the Recovery Program has evolved based on needs identified by partners for effective functioning of the Recovery Program and to maintain progress towards recovery.

2.4.1. Identify and Prioritize Questions to Guide Recovery Actions

Over the first 30 years of the Recovery Program, participants have gained knowledge of the species and how they are affected by recovery actions through research and monitoring. Using recommendations provided in annual reports, technical reports, scientific literature, and other sources, the PO identifies and documents the most important uncertainties or questions that emerge from the Recovery Program's work. The PO drafts this information into a strategy outlined in the RAP text that is reviewed, amended, and approved by committee members regularly.

2.4.2. Facilitate Planning and Adaptive Management through the RAP

Changes to Recovery Program strategy and direction occur within the RAP process (described in section 6.1). Based on new information and the resultant questions, the PO is responsible for proposing specific recovery activities that should be incorporated into or removed from the RAP using scientific information to determine high priority actions that contribute to recovery of the species. The committees then have responsibility to modify, approve, or reject those proposed changes through the review process.

2.4.3. Facilitate Allocation of the Recovery Program Budget to the Biannual Workplan

The RAP contains a broad suite of recovery actions necessary to recover the species. Implementation of recovery actions in any given year is based on technical feasibility, sequencing of actions and available resources. The biannual workplanning process reconciles the most important actions with the annual base funds available. The PO solicits scopes of work (SOW) based on priorities in the RAP and compiles those SOWs into the proposed biannual workplan. The PO guides the technical committees through a review process, followed by Management Committee approval of the biannual workplan. Funding agencies then distribute, and obligate funds based on the approved workplan.

Recovery Program committees and the PO develop a prioritized capital project list based on the RAP. The PO ensures that all projects are considered by the appropriate technical committees and approved for funding by the Management Committee. Capital funds are managed and distributed by Reclamation.

Depletion fees paid by water project proponents (outlined in section 7.2.5 of this document) are deposited in a fund held by NFWF. The PO manages and allocates these funds upon approval of the Management Committee for projects that are not funded with annual base or capital funds. All Recovery Program participants can propose projects for funding with depletion fees. The PO is responsible for presenting proposals to be considered by the Management Committee.

2.4.4. Coordinate Implementation and Documentation of Recovery Activities in the Workplan

Many of the recovery actions are completed by the Recovery Program's principal investigators (PIs). Commonly PIs work for state or federal agencies, or consulting organizations with expertise necessary to accomplish the goals intended by the activities. The PO coordinators

support PIs to ensure the work defined in SOWs meets project goals. Modification to SOWs may occur before the field season begins or through real-time advice and guidance from coordinators to help PIs adapt to field conditions.

The coordinators are responsible for ensuring that documentation is complete and compiled to inform the adaptive management process. This occurs in the form of annual reports, presentations at the Researchers' meetings, final and technical reports, and changes to guidance documents.

2.4.5. Assess Implementation of Recovery Activities and Evaluate Progress Toward Recovery

Assessment of the Program's ability to implement recovery activities occurs annually. The PO is responsible for assembling information from annual reports into the RAP assessment to document the status of all projects and efforts. Committee members are responsible for approving or amending the RAP assessment for accuracy. This information is then compiled and reviewed by the Service to assess the ability of the Recovery Program to provide ESA compliance for water development and management activities.

Opportunities for evaluation of Recovery Program activities occur at multiple levels. Evaluation of specific recovery activity effectiveness occurs through technical reporting. Once identified as a priority by the Program, the PO is responsible for adding technical reporting projects into the work planning process. Each species' progress towards recovery is evaluated by the Service in Species Status Assessments and 5-year reviews. While broader than the scope of the Recovery Program, these documents provide valuable information to guide Recovery Program activities.

2.4.6. Provide Staff Assistance to Recovery Program Committees

The PO is responsible for scheduling committee meetings, guiding the development of agendas, distributing supporting materials, and compiling meeting summaries for all Recovery Program committees. While the PO plays a large role in preparing agendas and other materials, the decision-making authority rests with the committees.

Photo 3. Camp set up along the Green River. Photo credit Amy Washuta.

3 ESA LISTED FISH SPECIES

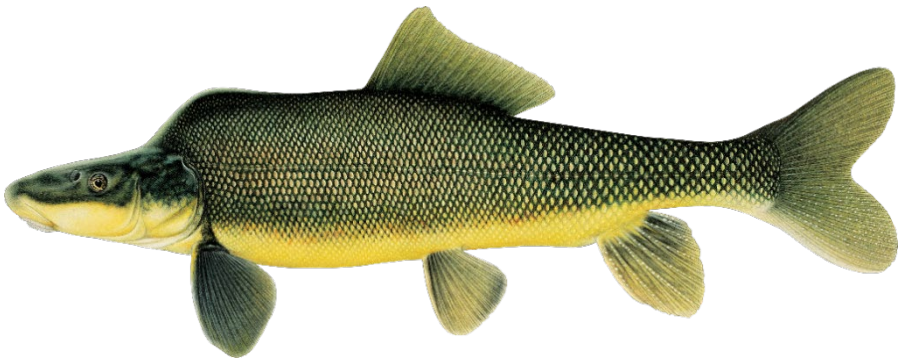
The Recovery Program works to recover four ESA listed fish species. Three of the four species have Species Status Assessments (SSAs) developed and maintained by the Service that document current conditions and possible future scenarios (U.S. Fish and Wildlife Service 2018a, 2018b, 2022). In 2023, information about bonytail was insufficient to write an SSA. Recovery plans have been written and approved for all four species and are updated as deemed necessary by the Service (U.S. Fish and Wildlife Service 1990a, 1990b, 1998a, 2002a, 2002b, 2002c, 2023).

Critical habitat has been designated for the four species as shown on Figure 1. The status of each species is assessed every five years by the Service in a formal 5-year status review.

The 2018 5-year status reviews recommended changing classification for both razorback sucker and humpback chub from endangered to threatened status under the ESA (Service 2018; U.S. Fish and Wildlife Service 2018c)[4]. These were major accomplishments for recovery efforts.

3.1 RAZORBACK SUCKER

The razorback sucker (*Xyrauchen texanus*) is a member of the sucker family, Catostomidae, and the only member of its genus. It has fleshy lips on the underside of its head, typical of suckers[5]. One of the largest suckers in North America, the razorback sucker can grow to 3 feet in length and can live for more than 40 years. Razorback sucker eat insects, plankton, and plant matter on the bottom of the river using their soft sucker mouth. As its name suggests, it has a sharp-edged keel on its dorsal surface, which may help to maintain body position in the turbulent rivers of the species' range or escape predation. Razorback sucker was proposed for listing as threatened in 1978 (43 FR 17375), listed as endangered in 1991 (59 FE 13374), and proposed for downlisting in 2021 (86 FR 35708) under the ESA based on improved status because of recovery actions.



Razorback sucker was once common throughout warmwater reaches of the Colorado River basin to the Gulf of California. Wild individuals were extirpated from the upper basin by 2000. Lower Colorado River basin reservoirs still maintain remnants of the once abundant wild population. Causes for the decline of razorback sucker include changes to flow regimes and

[4] All ESA Section 4 documents are linked at https://coloradoriverrecovery.org/uc/documents/recovery-goals/.
[5] All illustrations reproduced with permission from Joseph Tomelleri.

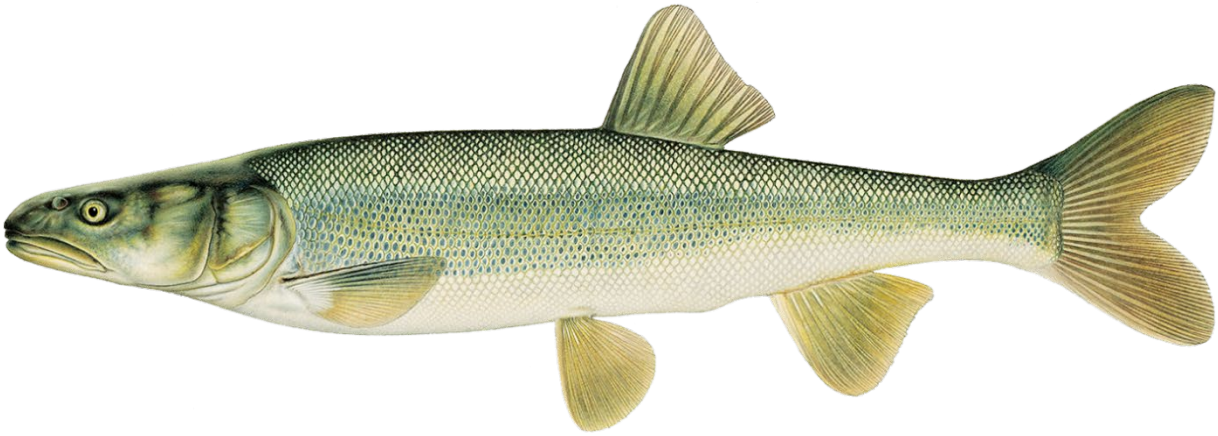
elimination of essential backwater and floodplain wetland habitat because of dams and impoundments and nonnative fish species including predatory species like smallmouth bass (*Micropterus dolomieu*), northern pike (*Esox lucius*), and walleye (*Sander vitreus*), as well as species like white sucker (*Catostomus commersonii*) that pose competition and hybridization risks.

Augmentation of populations with hatchery-reared razorback sucker, originating from broodstock collected from the wild, prevented extinction in the upper basin and allowed further research to occur into the species' needs. Stocked adults are now numerous and occupy portions of the Green, Yampa, White, Colorado, and Gunnison rivers and several of their tributaries. The species is known to migrate among the upper Colorado River basin, Lake Powell, and the San Juan River basin and successfully spawns in multiple locations.

Improvements in the timing of flows released from Flaming Gorge Dam and intensive management of floodplain wetlands have resulted in multiple years of wild-spawned and reared juvenile razorback sucker populating mainstem rivers of the upper basin. Several of those juveniles have been detected at nearby spawning bars at ages greater than 6 years, documenting successful recruitment to the adult life stage. Technological advancements like Passive Integrated Transponder (PIT) tags that provide individual identification and antennas that enable passive detection of those individuals have facilitated the estimation of razorback sucker survival and abundance. These and other positive developments throughout its range contributed to the proposal in 2021 to downlist the razorback sucker from endangered to threatened status.

