

GILA RIVER BASIN NATIVE FISHES CONSERVATION PROGRAM
STRATEGIC PLAN 2018-2022
April 2018

U.S. Fish and Wildlife Service
U.S. Bureau of Reclamation
New Mexico Game and Fish Department
Arizona Game and Fish Department

INTRODUCTION

This is the fourth 5-year strategic plan to assist the near-term implementation of the Gila River Basin Native Fishes Conservation Program (Program; previously known as the Central Arizona Project [CAP] Fund Transfer Program). The Program is funded by the U.S. Bureau of Reclamation (Reclamation), and is directed by the U.S. Fish and Wildlife Service (Service) and Reclamation, in cooperation with the New Mexico Department of Game and Fish (NMDGF) and Arizona Game and Fish Department (AZGFD). The Program mission is to undertake and support conservation actions (recovery and conservation) for federally listed, candidate and other non-listed fish species native to the Gila River basin by implementing existing and future recovery plans for those fishes. This strategic plan identifies the long-term vision for the Program as well as broad goals and actions that are expected to be accomplished by the Program over the next 5 years.

DESCRIPTION OF THE PROGRAM

The Program was developed to partially mitigate impacts of the CAP canal on threatened and endangered native fishes of the Gila River basin. The Service concluded in a 1994 biological opinion that the CAP is a conduit for transfers of non-indigenous fishes and other aquatic organisms from the lower Colorado River (where the CAP originates) to waters of the Gila River basin. That opinion identified the spread and establishment of nonnative aquatic organisms as a serious long-term threat to the conservation and recovery of native aquatic species, following a long history of habitat loss and degradation. Impacts of nonnatives include predation, competition, hybridization, and parasite and pathogen transmission. In most cases, it is extremely difficult or impossible to remove invaders once they have established.

For these reasons, the 1994 Service opinion concluded that operation of the CAP would jeopardize the continued existence of four native threatened or endangered fish species: Gila topminnow (*Poeciliopsis occidentalis*), spikedace (*Meda fulgida*), loach minnow (*Tiaroga cobitis*), and razorback sucker (*Xyrauchen texanus*). The Service also concluded that the CAP would adversely modify designated critical habitat of spikedace, loach minnow, and razorback sucker. A suite of reasonable and prudent alternatives were designed to monitor the introduction and spread of nonnative aquatic species, construct and operate barriers to prevent the upstream spread of nonnative species, implement fund transfers to the Service to recover natives and control nonnatives, and inform and educate the public about the value of native fishes and the negative impacts posed by nonnatives. In the 2001 revision of the 1994 opinion, the reasonable

and prudent alternatives became conservation measures, and in the 2008 revision, the Santa Cruz River subbasin was added to its geographic scope and the newly-listed endangered Gila chub (*Gila intermedia*) and Chiricahua leopard frog (*Lithobates chiricahuensis*) were added to the Program as species affected by operation of the CAP.

The initial biological opinion for the program required Reclamation to make available \$250,000 for conservation of native fishes and an additional \$250,000 for control and management against nonindigenous aquatic species. This dollar amount was increased to \$275,000 per measure following the 2008 biological opinion. This was done through a funds transfer agreement between Reclamation and the Service where funding was transferred annually to the Service to administer projects through a variety of sub-agreements. In 2014, a decision was made to no longer transfer funds to the Service, but instead have Reclamation administer projects directly. The transition process was completed in 2016 with some funding still administered by the Service.

This five-year strategic plan is intended primarily to guide the implementation of these funds to undertake and support conservation actions (recovery and conservation) for the five priority fishes, and other native fishes in the Gila River basin (including federal and state-listed species, candidates, and other non-listed species) by implementing existing and future recovery plans for those fishes. Expenditure of these funds is jointly agreed upon by Reclamation and the Service in consultation with AZGFD and NMGFD.

What was formerly called the CAP Fund Transfer Program started in June 1997, and is now 20 years into its 30-yr commitment. It is estimated that Reclamation will spend 16 million dollars on native fish conservation and control of nonindigenous species over the life of the program. As of 2017 Reclamation has obligated 12.1 million dollars on recovery and conservation efforts. The past accomplishments of the Program can be found on Reclamations website (<https://www.usbr.gov/lc/phoenix/biology/azfish/aznativefish.html>).

PROGRAM LONG-TERM VISION

The principal goals of Gila River Basin Native Fishes Conservation Program are to: 1) achieve enhanced conservation status of federally-listed and candidate fish species in the Gila River basin and; 2) alleviate and diminish threats from nonnative aquatic species that might enter the Gila River basin via the CAP canal or other pathways. While the focus of this Program is to prevent extinction and lead towards recovery of federally-listed species, it is recognized that long-term viability of protected species is accomplished in conjunction with actions beyond the capability of the Program.

PROGRAM PRIORITIES AND FUNDING CRITERIA

Funding to conserve Gila River basin native fishes is limited and the recovery of listed fishes is critical. Monies from the Program thus are prioritized such that meaningful, achievable, and

lasting on-the-ground activities benefit native fishes according to recovery plan goals (Appendix A) and other management guidance documents (e.g. conservation agreements, habitat conservation plans, State Wildlife Action Plans, integrated watershed management plans, forest management plans, BLM resource and habitat management plans, etc). Program conservation actions are identified in the above plans, by the Program agencies, and outside partners. Project proponents will insure Service and state species leads review proposed projects to ensure they are consistent with recovery plans or strategies.

Highest priority projects for the Program are those that are necessary to:

- stabilize existing populations in the wild
- replicate rare populations in the wild

Actions needed to stabilize populations in the wild include:

- construct fish passage barriers to protect existing populations
- control nonnative aquatic species above barriers
- maintain existing populations
- implement other actions to remove immediate threats

Actions needed to replicate rare populations in the wild include:

- safeguard streams for replication of rare populations
- where necessary, construct fish passage barriers and renovate streams
- undertake captive production, including development of propagation techniques
- implement other actions to insure that rare populations are replicated and protected

Additional priority is given to projects that:

- benefit the 5 priority species identified in the biological opinions;
- benefit multiple species, including all native fishes of the Gila River basin;
- provide immediate on-the-ground benefit; and/or
- address other activities pertaining to research or management that aid in conserving native fish populations and habitat.

It is recognized that planning and environmental compliance activities must proceed in advance of on-the-ground actions. However, mandates under Section 7 of the Endangered Species Act for Federal agencies to assist in conserving threatened and endangered species, and separate monies available to State agencies for this same purpose, may help provide for these needs when possible. These potential funding needs will be evaluated on a case-by-case basis as appropriate.

In addition to how each project addresses Program priorities and meets the strategic plan's 5-year goals, each project must:

- contribute to conservation and recovery of Gila River basin native fishes
- be technically sound and able to be implemented
- be able to accomplish its objectives in a reasonable timeframe

- not be redundant either in scope or funding source

Original project ideas are based on recovery plans and are generated through discussions with ad hoc groups of biologists, agency, academic, and non-governmental organizations, private fish biologists working in the Gila River basins, agency species leads and other entities as appropriate.

Proposed projects are to be evaluated using a standardized evaluation form (Appendix B) as guidance. The evaluation form is part of the process (but not the only element) that the Technical Committee uses to help evaluate project merits and recommendations to approve or reject.

Program 5-Year Goals Based on Recovery Plan Tasks and Priorities for the 5 Priority Species:

The goals and objectives identified below in table 1 below are built on the foundation of two basic recover needs:

1. Build the scientific foundation for recovery efforts

Although the Program concentrates on implementing on-the-ground conservation and recovery actions, certain basic research and planning is needed to build the foundation for future conservation and recovery actions.