3.2 COLORADO PIKEMINNOW

The Colorado pikeminnow (*Ptychocheilus lucius*) was listed by the Service in the original List of Endangered Species published in 1967 (32 FR 4001). Full protection under the ESA of 1973 came upon its listing in the Federal Register on January 4, 1974.



Although the species name *lucius* was modeled after the northern pike, the Colorado pikeminnow belongs to the large and diverse minnow family, Cyprinidae. As an adult, it is a voracious, yet toothless, predator and the top native carnivore in the Colorado River system.

Maximum weights exceeding 80 pounds and lengths of over 5 feet have been recorded; however, specimens weighing more than 15 pounds have rarely been found since 1970.

Their substantial size and migratory behavior won for them the vernacular name of "white salmon of the Colorado" and historical accounts indicate that they were an important food source for settlers. Originally found throughout the Colorado River basin from Green River, Wyoming and the Grand Valley, Colorado to the Gulf of California, it is now confined to upper basin main stem rivers (Green, Colorado, and San Juan rivers) and their larger tributaries such as the Yampa, White and Gunnison rivers.

The Colorado pikeminnow is adapted to a watershed known for its variable flow, high silt load, and turbulence. Young-of-year, juveniles, and subadults are captured in shallow backwater areas with silt and sand substrates and little or no current. Older, larger pikeminnow prefer deeper, moving water, and mature adults have been known to migrate some 200 river miles up or downstream to reach spawning sites on the Colorado, Green, and Yampa rivers.

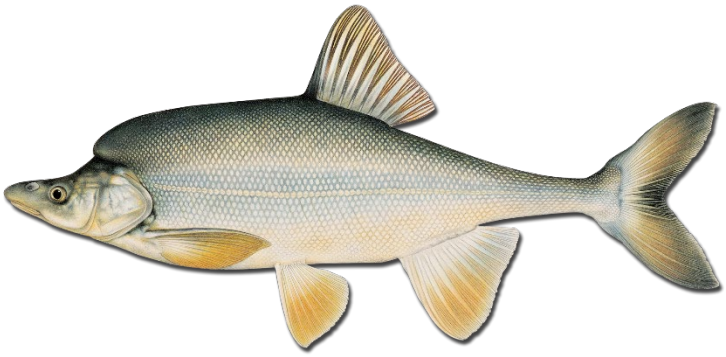
The causes of decline in Colorado pikeminnow populations include modification and direct loss of habitat, changes in flow regime, blockage of migration routes, water temperature changes, and interactions with introduced nonnative fish species. Wild populations in the Green and Colorado rivers remain, with natural reproduction occurring annually. In the 2010s, natural recruitment has not been sufficient to offset adult mortality, causing long-term population declines, particularly in the Green River population. The Recovery Program has collected wild young-of-year to begin the broodstock development process in case stocking is needed. With the cooperation of Reclamation and water users, flow regimes have been modified to support Colorado pikeminnow. The Recovery Program has restored passage at all major diversions within designated critical habitat, allowing fish to migrate between important river reaches. The largest threat to the population remains invasive nonnative species that consume Colorado pikeminnow at all life stages.

3.3 HUMPBACK CHUB

The humpback chub (*Gila cypha*) was also on the original 1967 List of Endangered Species and was afforded protection by the ESA in 1973 (32 FR 4001). Because of large populations in the Grand Canyon and persistent smaller populations in the upper basin, the species was reclassified to threatened status in 2021 (86 FR 57588).

The humpback chub was first described in 1946 based upon fish collected from the Grand Canyon and other locations. Humpback chub are medium-sized (20 inches as adults) freshwater minnows, and members of the family Cyprinidae. The fish has a pronounced dorsal hump that arises over the location of the gills and rounds to the area of the dorsal fin and the body tapers abruptly to the tail which flares into a deeply forked caudal fin.

The humpback chub is associated with fast currents and deep water, over substrates of sand, silt, boulder, and bedrock. Despite a subterminal mouth, humpback chub are opportunistic omnivores, reportedly even able to feed at the water's surface.



The historical distribution included large, whitewater canyons on the Colorado River system. Populations in the upper basin include Black Rocks, Westwater, and Cataract canyons on the Colorado River, and Desolation and Gray canyons on the Green River. In the early 2000's, the species was functionally extirpated from the Yampa River in Dinosaur National Monument, likely because of the invasion of nonnative fish. The four remaining populations showed relative stability prior to the publication of the final reclassification rule in 2021. While nonnative fish can and do consume humpback chub, the deep canyon habitat preferred by the species may be suboptimal for establishment of strong nonnative populations.

3.4 BONYTAIL

The bonytail (*Gila elegans*) was listed as endangered by the Service in 1980 (45 FR 27710). It was listed without designating critical habitat because reproducing populations were unknown, and the threat of extinction appeared imminent. Critical habitat was designated for the species in 1994 with the other three threatened and endangered Colorado River fishes.

The bonytail is a member of the minnow family, Cyprinidae, and shares many similarities with the humpback chub however it is larger (up to 22 inches long), has a more streamlined shape, a narrower caudal peduncle, and a smoother dorsal hump.

In the wild bonytail seem to prefer eddies, pools, and wetlands rather than swift current. They are omnivorous and consume a variety of aquatic insects, plant material, and small vertebrates. Originally found throughout the Colorado River mainstem and larger tributaries, bonytail remain very rare in the upper basin, despite substantial stocking efforts spanning decades.

Because so few remained in the wild when the Recovery Program began in 1988, little is known about the life history and ecological needs of the species. Wild spawning of bonytail has been documented in floodplain wetlands, indicating this may be an important habitat for the species (Bestgen et al. 2017).

Large mainstem dams, water diversions, habitat modification and loss, and nonnative fish species that caused population declines of other native fishes in the Colorado River likely also affected bonytail.

Photo 4. A USFWS biologist releasing a Colorado pikeminnow into the Gunnison River in Colorado after capturing it in the Redlands Fish Passage. Photo credit Dana Shellhorn.

4 RECOVERY PLANS

The goal of the Recovery Program is to recover and delist the four ESA listed fish species.

The Service has developed recovery plans for the four ESA listed species which are available on the Service website (ecos.fws.gov). Recovery plans and specific population goals and recovery actions were established for the four species in the late 1990's and early 2000's, three of which are still in effect as of 2024: humpback chub (U.S. Fish and Wildlife Service 1990a, 2002a), razorback sucker (U.S. Fish and Wildlife Service 1998a, 2002c), and bonytail (U.S. Fish and Wildlife Service 1990b, 2002b). The recovery plan for Colorado pikeminnow was revised and updated (U.S. Fish and Wildlife Service 2023) as recommended in the 2020 5-year review (U.S. Fish and Wildlife Service 2020).

The recovery plans, developed under Section 4(f) of the ESA, provide guidance for a biological and research-oriented approach to species recovery including objective, measurable criteria for downlisting and delisting of the species. The plans identify recovery actions needed to achieve those criteria. Recommendations for management actions and site-specific activities are included in an associated Recovery Implementation Strategy (RIS) document, which is refined and updated as new information becomes available. The RIS is a flexible operational document focused on how, when, and by whom the recovery actions will be implemented. The Recovery Program provides for the coordinated implementation of recovery plans in the upper basin.

As described in the recovery plans, the Service's primary recovery goals for all four species are to restore and maintain (1) self-sustaining populations and (2) sufficient habitat to support them in perpetuity. An additional goal for bonytail is to prevent immediate extinction.

Since the recovery plans address species recovery in the upper and lower Colorado River basins, these plans apply across the species ranges. However, the Recovery Program seeks to achieve the actions and goals in the recovery plans for the species in the upper basin. In general, this would be accomplished when the conditions necessary to support self-sustaining populations have been realized and provisions are in place to protect and maintain the species in perpetuity. Recovery and conservation actions for the four listed species in the lower basin and the San Juan River basin are implemented via other collaborative programs and are not considered here.

5 RECOVERY ELEMENTS

The Recovery Program includes actions organized in seven elements of recovery. The activities within each element are implemented and evaluated on an ongoing basis to determine effectiveness toward recovery. The Recovery Program implements the following six principal action elements. Program Management is described above in section 2.4.

a. Instream flow management.
b. Habitat development and maintenance.
c. Propagation and stocking of ESA listed fish species.
d. Nonnative species and sportfish management.
e. Research, monitoring, and data management; and
f. Outreach

The implementation of these elements forms the basis for the Recovery Program. The success of the Recovery Program is dependent upon the successful implementation of all elements.

5.1 INSTREAM FLOW MANAGEMENT

Providing sufficient flows and flow-created habitats necessary to support self-sustaining populations is an essential element of recovery for these species.

Since 1988, the Recovery Program has dedicated significant resources to identify and secure flows that provide long-term protection of habitats, including acquisition of firm water storage for dedicated purposes in the Yampa and Colorado river basins. Reclamation projects provide critical components of flows for the ESA listed species. Reclamation projects are operated to provide and enhance flow in the Colorado, Green, Gunnison, and Duchesne subbasins. The Recovery Program has also realized the benefits of evolving flow protections developed by state statute and water administrators that do not necessitate acquiring water but provide flow security for listed fish. These include:

- utilizing state instream flow protection statutes.
- embedding specific flow targets and adaptive procedures into records of decision (RODs) for federal project operations.
- supplementing Recovery Program storage pools through lease or cooperative agreements with water users; and
- working collaboratively to increase and supplement water supplies for use by the Recovery Program through dialogue with water providers.

The Recovery Program uses an adaptive and comprehensive approach to ensure favorable flows for listed fishes and will continue to pursue all legal, administrative, creative, and collaborative means to secure the flow protections necessary to advance species' recovery.