2. Prevent extinction and manage toward recovery.

The fundamental goals are to protect remaining populations of target fish species and expand the distribution of these fishes. Practices to achieve these goals include:

- replicating populations in new locations to reduce the risk of losing unique populations and expand the distribution of the species
- installation of barriers to prevent invasion of nonnative fishes in areas with extant populations as well as potential habitat
- eradication of nonnative fishes
- restricting land use practices that alter habitat or water availability
- habitat improvements
- securing water rights

The likelihood of extirpation of individual populations can be decreased by establishing captive and wild populations of all existing unique genetic stocks of all target species. Captive populations may be maintained in a hatchery or other facility.

Table 1. Gila River Basin Native Fish Program goals and objectives.

Scientific Foundation		
No	Goal	Objective
1	Investigate novel methods to control nonnative aquatic biota.	a) Seek at least one opportunity to partner or fund new control methods or improvements upon existing methods.
2	Update and assemble existing knowledge of life history needs and ecology of Gila River basin native fishes.	a) As opportunities arise, initiate ecological/life history studies of native biota where such understanding can assist with conservation goals of the Program.
3	Improve propagation techniques for spikedace and loach minnow.	a) At a minimum, identify and implement at least one research project aimed at improving propagation.
4	Develop genetic management plans for priority species.	a) Develop genetic management plans for spikedace, loach minnow, and gila topminnow by 2022.
5	Investigate new stocking strategies to improve survival of repatriated fish.	a) At a minimum, document existing stocking strategies, identify locations with poor survival, and identify likely causes of poor survival.

Preventing Extinction and Managing Toward Recovery		
No	Goal	Objective
1	Identify critical streams and populations in need of protection and potential replication.	a) By December 2018 create a document to be appended to the strategic plan that identifies and prioritizes streams in need of protection (habitat enhancement and threat removal) and potential repatriation.
2	Maintain and operate ASU topminnow holding facility and the Aquatic Research and Conservation Center (ARCC) to support the Program's recovery efforts for imperiled fishes in the Gila River Basin through the establishment of refuge populations of genetically distinctive stocks as insurance against extinction in the	a) Identify key populations of other native species that may need refuge protection.
		b) Develop a broodstock management plans for captive populations.
		c) Augment hatchery populations as outlined in broodstock management plans.
		d) Ensure that ASU has the staff support and supplies necessary to maintain genetically viable refuge populations of Gila Topminnow.

	wild, captive propagation for repatriation, and applied research.	<p>e) Ensure the Aquatic Research and Conservation Center (ARCC) has the staff support and supplies necessary to improve propagation of spinedace and loach minnow by 25% from the previous 5 years provided wild fish are available.</p> <p>f) Develop a hatchery management plan for ARCC.</p>
3	Protect native fish populations from nonnative fish invasions.	a) Complete the scoping, environmental compliance, and design of four additional fish barriers, and initiate their construction.
4	Remove nonnative aquatic species threats.	a) Eradicate nonnative aquatic species from a minimum of five surface waters to prepare them for repatriations of native fishes.
5	Replicate populations and their associated native fish community into protected streams and other surface waters.	a) Replicate Gila topminnow stocks into a minimum of 10 surface waters.
		b) Replicate each of the other priority species into a minimum of one surface water.
6	Acquire or work with other programs to acquire easements, land, or water rights to protect key surface water.	a) Identify major surface and groundwater rights in perennial stream reaches of the Gila River basin where acquisition can contribute to conservation goals of the Program.
		b) Develop a sub group to investigate acquisition potential for a minimum of five water rights/properties/ easements to improve watershed protection for Gila River basin native fishes.
7	Protect, maintain, and restore degraded aquatic habitats to use for native fish.	a) Restore habitats in locations with existing populations and in locations planned for repatriations.
8	Inform and educate the public about the conservation status and values of native fishes and the problems nonnative fishes create for them.	a) Develop an I&E working group to implement no less than two opportunities per year.
		b) Update USBR website by December 2018.
9	Monitor to quantitatively measure and evaluate project success in improving	a) By 2019, contribute to a basin wide long term survey strategy to ensure streams are being adequately monitored.

	the status of target species and their habitats.	b) Develop/identify monitoring standards as necessary to adequately evaluate fish barrier function, success and failure of eradications, and success and failure of repatriations.
		c) Incorporate eDNA and associated database and/or other technologies into monitoring practices.
10	Maintain accurate Program tracking records.	a) Continue to develop annual workplans and reports that track program accomplishments.

PROJECT SELECTION PROCESS

Primary administration of the Program is by Reclamation and the Service. Program guidance is in cooperation with AZGFD and NMGFD. Two committees have been established with representation from the four agencies to address technical and policy matters of the Program. The Technical Committee is comprised of biologists (1 per agency) that oversee project solicitation, evaluation, and recommendations for implementation. Non-voting members to the Technical Committee also include one representative each from the Southwest Region U.S. Forest Service and Arizona and New Mexico Bureau of Land Management. The Policy Committee gives guidance to the Technical Committee, approves or rejects recommended projects, and deals with policy and political issues that may arise during implementation of the Program. The Policy Committee is comprised of agency representatives (one per agency, but typically not the same person on the Technical Committee). The Policy Committee meets annually to review project proposals, where consensus among the four parties is the goal. Because this is a federally-funded program resulting from Endangered Species Act Section 7, the Service and Reclamation will make the final decisions on project implementation if consensus cannot be reached.

The following are steps and approximate timeframes involved in formulating, selecting, awarding, and reporting on Program projects:

First weeks of December (Technical Committee/annual reporting meeting) - The Technical Committee and parties funded through the program present results of previous years’ work, update the list of proposed work for the next calendar year, and generate a prioritized list of proposed work for the next fiscal year.

December – January - The Technical Committee or project proponents prepare project work plan summaries and budgets using the templates provided in Appendices C and D.

February 1st - Draft annual reports due for Reclamation and FWS review. Reclamation and FWS will have 30 days to review – using templates provided in Appendix E.

February - Reclamation compiles project summaries into a work plan for Technical Committee review.

March (Technical Committee call) -The Technical Committee finalizes work plan for the Policy Committee approval.

April 1st - Final annual reports due to Reclamation.

April/May (Joint Committee meeting) - The Technical and Policy committees meet jointly to discuss and recommend selections of potential projects to be funded in the following federal fiscal year. Project selections for funding are either approved, conditionally approved (if further clarification or modification by proposal applicants is needed), or rejected. Prior year project accomplishments, failures, and status are also reported to the Policy Committee. Time will be set aside at this meeting to discuss Program function, processes, and potential improvements.

June/July (Joint Committee meeting--optional) - If needed, the Technical and Policy committees meet jointly to review the revised project list (conditionally-approved proposals from the April/May meeting), and the final list is approved. Other Program topics may be discussed as needed.

July – September - Reclamation uses the finalized project summaries to prepare agreements with implementing agencies.

October-February - Reclamation and the Service implements the tasks through interagency agreements, cooperative agreements, grant agreements, purchase order contracts, regular contracts, transfers of money to other Service stations, and any other appropriate mechanism.

APPENDICES

- A. Summary of Recovery Plan Tasks for 4 of the 5 Priority Species
- B. Project Evaluation Score Form
- C. Work Plan Template
- D. Example Budget Request for Proposed Projects
- E. Annual Report Template

Appendix A. Summary of Recovery Plan Tasks for 4 of the 5 Priority Species**Spikedace and Loach Minnow:**