5.1.1 Principles for Implementation of Instream Flow Needs

The management and implementation of instream flows to support recovery activities is based upon four fundamental principles.

a. Provision and maintenance of instream flows at certain times, locations, and in certain quantities necessary to protect and recover listed fish species and their required habitat in the upper Colorado River basin.
b. Water for instream flows will be provided as part of a comprehensive approach that addresses the listed fish species' habitat needs as a system.
c. Recovery and protection of listed species is to be a cooperative effort among the federal government, tribes, the states, water and hydropower users, and conservationists. This means that providing instream flows and other recovery activities is a responsibility shared by these parties.
d. Water rights for instream flows will be appropriated, or acquired, and administered pursuant to state law and will, therefore, be legally protected as any water right under state laws. Where water rights for instream flow cannot be obtained, flows for listed fish species will be protected through contracts or administrative agreements with holders of appropriated water rights.

Photo 5: Channel morphology survey along the Green River in Dinosaur National Park, Amy Washuta

5.1.2 Determining and Assessing Instream Flow Needs

Instream flow needs are based upon habitat requirements of the listed fish species at various life stages ((U.S. Fish and Wildlife Service 2018b, 2018a, 2022)). The Recovery Program has developed flow recommendations for listed fishes in multiple subbasins and reaches: Colorado's 15-Mile Reach (Osmundson et al. 1995), Yampa (Modde et al. 1999), lower Gunnison (McAda 2003), Green (LaGory et al. 2019), White (Anderson et al. 2019), and Duchesne (Modde and Keleher 2003). These flow recommendations have been incorporated into biological opinions and RODs for operation of federal facilities, or in programmatic biological opinions (PBOs) specific to a subbasin (e.g., Yampa (U.S. Fish and Wildlife Service 2005a), Colorado (U.S. Fish and Wildlife Service 1999), Gunnison (U.S. Fish and Wildlife Service 2009)) .

5.1.3 Implementation of Instream Flow Needs

Flow management in the Recovery Program occurs via multiple mechanisms. In the Yampa and upper Colorado rivers, the Recovery Program in partnership with the CWCB has acquired storage pools or management authority of storage managed directly by Recovery Program staff. Other systems are governed by releases pursuant to Annual Operations Plans (e.g., Aspinall (U.S. Bureau of Reclamation 2012), Flaming Gorge (U.S. Bureau of Reclamation 2006)), which are directed procedurally through RODs to address ESA listed fish species' flow needs, or in the lower Duchesne River, through a biological opinion (U.S. Fish and Wildlife Service 1998b, 2005b) and authorizations for the Central Utah Project. These mechanisms have provided flow protection for listed fishes using both specific administrative tools and public engagement processes, including working collaboratively with Recovery Program partners, water managers, industries, municipalities, irrigators, and nonprofit organizations to provide multiple benefits for releases that directly augment instream flow through designated critical habitat (see Figure 1).

5.1.4 Sources of Water and Subbasin Operations

Identification of instream flow needs and potential sources of water to meet those needs is critical to threatened and endangered fish recovery. As noted above, many efforts since 1988 have resulted in specific storage pools and administrative protections that allow for delivery of water to specific habitats in the major subbasins of the upper Colorado River. Table 5-1 identifies current Recovery Program water sources and specific flow management strategies for the listed fishes.

Table 5-1. Sources of water by subbasin anticipated at the inception of the Program (1987) and current flow protection mechanisms of identified storage pools, including target reaches important for fish recovery.

River	Anticipated Source (1987)	Source / Strategy (2024)
Green River (Flaming Gorge Dam to the Colorado River Confluence	● Refinement of operations at Flaming Gorge	● Flaming Gorge ROD (2006) ● Flow experiments as per LaGory et al (2019)
Colorado (15-Mile Reach, 18-Mile Reach, Black Rocks, Westwater Canyons)	● Refinement of operations at Ruedi Reservoir ● Withholding of water at Ruedi ● Acquisition of water rights ● Acquisition of existing storage water	● 10,825 AF (East Slope - Granby 5412.5 AF; West Slope - Ruedi 5412.5 AF) ● 5000 AF Ruedi Pool ● 5000 AF Ruedi '4 in 5' Pool ● 6000 AF Wolford Pool (pro-rated based on fill) ● Green Mtn Historic User Pool (0 - 66,000 AF, subject to availability) ● Coordinated Reservoir Operations to enhance peak flows ● Donation of available supplies by water users
Gunnison (Delta to Colorado River Confluence)	● Refinement of operation at Blue Mesa Reservoir	● Gunnison PBO (2009) ● Aspinall ROD (2012)
Yampa (Craig to Green River Confluence)	● Acquisition of water rights ● Acquisition of existing storage water	● Elkhead Reservoir enlargement (2006) w/ 5000 AF pool; 2000 AF lease option ● Coordination of flow management by water users to benefit listed species
White (Taylor Draw Dam to Green River)	● Water can be released from Taylor Draw Dam for Colorado pikeminnow.	● Water can be released from Taylor Draw Dam for Colorado pikeminnow. Recovery Program is tracking flows, but not actively managing.
Duchesne (Randlett to Green River)	● No identified sources	● Starvation Reservoir - re-diversion of mitigation water (up to 44,400 AF, subject to 'first spill' rule) - Daniels Replacement Water (2900 AF) - Section 207 of the Central Utah Project Completion Act (up to 430 AF w/ carryover)

5.1.5 Course of Action

a. The Recovery Program will continue to assess flow recommendations to determine how well they are supporting the ESA listed fish species in all relevant subbasins. The Recovery Program will continue to seek new and inventive ways to meet flow recommendations whenever possible.
    i. In seeking additional water resources, the Secretary will not attempt to acquire water rights under this Recovery Program by condemnation nor acquire rights from other than willing sellers. Once water rights for instream flows are appropriated or acquired for a specific reach of stream, they will be administered by the respective state engineers pursuant to state law.
    ii. The Recovery Program will continue to support efforts to make irrigation systems or diversion structures more efficient and effective to reduce depletions where possible. For example, significant improvements to the Highline Canal operated by the Grand Valley Water Users Association allows for much less water to be diverted while still allowing irrigators to fully utilize their water rights, and additional improvements at the Orchard Mesa Irrigation Canal provide similar diversion efficiencies near the head of the 15-Mile Reach. Other diversion efficiencies have been implemented at the Maybell Canal on the Yampa River, and the Recovery Program will continue to work with large ditch operators to implement efficiencies that can improve flow conditions at diversion structures without diminishing water rights.
b. The Recovery Program partners will continue to operate and maintain existing gages to support flow management decision making.

5.2 HABITAT DEVELOPMENT AND MAINTENANCE

Alteration and loss of habitat have contributed to the decline of the ESA listed fishes. Recovery of the species can be aided by assessing the quantity and quality of habitat needed for recovery and then developing or enhancing habitat through management techniques to achieve desired conditions.

5.2.1 Rearing Habitats

Young-of-year fishes require nursery and feeding habitat, which in the upper Colorado River basin includes backwaters and floodplain wetlands. Coordinated regulation of flows are used to both improve the quantity and quality of backwaters and provide access to floodplain wetlands during critical life stages of the fish.

Managed floodplain wetlands are managed with flow inlet/outlet structures which allow managers to control both the amount water and the size and species of fish that enter. The Recovery Program has developed floodplain wetland habitats in both the Colorado and Green river subbasins which are playing an increasingly important role in recovery of bonytail and razorback sucker. Existing sites at Stewart Lake, Stirrup, Johnson Bottom, Sheppard Bottom, Old Charley, Matheson Preserve, and Audubon Nature Preserve need to be operated and maintained to continue providing nursery habitat for wild-spawned razorback sucker. Bonytail have been observed using some of these sites for reproduction, with juveniles recruiting to the end of summer. These sites are being used to stock hatchery-reared bonytail when possible, with observations and data showing that bonytail exhibit higher survival rates in these habitats. There are additional sites the Recovery Program is considering for development. Existing sites will need infrastructure rehabilitation as they reach the expected end of their service lifetime.

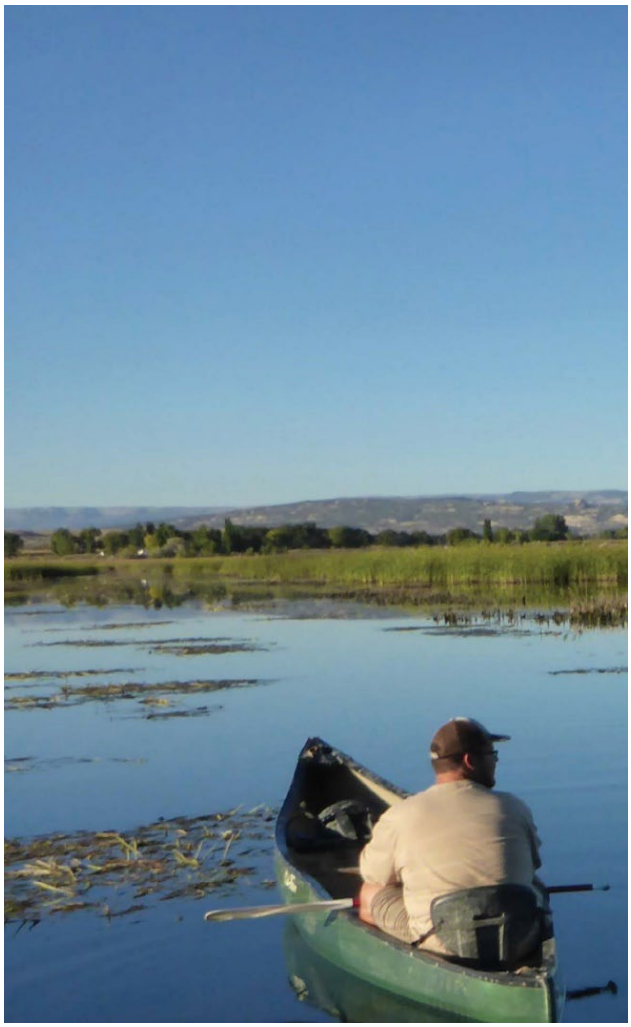


Photo 6. A Utah state biologist surveying Stewart Lake, a primary rearing habitat for razorback sucker, photo credit UDWR.

5.2.2 Spawning Habitat

Usable spawning areas are essential to the continued existence and recovery of all four listed Colorado River fishes. Confirmed and suspected spawning areas for Colorado pikeminnow, humpback chub, and razorback sucker have been located. Some information is available on natural spawning habitat for bonytail, as evidenced by documented reproduction in floodplain wetlands of the middle Green River.

Management of spawning habitat could include: (a) improving access to existing spawning areas in river segments that apparently are not being used (e.g., by developing fish passage structures); (b) modifying instream characteristics to create spawning habitat; and (c) constructing spawning habitat within the natural stream channel or in modified side channels.

5.2.3 Fish Passage Facilities

Colorado pikeminnow and razorback sucker are known to migrate long distances to utilize habitat essential to different life stages during different times of the year. Fish passage structures have been constructed at all major, mainstem diversions in the upper Colorado and Green river subbasins, including the Grand Valley Project, Price-Stubb, Grand Valley Irrigation Company, Redlands, and Tusher Wash. Installation of fish passages has provided access to 40 miles of historical habitat above the Redlands diversion on the Gunnison River, 48 miles of habitat on the Colorado River upstream from Palisade to Rifle, Colorado. The Tusher fish passage has improved connectivity between the lower 120 miles on the Green River below the Tusher Diversion and nearly 500 miles of river habitat upstream in the Green, White, and Yampa rivers.

Photo 7. Fish passage at the Grand Valley Water Users' structure in Cameo, Colorado, photo credit USFWS.

5.2.4 Screens to Prevent Entrainment into Water Delivery Infrastructure

With construction of fish passages at several large diversions, fish moving upstream of former barriers had opportunity to become entrained in irrigation canals. As a result, the Recovery Program has constructed fish screens or barriers to prevent entrainment of fish into irrigation delivery systems. The design of these entrainment prevention systems has evolved over time as more has been learned about their operation.

5.2.5 Course of Action

a. The Recovery Program will continue to determine if and how development and maintenance of habitat for the listed fish species (backwaters, floodplain wetlands, fish passages, and spawning habitat) contribute to recovery. Studies will include testing management options to determine their effectiveness at improving recruitment. The following stipulations will be applied.
    i. Testing and implementation of management techniques will not be conducted in confirmed spawning and nursery areas or in river reaches which, if modified, might adversely affect use of confirmed spawning or nursery areas; and
    ii. The genetic integrity of wild populations must be protected when using hatchery-reared experimental animals.

b. The Recovery Program partners will continue to operate and maintain existing habitat projects including fish passages, managed wetlands, and facilities to prevent fish entrainment into water delivery systems.

5.3 PROPAGATION AND STOCKING OF ESA LISTED FISH SPECIES

Augmenting wild populations of ESA listed fish species may be necessary when wild populations are no longer self-sustaining. All augmentation efforts occur using best practices, with attention to genetic integrity of broodstocks and stocked fish, health of individuals at stocking, adherence to research recommendations, as well as condition of remaining wild individuals. Any stocking efforts in the Recovery Program will be designed with the goal of planned obsolescence, reducing, and terminating the action as populations in the wild are recovered.

Augmentation efforts currently include razorback sucker and bonytail. Razorback sucker were extirpated from the upper basin around 2000. Some of the last remaining upper basin wild razorback sucker from the Green River, Colorado River, San Juan River arm of Lake Powell, along with Lake Mohave individuals (for increased genetic diversity) were captured and protected in captivity in the late 1980s and early 1990s for broodstock development. Progeny of those razorback sucker broodstocks have been stocked since 1995 and are consistently reproducing in the wild. No wild bonytail remain in the upper basin. Eleven wild individuals from Lake Mohave were brought into captivity in 1981 for broodstock development and augmentation. Bonytail are rarely encountered more than a year after stocking.

Colorado pikeminnow are reproducing in the upper basin, but their long-term reproductive success appears to be declining. Collection of wild juveniles began in 2019 to establish broodstock if augmentation becomes necessary. Humpback chub numbers are stable in the canyons where they persist, though the species has been extirpated in upstream portions of its range (e.g., Yampa River). Collection of a refuge population from Desolation Canyon began in 2022.

Photo 8. A hatchery biologist holding a bonytail near the Green River, photo credit Zane Olsen

5.3.1 Facilities

Propagation and rearing services in the upper basin are provided by four hatchery facilities: Ouray National Fish Hatchery - Grand Valley Unit (ONFH-GV; Grand Junction and Fruita, CO),

Ouray National Fish Hatchery - Randlett Unit (ONFH-R; Ouray National Wildlife Refuge, Randlett, UT), Wahweap State Fish Hatchery (Wahweap; Big Water, UT), and J. W. Mumma Native Aquatic Species Restoration Facility (Mumma; Alamosa, CO). Additionally, these facilities work with Southwestern Native Aquatic Resources and Recovery Center (SNARRC; Dexter, NM), which both provides and receives early life stages of the listed species for broodstock development or rearing.

5.3.2 Stocking plan

In response to species' listings and recovery plans, the states of Utah and Colorado each developed their own augmentation plans in 2001. Those were integrated into one cohesive plan in 2003. As propagation evolved and was evaluated, revisions were made once again (Revised Integrated Stocking Plan Committee 2015). The 2015 plan did not address Colorado pikeminnow or humpback chub and will be updated to reflect those species' potential needs and incorporate new information.

5.3.3 Evaluation

Evaluation of stocked razorback sucker success indicates that hatchery-reared individuals are surviving, spawning, and producing larvae. Mark-recapture studies estimate that 80% of stocked fish survive after their first year in the river.

Encounters of bonytail after stocking are too infrequent to estimate demographic parameters. Location, time, temperature, season, health condition profile, and hatchery facility are all stocking factors being tracked as possible factors of success. Further research should include carefully designed flow training and predator avoidance studies.

5.3.4 Course of Action

a. The Service will use existing facilities and capabilities at SNARRC, ONFH-GV, ONFH-R, Wahweap, and Mumma to produce and raise the number of listed fish species to the sizes defined by the propagation plan.
b. New and existing broodstocks will be developed, maintained, and supplemented when senescent, in consultation with genetics and species experts.
c. Genetics management plans for all species will be updated to ensure diversity of broodstocks, progeny, and stocked populations.
d. Propagation plans will be updated regularly and address needs for each species and facility.
e. Stocking of hatchery-reared fish to reestablish or augment upper basin populations will follow all recommended guidelines, including:
    i. Stocked individuals should be disease-free, in accordance with regulations and agreements.
    ii. Stocked fish will be individually marked and monitored to assist in answering research questions related to survival, abundance, distribution, habitat use, movement, reproduction, and predation.

iii. Suitable sites, including mainstem, tributary, and off-channel wetland locations, will be identified and used according to their availability under varying hydrologic conditions.
iv. Stocking data will be recorded and submitted annually by each facility to the Recovery Program database coordinator. Annual reports will be generated by each facility to relay accomplishments, shortcomings, and recommendations.

5.4 NONNATIVE FISH MANAGEMENT

Since the late 1800's, over 50 species of fish have been stocked into upper Colorado River basin reservoirs, primarily as sportfish or forage base to support recreational fisheries. Over time, these fish escaped reservoirs into riverine habitats. Some fish persist in river habitats, primarily because of changes in the river ecosystem like truncated peak flows and lower and warmer summer base flows. Certain nonnative fish successfully reproduce in river environments and are, in many cases, now out-producing native fish, because they are better able to exploit the wider range of environmental conditions resulting from habitat alteration.

Competition with, and predation from, nonnative fishes have played a role in the decline of ESA listed fishes. Nonnative fishes directly or indirectly compete with native fishes for available resources, such as food and space. For example, northern pike and walleye are large-bodied predators, occupying the same niche space as Colorado pikeminnow. Various species colonize off-channel floodplains used as razorback sucker nursery areas, such as fathead minnow (*Pimephales promelas*), green sunfish (*Lepomis cyanellus*), red shiner (*Cyprinella lutrensis*), and common carp (*Cyprinus carpio*). Similarly, backwater nursery areas for young Colorado pikeminnow are dominated by red shiner, sand shiner (*Notropis stramineus*), and fathead minnow. Furthermore, predation by nonnative fishes reduces populations of federally listed fishes, especially by reducing survival of young life stages and limiting recruitment into adulthood. Predation of listed fishes is routinely documented through collected stomach content samples, including walleye consumption of juvenile Colorado pikeminnow, smallmouth bass consumption of stocked bonytail, and northern pike consumption of native suckers.

5.4.1 In-River Control of Nonnative Fishes

Mechanical removal is an important tool for suppression of abundant nonnative fish populations. Currently, northern pike, walleye, and smallmouth bass are the primary focus of extensive removal efforts via electrofishing and netting. Other species removed when encountered include striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), white sucker, green sunfish, and many others. Mechanical removal focuses on spawning disruption to both increase capture of large adults and to prevent the survival of young, thereby reducing establishment of new cohorts in future years. High reproduction in many locations has allowed smallmouth bass to expand its range and density over time. It is unlikely that electrofishing and netting alone are adequate to control populations of smallmouth bass and may not be adequate to reach eradication of northern pike and walleye.

Photo 9. A large northern pike, one of the concerning predatory nonnative fish species removed by the Recovery Program, photo credit Tonya Kieffer-Selby, UDWR.

Additional tools are likely needed to eradicate these predatory nonnative fishes or suppress them to levels that allow for recovery of the listed fishes. Management of river flows is one useful method to provide an advantage to native fishes because their life history is adapted to the natural flow regime of the Colorado River basin. For example, a rapid increase of flows during the smallmouth bass reproductive period can wash away eggs and fry, displace nest-guarding males and increase turbidity, reducing the number of young produced in hundreds of river miles. In addition, undeveloped tools such as species-specific piscicides or induced sterility may be needed to control populations on a landscape scale.

5.4.2 Angling, Stocking, and Reservoir Management

The primary reason for introducing some of these nonnative fishes is to create and support sportfishing for both warm and cold-water species. The Recovery Program supports the economic and cultural importance of recreational angling in local waters and has developed a process to support fisheries that are compatible with native fish recovery. The process includes limiting escapement of nonnative species using barriers like nets and screens, removing problematic species via multiple techniques, and stocking replacement species compatible with endangered species recovery.

The Recovery Program has built capital facilities that limit the escapement of nonnative species from reservoirs to allow for flexible reservoir management and transition to new fish

communities for angling. An additional management concern is that many other small off-channel ponds can harbor nonnative species and can become connected to rivers at high flows.

Photo 10. Fish screen to keep fish inside Ridgway Reservoir, Ridgway Colorado. Photo credit Kyle Kissner, Kissner General Construction

Procedures for Stocking Nonnative Fish Species in the Upper Colorado River Basin (Stocking Procedures) were developed cooperatively by the states of Utah, Wyoming, and Colorado, and the Service in 1996 and revised in 2009. The purpose of this agreement is to ensure that all stocking of nonnative fishes is consistent with the recovery of federally listed species, while recognizing the legal authority state wildlife agencies must provide angling opportunities to their constituents. The procedures have successfully allowed the states and the Service to reach consensus on issues related to stocking of nonnative fishes so that neither the Service nor the states must independently assert their authority. Implementation of the Stocking Procedures has transitioned stocking in upper basin states to fishes that are compatible with recovery of federally listed species.

Harvest regulations for problematic nonnative fishes support their removal by anglers. Both Utah and Wyoming have unlimited harvest and catch-and-kill regulations for northern pike, smallmouth bass, and walleye, while Colorado allows unlimited harvest of these species in the basin. These regulations promote removal of the target species by the angling public and communicate the negative impacts of these fishes.

The illegal movement of fish within the Colorado River basin is a large problem for the recovery of federally listed species and the management of productive sport fisheries. Between 2013 and

2024, 37 known illicit introductions have taken place in the upper Colorado River drainage upstream of Lake Powell, introducing 11 species into 37 unique waterbodies. The illegal movement of fish creates new locations where management actions must be in place to remove or reduce these species. These new locations cost the Recovery Program and state agencies millions of dollars for facilities and removal efforts that would have otherwise not been needed.

5.4.3 Course of Action

a. Conduct in-river control of nonnative species.
    i. Continue to implement a broad-scale mechanical removal effort for nonnative fishes, especially focusing on large-bodied predators. Removal should focus on removing large adults and disrupting spawning of the species to limit growth of the overall population.
    ii. Support research into new techniques for nonnative fish species control, especially those that focus on prevention and work on a landscape scale, at times and locations inaccessible by mechanical removal.

b. Limit the escapement of problematic nonnative fishes from upstream sources, including removing problematic nonnative fishes and constructing facilities to prevent escapement at both small and large facilities.
c. Continue to implement the Procedures for Stocking Nonnative Fish Species in the upper Colorado River basin. Revise the agreement as necessary.
    i. Continue to implement harvest regulations that support nonnative fish removal and communicate the importance of removing problematic species.
    ii. Continue to monitor for the introduction of new species. Respond rapidly to any discovered introduction to prevent establishment.
    iii. Continue to reduce illegal movement of nonnative fishes. Implement a strong outreach campaign that communicates the negative impacts caused by illegal fish movement.

5.5 OUTREACH

Building and maintaining public support through comprehensive and strategic outreach is essential to the successful implementation of the Recovery Program. Under the broad umbrella of outreach, the Recovery Program engages diverse individuals, communities, and stakeholders throughout the upper Colorado River basin to increase awareness, foster meaningful connections, and develop collaborative partnerships to achieve recovery of the four listed fishes while providing ESA compliance for water development. The outreach element interrelates with all other Recovery Program elements and is structured around three foundational pillars that work together to advance threatened and endangered fish recovery goals. These three pillars are public awareness, community engagement, and stakeholder involvement.

5.5.1 Public Awareness

Increasing public awareness is key to building broad support for the ESA listed fish species and ecosystems upon which they depend. The Recovery Program provides information and education to target audiences using a wide array of tools and methods including maintaining a Program-specific website, attending conferences and events, developing signs and exhibits, working with the media to distribute news stories, and producing a variety of educational materials. Recovery Program staff and partners plan and implement many outreach activities while ensuring that information about the Colorado River threatened and endangered fishes is accurate, relevant, and widely accessible.

5.5.2 Community Engagement

Engaging with local communities that are comprised of recreationists, conservationists, students, farmers, municipal and industrial water users, hydropower customers, irrigators, landowners, anglers, Tribes, and others is key to an inclusive and equitable approach that builds trust, promotes co-stewardship, and increases the collective impacts of the Recovery Program.

A cornerstone of the Recovery Program's community engagement strategy is to work with communities across the upper basin and along critical river reaches. These have historically included the communities of Palisade, Grand Junction, Fruita, and Moab on the Colorado River; Steamboat Springs through Craig on the Yampa River; and Vernal on the Green River.

Many individuals in these communities enjoy longstanding ties to local rivers through recreation and agriculture, creating opportunities for place-based education where both children and adults can deepen their appreciation of the Colorado River and its native species.

Two high school hatcheries have been built in collaboration with local high schools in both Vernal, Utah and Palisade, Colorado. High school hatcheries provide students with real world experience raising fish and maintaining water quality while providing the Recovery Program with individuals that can be stocked into the river.

5.5.3 Stakeholder Involvement

Stakeholder involvement increases support for mutual priorities and gives rise to a shared sense of responsibility that is vital to the Recovery Program's long-term success. Where there is common ground, the Recovery Program collaborates with numerous individuals and organizations to leverage a multitude of resources for the purpose of recovering the ESA listed fishes. These resources take many forms including funding, in-kind contributions, expertise, advocacy, and coordinated policy and planning.

Photo 11. Students and mentors from the Palisade High School Fish Hatchery which raises razorback sucker. Photo credit Pat Steele.

5.5.4 Course of Action

a. Coordinate across all Recovery Program elements to identify outreach needs and opportunities to advance recovery of the ESA listed fishes.
b. Seek recommendations from field offices and principal investigators throughout the upper Colorado River basin to inform future outreach efforts.
c. Continue to collaborate with partners to develop and implement strategic outreach plans through an inclusive, community-focused approach.
d. Continue to build and operate high school hatchery facilities where desired by the community.
e. Continue to utilize new tools and methods to reach target audiences.
f. Continue nonnative fish education and outreach while further exploring the human dimensions of this challenge to effectively address barriers.
g. Increase outreach to underserved audiences and geographic areas.
h. Increase partner coordination and engagement across the outreach program.

5.6 RESEARCH, MONITORING, AND DATA MANAGEMENT

Well-defined research, monitoring, and data management programs are an integral part of fish management and inform all other recovery elements. Research programs identify ecosystem dynamics, test the effectiveness of management and recovery strategies, address uncertainties, and examine and evaluate the needs of the fish. Monitoring is needed to track population status and trends which define the overall success of the Recovery Program. A robust data management system is necessary to provide timely analysis of research data, to allow analysis and reporting of monitoring data, and to support adaptive management by directing management and recovery activities. Appropriate federal and state permits are obtained and fulfilled as required for all activities.

5.6.1 Research

The Recovery Program has included and prioritized research needs and priorities in the RAP. Monetary, staffing, and time constraints are factored into the prioritization of activities, and projects are implemented as those resources become available.

Research projects include detailed study plans which are adapted as new information becomes available. Each research project has a specific goal and mechanisms to evaluate success and determine that project's contribution to recovery.

5.6.2 Monitoring

Monitoring is defined as an ongoing program to determine the status and population trends of listed species. Monitoring schemas can be defined by life stage (e.g., larval, juvenile, adult), by ecosystem (e.g., fish community monitoring), or by species (e.g., Colorado pikeminnow). Traditional monitoring programs are commonly used to assess the status of wild populations; alternative methods such as survival estimates or occupancy modeling may be helpful in other situations. The monitoring program is distinct from the research program because it focuses on collecting specific information in each location. Juveniles and adults are implanted with PIT tags that allow individuals to be tracked throughout the system. PIT tag information is documented for each fish encounter, whether it occurs through traditional capture methods such as electrofishing and netting, or through interaction with antennas deployed throughout the basin. Larval fishes are monitored with light-traps, seines, and drift nets. Information collected from monitoring efforts is used to inform and assess management actions and can be used as the basis for research questions. Standardized methods are established, periodically revised, and used by all Recovery Program participants to ensure data is useful and comparable.

Photo 12: Larval fish sampling along the Green River. Photo credit Matt Breen.

5.6.3 Data Management

Federal, state, and private organizations have collected extensive amounts of data on the life history, behavior, and habitat requirements of ESA listed fishes in the upper Colorado River basin. The status and quality of these data are quite variable, and improved management and analysis of these data are priority management concerns.

A centralized data management program, leveraging the Species Tagging, Research and Monitoring System database (STReaMS) has been established to: (a) make efficient and effective use of existing data and (b) ensure a coordinated and consistent data management strategy continues. Such a system is key to conducting cost-effective research and monitoring programs and provides information necessary to inform adaptive management decisions. The ultimate role of monitoring is tracking progress toward recovery.

5.6.4 Course of Action

a. All monitoring, research, and data management activities will be coordinated by the PO with input from the technical committees.
b. The Recovery Program, in coordination with the states and private interests, will manage a common data management framework, as follows:
    i. Maintain a central database and defined data management system.
    ii. The Recovery Program and the states, in coordination with the committees, will maintain a long-term monitoring program for evaluating the status and trends of listed fish populations.
    iii. The Recovery Program, in coordination with the states, will develop a detailed workplan for high-priority research activities to be approved by the Implementation Committee that defines each activity, including its potential contribution to recovery of listed fishes or habitats.

6 ENDANGERED SPECIES ACT COMPLIANCE

In a series of section 7 consultations beginning in 1978, the Service concluded that proposed federal actions related to water projects in the upper basin would likely jeopardize the continued existence of the listed species and for these projects to go forward, the proponents would need to take steps to offset harm to the species.

A Section 7 Agreement (Agreement) was developed in 1993 and amended in 2000 (see Appendix A) to provide a framework for conducting Section 7 consultations on depletion impacts related to new projects and impacts associated with historic projects. The 2000 amendment included provisions for compliance for impacts to critical habitat. Procedures outlined in the Agreement are used to determine if sufficient progress is being accomplished in the recovery of the threatened and endangered fishes to enable the Recovery Program to serve as a reasonable and prudent alternative to avoid jeopardy. Assessment of sufficient progress starts with a comprehensive review of the RAP. The RAP was first finalized on October 15, 1993, and has been reviewed and updated annually. The Service has consistently determined that the Recovery Program has made sufficient progress to avoid jeopardy. The assessment for the 2022 period stated:

> "Based on the Service's comprehensive evaluation of the status of the endangered fish, provision of flows (particularly during periods of drought), the magnitude of new depletion impacts (relatively minor in the historical context), threats from nonnative fishes, and cumulative Recovery Program accomplishments and shortcomings, the Service concludes that when implemented as Conservation Measures (i.e., part of the proposed action), the Recovery Program is making sufficient progress to continue avoiding the likelihood of jeopardy resulting from depletion impacts of new projects that have an annual depletion of up to 4,500 AF[6]. Projects exceeding 4,500 AF or that have direct or indirect effects in addition to water depletion will be evaluated to determine if they jeopardize the species' continued existence on a case-by-case basis. Furthermore, that sufficient progress provides a continued avoidance of jeopardy for the water projects and depletions currently provided with ESA compliance by the Program, i.e., 2,186 projects depleting more than 2.86 million AF of water per year."

The Recovery Program is intended to go considerably beyond offsetting water depletion impacts required by Section 7 of the ESA by implementing recovery actions to achieve recovery

[6] The 15-Mile Reach PBO covers an average depletion of up to 1 million AF per year of existing depletions (through September 30, 1995) and up to 120,000 AF of new depletions (since September 30, 1995) in the Colorado River above the confluence with the Gunnison River. The Yampa River PBO covers an average depletion of up to 168,000 AF per year of existing depletions and up to 53,000 AF per year of new depletions. The Gunnison River PBO covers all existing water depletions in the Gunnison River basin (estimated annual average of 602,700 AF per year) and future depletions up to 3,500 AF basinwide as well as future depletions up to 22,200 AF in the upper Gunnison basin in accordance with the Upper Gunnison Basin Subordination Agreement and 12,200 AF in the Dallas Creek Project which has been contracted for but is not used at this time.

of the four ESA listed fishes in the upper basin. Recovery Program participants recognize that timely progress toward recovery in accordance with a well-defined action plan is essential to the purposes of the Recovery Program including both the recovery of the ESA listed fishes and providing for water development to proceed in compliance with federal, state, and Tribal law interstate compacts, and the ESA.

Recovery activities which result in significant protection and improvement of ESA listed fishes' populations and their habitat receive high priority in planning, budgeting, and decision making. Recovery Program participants accept that certain positive population responses to Recovery Program initiatives are not likely to be measurable for many years due to the time required for the fishes to reach reproductive maturity, imperfect knowledge about their life history and habitat requirements, sampling difficulties and limitations, and other factors. The participants also recognize that further degradation of ESA listed fishes' habitats and populations will make recovery increasingly difficult and that many management actions will be needed in perpetuity to keep recovered populations from being re-listed. Continued management actions provide certainty for water users into the future.

The mechanisms described in the preceding sections (e.g., Section 5: Recovery Elements) are intended to provide the means to protect and manage the environment of the ESA listed fishes by offsetting some of the factors that led to the present status of these fishes.

6.1 RECOVERY ACTION PLAN

The RAP identifies actions believed to be required to recover the ESA listed fishes in the most expeditious manner possible in the upper basin. It is developed using the best information available and the recovery plans established for the four ESA listed fish species. The research and monitoring components of the Recovery Program provide a sound scientific basis for modifying recovery actions and identifying new recovery actions, and for updating the RAP from year to year. The RAP is an adaptive management plan that is modified based on newly acquired information and/or changing priorities. The RAP is reviewed annually and modified or updated as necessary prior to adoption of the Recovery Program's workplan. The RAP serves as a guide for all future planning, research, and recovery efforts, including the annual work-planning and budget decision process.

The Recovery Program is intended to serve as the reasonable and prudent alternative or applicant committed conservation measure for projects undergoing Section 7 consultation in the upper basin[7]. While some recovery actions in the RAP are expected to have more direct or immediate benefits for the ESA listed fishes than others, all are considered necessary to

[7] The Recovery Program can provide either (a) conservation measures a proponent can incorporate in the proposed action and thereby avoid jeopardy or (b) a reasonable and prudent alternative to the proposed action that will avoid jeopardy depending on how the biological opinion is written.

accomplish the objectives of the Recovery Program. 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 Recovery Program provides the reasonable and prudent alternative or applicant committed conservation measure for projects undergoing Section 7 consultation. In general, these actions will be given highest priority in the RAP.

Per the Section 7 agreement, The Service will determine whether progress by the Recovery Program provides a reasonable and prudent alterative or applicant committed conservation measure based on the following factors:

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

Therefore, these factors are considered in the development and prioritization of the recovery actions in the RAP.

Photo 14. Steamboat Rock at the confluence of the Green and Yampa rivers. Photo credit Julie Stahli.

7 FUNDING OF THE RECOVERY PROGRAM

This section describes the funding processes in place for the Recovery Program in the future. It is organized into three subsections. Section 7.1 Funding Types and Processes defines types of funding and the administrative processes utilized by the Program. Section 7.2 Post 2023 Funding Agreement describes the planning process that was undertaken by the Upper Division states (Colorado, New Mexico, Wyoming, and Utah) and Reclamation (on behalf of the DOI agencies). This process culminated in a funding agreement that forms a basis for the timing and amount of annual and capital funding, contributed by the partners, for both recovery programs (both the SJRIP and this Recovery Program) during the years of FY2024 – FY2038. Section 7.3 Federal Authorizing Legislation describes the current legislation in place that authorizes and provides funding for Reclamation's continued implementation of the recovery programs through the years FY2024 – FY2031.

Funding reliability is critical to the success of the Recovery Program to ensure that activities are conducted on a continuous basis and that high priority recovery actions are funded every year. On January 24, 2000, Congress enacted Public Law 106-392 that authorized Reclamation to provide funding to the Recovery Program and the SJRIP. Public Law 106-392 authorized the Secretary to use CRSP power revenues to fund the annual base costs of both recovery programs and to use CRSP power revenues to provide a specific cost-sharing amount toward the costs of implementing capital recovery projects under both recovery programs. The CRSP power revenues were treated as constructive returns to the US Treasury against the CRSP debt owed to the Treasury by 2035. The legislation recognized the contribution of funding for capital projects by Colorado, Wyoming, Utah, and New Mexico. Funding by Reclamation of the Recovery Programs was congressionally reauthorized several times (as amended by P.L. 107-375, P.L. 109-183, P.L. 111-11, Section 9107, P.L. 112-270, P.L. 116-9, Section 8101, P.L. 117-328, P.L. 118-159).

Recent significant declines in reservoir levels have had an unprecedented impact on the reliability of CRSP power revenues and the ability of that source to provide annual funds to the Recovery Programs. In 2019, Public Law 116-9 authorized federal appropriations to Reclamation to supplement CRSP power revenues for annual base funding through FY2023, which was then authorized through FY24 in Public Law 117-328. In 2024, Public Law 118-159 authorized federal appropriations to Reclamation for annual base funding through FY2031. Federal appropriations were provided for base funding for the recovery programs in FY2019, FY2022, FY2023 and FY2024, with power revenues provided in FY2020 and FY2021.

7.1 FUNDING TYPES AND PROCESSES

7.1.1 Annual Base Funding

Annual base funding refers to the cash contributions from partners and partner-funded actions ("cash-equivalent") that support the annual operations of the Recovery Program, including funding for the operations and maintenance of capital projects, implementation of recovery

actions other than capital projects, monitoring and research to evaluate the need for or effectiveness of any recovery action, and program management, as necessary to carry out the Recovery Program. Annual activities and budgets are prioritized and approved by the Recovery Program in the planning and budgeting processes.

7.1.2 Capital Projects Funding

Capital projects consist of planning, design, permitting or other compliance, pre-construction activities, construction, construction management, replacement/repair of facilities, and the acquisition of interests in land or water, as necessary to carry out the Recovery Program.

Photo 15. Price-Stubb fish passage construction. Photo credit USFWS.

7.1.3 Annual Budget Review

Subject to the availability of funds provided through legislative action, the partners are accountable for contributing their portion of the funds needed to achieve the purposes of this Recovery Program. The MC will annually assess funding requirements and the contributions expected from all sources, including an accounting of in-kind services, and will recommend whether the net effect of any shortfall would make it impossible to carry out the Program.

It is expected that the MC will regularly review progress toward recovery and will recommend adjustments to the operating budget to reflect changing needs and priorities. In addition, if the MC determines that the financial estimates and contributions from all sources are not sufficient to carry out this Recovery Program, the MC may recommend how and from what source additional revenues may be acquired.

7.1.4 Water Project Contributions through Depletion Fees

Contributions by proponents of non-federal water projects undergoing section 7 consultation provide an additional source of Recovery Program funding. All Section 7 consultations completed after approval and implementation of the Recovery Program and averaging greater than 100 AF/year of depletions result in a one-time contribution to be paid to the NFWF by water project proponents, referred to as a depletion fee. The fee is based on the average annual depletion of water to the upper basin, i.e., diversion minus return flow. The fee was

initially $10.00 per acre-foot, to be adjusted for inflation. The fee for FY2024 is $25.78 AF based on the average annual depletion by each project. This figure is adjusted annually for inflation based upon the composite Consumer Price Index.

Concurrently with the completion of the federal action which initiated consultation (e.g., at the time of authorization or approval of funding, issuance of a 404 permit, etc.), 10 percent of the total contribution will be provided. The balance of the financial contribution is due at the time construction commences. Since the no-jeopardy conclusion will be based on this measure, failure to make the agreed-upon financial contribution at the agreed-upon time will void the project's biological opinion and permit. This agreement may be specified in a separate contract with the project proponent and the Service. The amount of this funding from depletion fees on an annual basis is variable depending on the number and size of projects being consulted on in a given year.

Depletion fees are deposited with NFWF. Funds from these contributions can be applied to any conservation action deemed to advance recovery of the species by the Implementation Committee. Use of these funds is subject to approval of the Management Committee. The contributed funds are allocated by the Management Committee and can be used to augment annual budgets, supply funding for actions that are not anticipated in the normal budgeting process or for Recovery Program actions that need to be implemented but may not be funded in annual budgets.

7.1.5 Administration of Recovery Program Funds

All identified funds will be used in accordance with the priorities established in the Recovery Program under the workplan prepared by the PO and approved by the IC.

Subject to availability, annual funding will be provided by each of the designated annual funding sources prior to the beginning of each calendar year, unless otherwise agreed, according to their individual administrative regulations and procedures. When appropriated, federal funds will be disbursed by Reclamation, via appropriate contracts or agreements, based on budgets approved by the MC.

Reclamation manages capital projects for both Recovery Programs. Reclamation works with both Recovery Programs to identify, budget, and schedule capital projects. For the Recovery Program, the schedule for implementation of capital projects is agreed to through the planning process or as deemed necessary by Recovery Program committees. The schedule informs appropriations requests in proposed annual Reclamation budget requests submitted to the Office of Management and Budget (OMB).

The PO will be responsible for maintaining records, through a formal tracking system, showing distribution and expenditures of all annual and capital funds expended under the workplan by each funding source. An annual accounting will be provided to the MC at the beginning of each fiscal year, identifying funds earmarked by each funding source for Recovery Program activities

for the upcoming year. In addition, an accounting of funds expended during the preceding year will be provided at the end of each calendar year.

7.1.6 In-Kind Contributions by Non-Federal Partners

In-kind contributions include activities and contributions by non-federal partners to benefit the Recovery Program in addition to the annual (base) and capital funding. Partners recognize that in-kind funding and actions provided by non-federal parties to the Recovery Program are substantial and as such these types of contributions are invaluable for the recovery of the listed fishes. In-kind contributions are tracked annually by the Program Office to appropriately document all actions occurring on the landscape that benefit the Program, recognizing that some in-kind contributions will be unable to be monetized.

It has been common for states to contribute additional staffing and funding to support the annual activities of the Recovery Programs above the "cash-equivalent" or workplan-budgeted items. The states' policy, regulatory, and wildlife agencies provide valuable technical and scientific expertise, ensuring the actions of the Recovery Program supports state residents and natural resources. States contribute by monitoring and conducting research on native and nonnative fishes, providing funding for gages to assess water quantity and quality, and implementing policies and regulations to protect threatened and endangered fish. Water or actions contributed by the states to the Recovery Program to implement a workplan-budgeted item shall be considered "cash-equivalent' contributions by the states making the contribution as part of that states' funding commitment.

Over 5 million customers in the seven western states of Arizona, Colorado, Nebraska, Nevada, New Mexico, Utah, and Wyoming use renewable hydropower from the CRSP reservoirs as a source of their electricity. Federal reservoir operations provide a variety of environmental benefits that are essential to native and listed species. When CRSP dams are reoperated, hydropower output may be restricted, which increases costs to CRSP power customers for replacement power. Through 2023, these costs are estimated to total $81 million. Replacement power costs are recognized by Congress as a contribution to the Recovery Programs.

Non-federal partners may also voluntarily contribute water or make other contributions to the Recovery Program to implement actions identified in the Recovery Program workplan, including, but not limited to cash donations, short-term leases and longer-term acquisitions of water. Water or other non-cash actions contributed to the Recovery Program by nongovernmental organizations not included in a workplan budgeted item shall be considered 'in-kind' contributions and will be credited to the contributor.

7.2 POST-2023 FUNDING AGREEMENT

In February 2023, the Upper Division states (Colorado, New Mexico, Utah, and Wyoming) and Reclamation (on behalf of the DOI agencies) finalized a funding agreement for the Recovery Programs for the period from 2024 through 2038. The funding agreement was unanimously

approved by the IC (March 13, 2023) and the Coordination Committee of the SJRIP (March 10, 2023).

Under the agreement, the partners recommended the addition of $100 million to the capital ceiling of the BOR funding (through appropriations) for both Recovery Programs for the period of FY2024-FY2038, with annual increases based on inflation. Non-federal partners intend to continue providing matching capital funds on a project-by-project basis as appropriate and when funding availability allows. Should additional capital funding be needed during the FY2024-FY2038 period, non-federal partners may request an increase in the Congressional authorization for capital funding.

Also under the agreement, base funding for the Recovery Program for the first 5 years of the reauthorization period (FY2024-FY2028) would be primarily fully funded by the federal government, subject to availability. The states would enhance their contributions in federal fiscal year 2029. Reclamation would pay $7.84M per year in fiscal years 2024-2028, $7.30M per year in fiscal years 2029-2033, and $6.78M per year in fiscal years 2034-2038 for the Recovery Program. The three member states (Wyoming, Colorado, and Utah) would pay $0.5M per year in fiscal years 2024-2028, $1.04M per year in fiscal years 2029-2033, and $1.56M per year in fiscal years 2034-2038. Payments will be in cash or cash equivalents as outlined in the workplan. Based on funding agreements and legislation, all funds are subject to inflation. Additional details about each funding source are provided in the subsections below.

Table 7-1. Post-2023 Annual Funding Agreement for 2024-2038

	Proposed Annual Base Funding for the Recovery Program[8,9]			
	2024-2028	2029-2033	2034-2038	Total (2024-2038
Service	$ 1,360,000	$ 1,360,000	$ 1,360,000	$20,400,000
Reclamation	$7,840,000	$7,300,000	$6,780,000	$109,600,000
States[10,11]	$500,000	$1,040,000	$1,560,000	$15,500,000
Total Annual Funding	$9,700,000	$9,700,000	$9,700,000	$145,500,000

[8] Actual amounts will be increased annually for inflation.

[9] If federal legislation further authorizes the Recovery Program funding beyond 2031 with federal funding consistent with Table 1 for the years 2032-2038, annual funding provided by the states is expected to be as described in Table 1 for years 2032-2038.

[10] States' cash versus cash equivalent amounts may vary annually, but the total will be consistent with the inflation-adjusted table values.

[11] Non-federal partners may also contribute water to the Recovery Program as part of actions identified in program Annual Work Plans, including, but not limited to short-term leases or longer-term acquisitions. Water or actions contributed to the Recovery Programs as part of an Annual Work Plan budgeted item shall be considered "cash-equivalent' contributions by the states in which such contributions are made. Water or actions contributed to the program outside an Annual Work Plan budgeted item shall be considered 'in-kind' contributions. In-kind contributions are not included in this table and will not count towards the annual cash or cash equivalent funding described in Table 1.

The availability of funding from governmental sources is subject to the authorization and appropriation by federal and state legislative bodies. Nothing herein will be construed as obligating the Department of the Interior or any Recovery Program participant to expend funds or obligating the United States in any contract or other obligation for payment of funds in excess of appropriations authorized by law. The non-federal participants will actively support appropriations by Congress and state legislatures needed to implement annual Recovery Program activities and any needed capital recovery projects.

7.2.1 Service Funding

The Service currently contributes $1,360,000 per year from Region 6 for the Program. This will continue through 2038, adjusted for inflation annually.

7.2.2 Reclamation Funding

Reclamation will continue to seek federal appropriations for annual base funding consistent with the amount authorized by federal legislation. If WAPA and Reclamation determine hydropower funds for annual base funding are available, WAPA, in consultation with Reclamation, will determine the amount of such funds. Those funds (i.e., power revenues) may be provided in lieu of appropriated funds. Any available power revenues used to fund the Recovery Program would be non-reimbursable and treated as a constructive return to the Treasury, per P.L. 106-392.

The availability of federal appropriations is not guaranteed in any given year, but rather is subject to the amounts appropriated by Congress and enacted by the President of the United States. Further, the availability of federal appropriations beyond 2031 is subject to additional authorizing legislation beyond 2031.

7.2.3 States' Funding

The states of Colorado, Wyoming, and Utah will continue to provide cash and/or cash-equivalent contributions to the Recovery Program. The states of Colorado, Wyoming, and Utah have agreed to divide the financial responsibility for the states' funding requirement for this Recovery Program (refer to split memo dated May 1, 2024, Appendix B). The availability of state appropriations is not guaranteed in any given year, but rather is subject to the availability of funds as appropriated by each state legislature. Further, the states are committed to contributing funding through 2038, provided the federal funding remains as described in the Post-2023 Funding Agreement beyond 2031. The percentage contributed through states' cash versus cash equivalent amounts may vary annually, but the total for each year will not change. To provide flexibility for individual states' circumstances, cash contributions can be made in the year they are available, deposited into the states' accounts at NFWF for use in subsequent years, or contributed via a separate funding agreement for use in subsequent years.

States may choose to develop additional plans for conservation activities as species are downlisted and/or delisted and the states' annual base funding of the Recovery Program should not preclude the states funding of additional conservation actions.

7.2.4 Water Project Contributions through Depletion Fees

Contributions by proponents of non-federal water projects undergoing section 7 consultation provide an additional source of Recovery Program funding. These depletion fees continue under the agreement.

7.2.5 In-Kind Contributions by Non-Federal Partners

In-kind contributions include activities and contributions by non-federal partners to benefit the Recovery Program in addition to the annual (base) and capital funding. Partners recognize that in-kind funding and actions provided by non-federal parties to the Recovery Program are substantial and as such these types of contributions are invaluable for the recovery of the listed fishes. In-kind donations continue under the agreement.

7.2.6 Donations

Donations of funds or other assets from private parties, including conservation groups, may be made to the NFWF account on behalf of the Recovery Program.

7.3 FEDERAL AUTHORIZING LEGISLATION

Public Law 106-392, as amended by P.L. 118-159 (Section 5311) in 2024, authorizes appropriations of annual base funding and capital project funding to Reclamation to continue implementing the Recovery Programs for FY2024 through FY2031. P.L. 118-159 includes the authority to utilize power revenues for base funding, if available.

For FY2024 through FY2031, $50 million was authorized for the two Recovery Programs combined, adjusted for inflation at the beginning of each fiscal year, to fund capital projects. Additionally, $92.04 million, adjusted for inflation at the beginning of each fiscal year, was authorized for annual base funding for both the Recovery Programs, with $61.1 million allocated for this Recovery Program and $30.94 million for the SJRIP. Authorized federal funding levels are consistent with the partners' Post-2023 Funding Agreement described in Section 7.2, but are truncated to an 8-year duration (2024-2031) rather than a 15-year duration (2024-2038). Table 7.2 shows the authorized Reclamation annual base funding intended for the Recovery Program for FY2024 through FY2031.

Inflationary increases will be calculated annually based on the Consumer Price Index, averaged over three preceding years. Inflationary increases will be applied to the sources of funds shown in Table 7.2. Inflationary increases are not shown in Table 7.2. Annual funds are expended based on annual budgets adopted by the Recovery Program (see Section 7.2).

Table 7-2. Authorized Annual base funding for the Recovery Program

	Authorized Annual Base Funding for the Recovery Program [12,13,14]		
	2024-2028	2029-2031	Total (2024-2031)
Total Reclamation Annual Funding	$7,840,000	$7,300,000	$61,100,000

[12] Reclamation contributions shown are consistent with P.L. 106-392, as amended.
[13] Actual amounts will be increased annually for inflation.
[14] San Juan Recovery Program authorizations are not included here, see SJRIP Program Document

8 REFERENCES

Anderson, D. M., T. W. Econopouly, J. Mohrman, M. T. Jones, M. J. Breen, and T. E. Chart. 2019. Review of fish studies with interim flow recommendations for endangered fishes of the White River, Colorado and Utah. Page 113. Upper Colorado River Endangered Fish Recovery Program, Final Report, Denver, Colorado.

Bestgen, K. R., R. C. Schelly, R. R. Staffeldt, M. J. Breen, D. E. Snyder, and M. T. Jones. 2017. First reproduction by stocked bonytail in the upper Colorado River basin. North American Journal of Fisheries Management 37(2):445–455.

LaGory, K. E., K. R. Bestgen, H. Patno, J. Wilhite, David Speas, and M. Trammell. 2019. Evaluation and suggested revisions of flow and temperature regulations for endangered fish in the Green River downstream of Flaming Gorge Dam. Final Report to the U.S. Fish and Wildlife Service, Upper Colorado River Endangered Fish Recovery Program, Denver.

McAda, C. W. 2003. Flow recommendations to benefit endangered fishes in the Colorado and Gunnison Rivers. U.S. Fish and Wildlife Service, Grand Junction, Colorado.

Modde, T., and C. Keleher. 2003. Flow recommendations for the Duchesne River with a synopsis of information regarding endangered fishes. Page 62. Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Modde, T., W. J. Miller, and R. Anderson. 1999. Determination of habitat availability, habitat use, and flow needs of endangered fishes in the Yampa River between August and October. Page 128 Upper Colorado River Basin Recovery Implementation Program. Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Osmundson, D. B., P. Nelson, K. Fenton, and D. W. Ryden. 1995. Relationships between flow and rare fish habitat in the “15-mile reach” of the Upper Colorado River. Page 82. Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Service. 2018. Humpback Chub (Gila Cypha) 5-year Review: Summary and evaluation. Page 15. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

U.S. Bureau of Reclamation. 2006. Record of Decision: Operation of Flaming Gorge Dam Final Environmental Impact Statement.

U.S. Bureau of Reclamation. 2012. Record of decision for the Aspinall Unit operations final environmental impact statement. U.S. Bureau of Reclamation.

U.S. Department of the Interior. 1987. Recovery implementation program for endangered fish species in the upper Colorado River basin, “Blue Book.” U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

U.S. Department of the Interior. 1988. Cooperative Agreement for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin.

U.S. Department of the Interior. 2001. Cooperative Agreement for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin, extension.

U.S. Department of the Interior. 2009. Cooperative Agreement for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin, extension.

U.S. Department of the Interior. 2023. Cooperative Agreement for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin, extension.
U.S. Department of the Interior. 2024. Cooperative Agreement for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin, extension.
U.S. Fish and Wildlife Service. 1990a. Humpback chub recovery plan, 1st revision. Report of Colorado River Fishes Recovery Team to U.S. Fish and Wildlife Service, Region 6, Denver, CO.
U.S. Fish and Wildlife Service. 1990b. Bonytail chub revised recovery plan. U.S. Department of the Interior, Denver, Colorado.
U.S. Fish and Wildlife Service. 1998a. Razorback Sucker (*Xyrauchen texanus*) Recovery Plan. Page 81. Denver, Colorado.
U.S. Fish and Wildlife Service. 1998b. Final biological opinion, Duchesne River Basin. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.
U.S. Fish and Wildlife Service. 1999. Final programmatic biological opinion for Bureau of Reclamation's operations and depletions, other depletions, and funding and implementation of Recovery Program actions in the Upper Colorado River above the confluence with the Gunnison River. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.
U.S. Fish and Wildlife Service. 2002a. Humpback Chub recovery goals: amendment and supplement to the Humpback Chub recovery plan.
U.S. Fish and Wildlife Service. 2002b. Bonytail recovery goals: amendment and supplement to the Bonytail recovery plan.
U.S. Fish and Wildlife Service. 2002c. Razorback Sucker (*Xyrauchen texanus*) Recovery Goals: amendment and supplement to the Razorback Sucker Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.
U.S. Fish and Wildlife Service. 2005a. Final Programmatic Biological Opinion on the management plan for endangered fishes in the Yampa River Basin. Page U.S. Fish and Wildlife Service, Region 6, Denver, CO.
U.S. Fish and Wildlife Service. 2005b. Update of the Reasonable and Prudent Alternative in the July 1998 Biological Opinion for the Duchesne River Basin. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.
U.S. Fish and Wildlife Service. 2009. Final Gunnison River Basin Programmatic Biological Opinion. Page U.S. Fish and Wildlife Service, Region 6, Denver, CO.
U.S. Fish and Wildlife Service. 2018a. Species status assessment report for the razorback sucker *Xyrauchen texanus.* . Denver, Colorado.
U.S. Fish and Wildlife Service. 2018b. Species status assessment for the humpback chub (Gila cypha). U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.
U.S. Fish and Wildlife Service. 2018c. Razorback Sucker (*Xyrauchen texanus*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver.

U.S. Fish and Wildlife Service. 2020. Colorado pikeminnow (Ptychocheilus lucius) 5-Year status review: summary and evaluation. Page 23. Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.
U.S. Fish and Wildlife Service. 2022. Species status assessment report for the Colorado pikeminnow Ptychocheilus lucius, Version 1.1. Page 180. Mountain-Prairie Region, Denver, Colorado.
U.S. Fish and Wildlife Service. 2023. Recovery plan for Colorado pikeminnow (Ptychocheilus lucius). Page 24. Mountain-Prairie Region, Denver, Colorado.

Appendix A: Section 7 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 RAP.

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

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

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 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 cannot 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.

Appendix B: State Split Agreement

Post-2023 Financial Responsibility Among the States of Colorado, Utah, and Wyoming related to the Upper Colorado River Endangered Fish Recovery Program

May 1, 2024

In February 2023, the Upper Division States and Reclamation (on behalf of the Department of Interior agencies) finalized a funding proposal for the Colorado River recovery programs (Upper Colorado River Endangered Fish Recovery Program (UCREFRP) and San Juan River Basin Recovery Implementation Program), which outlined annual funding amounts for the two programs through 2038. The funding proposal was unanimously approved by the IC of the UCREFRP and the Coordination Committee of the San Juan Program.

Pursuant to the funding proposal, during the first 5 years, the states will continue annual contributions at $0.5 M with the remainder of the cost being funded by the Federal Government. The states start to increase their contributions in federal fiscal year 2029, and once again in 2034. However, it appears the 118th Congress may only reauthorize Reclamation's funding of the Program through 2031 at this time. Given this, federal funding and state funding will proceed as agreed upon in February 2023 for the period 2024-2031. Beyond 2031, annual funding provided by the states is expected to be as described in the February 2023 funding proposal agreed upon between the Upper Division States and Reclamation, provided the federal funding also remains as described.

For the UCREFRP, Reclamation will pay $7.84 M per year in years 2024-2028, $7.30 M per year in years 2029-2033, and $6.78 M per year in years 2034-2038 (amounts adjusted for inflation annually). The three member states (Colorado, Utah, and Wyoming) will collectively pay $0.50 M per year in years 2024-2028, $1.04 M per year in years 2029-2033, and $1.56 M per year in years 2034-2038 (amounts adjusted for inflation annually). Payments will be in cash and/or cash equivalents. The States agree to split their collective contribution for the UCREFRP in federal fiscal years 2024-2038 as listed in Table 1, below. These agreed-upon splits were roughly based on the consulted-on new depletions covered by the program through 2023.

Table 1 - UCREFRP Financial Responsibility Among the Three States

	Colorado	Utah	Wyoming	Total
New Depletions[1]	206,340	101,543	40,965	348,848
Agreed Upon Split	**59%**	**29%**	**12%**	

All funding commitments are subject to appropriations and legislative approval by the respective state and federal legislative bodies. Consistent with the agreements reached in the February 2023 funding proposal, the states' collective funding contribution is contingent on the federal funding contribution, which requires that the federal funding legislation pass, and requires subsequent extension through 2038.

[1] Consulted-on new depletions based on the Briefing Book available at: https://coloradoriverrecovery.org/uc/wp-content/uploads/sites/2/2023/03/Briefing-Book-2022-2023.pdf