- 1) Protect existing populations
 - Task 1.1 (priority 1) Identify all populations and determine level of protection
 - Task 1.2 (priority 2) Prioritize populations based on need for protection
 - Task 1.3 (priority 1) Designate critical habitat
 - Task 1.4 (priority 1) Enforce laws and regulations
 - Task 1.5 (priority 1) Discourage detrimental land and water uses
 - Task 1.6 (priority 1) Ensure natural flows
 - Task 1.7 (priority 1) Curtail introductions of nonnative fishes
 - Task 1.8 (priority 1) Identify need for and construct barriers
 - Task 1.9 (priority 2) Identify available unprotected private lands and water rights
 - Task 1.10 (priority 2) Acquire available lands and associated water rights
 - Task 1.11 (priority 2) Protect acquired lands
- 2) Monitor status of existing populations
 - Task 2.1-2 (priority 1) Establish standard monitoring locations and techniques
 - Task 2.3 (priority 2) Establish and maintain computerized database
 - Task 2.4 (priority 1) Determine natural variation in abundance and age-class structure
 - Task 2.5 (priority 1) Monitor community composition including range of natural variation
 - Task 2.6 (priority 1) Determine genetic characteristics of existing populations
- 3) Identify nature and significance of interaction with nonnative fishes -- Task 3.1-2 (priority 2)
- 4) Quantify, through research, habitat needs and the effects of physical habitat modification on life cycle completion – Task 4.1-6 (priority 2)
- 5) Enhance or restore habitats occupied by depleted populations
 - Task 5.1-2 (priority 2) Identify management areas and determine necessary habitat improvement
 - Task 5.3 (priority 3) Implement habitat improvement
- 6) Reestablish populations to selected streams within historic range
 - Task 6.1 (priority 3) Identify stocks to be used for reintroduction
 - Task 6.2 (priority 3) Identify and prepare sites for reintroduction
 - Task 6.3-4 (priority 3) Reintroduce into selected reaches and monitor
 - Task 6.5-6 (priority 3) Determine reasons for success/failure and rectify as necessary

- 7) Determine quantitative criteria for describing a self-sustaining population – Task 7.1-3 (priority 2)
- 8) Plan and conduct investigations on captive holding, propagation and rearing
 - Task 8.1 (priority 3) Select stocks to be used for hatchery brood stock
 - Task 8.2 (priority 3) Collect hatchery stocks
 - Task 8.3 (priority 3) Hold and maintain stocks in a hatchery
 - Task 8.4-5 (priority 3) Evaluate and assess propagation techniques and life-cycle requirements
 - Task 8.6 (priority 3) Supply hatchery-reared fish as needed
- 9) Information and education
 - Task 9.1 (priority 2) Provide information and education relative to the species to the public sector
 - Task 9.2 (priority 2) Ensure all professional information is made available

Gila Topminnow (POOC):

- 1) Prevent extinction by protecting remaining natural and long-lived reestablished populations
 - Task 1.1 (priority 1) Maintain refugia populations of natural populations
 - Task 1.2 (priority 1) Designate critical habitat
 - Task 1.3 (priority 1) Identify extent of geographical distribution of POOC
 - Task 1.4 (priority 1) Protect occupied habitats from detrimental land and water use practices
 - Task 1.5 (priority 1) Protect from invasion by detrimental nonnative aquatic species
 - Task 1.6 (priority 1) Prohibit the introduction or release of nonnative aquatic species to POOC-occupied areas
 - Task 1.7 (priority 1) Design and implement site specific management plans for natural and long-lived reestablished populations
 - Task 1.8 (priority 1) Determine minimum viable population
- 2) Reestablish and protect populations throughout historical range
 - Task 2.1 (priority 1) Identify suitable habitats
 - Task 2.2 (priority 1) Reestablish into suitable habitats
 - Task 2.3 (priority 1) Protect suitable reestablishment habitats from detrimental land and water use practices
 - Task 2.4 (priority 1) Protect suitable reestablishment habitats from detrimental nonnative aquatic species
 - Task 2.5 (priority 1) Prohibit the introduction and release of nonnative aquatic species to POOC-occupied or suitable reestablishment habitat
 - Task 2.6 (priority 1) Design and implement site specific management plans for reestablished populations
- 3) Monitor natural and reestablished populations and their habitats
 - Task 3.1 (priority 1) Develop standardized population and habitat monitoring protocols and implement them
 - Task 3.2 (priority 1) Maintain a population and habitat database and generate annual reports

- Task 3.3 (priority 1) Implement criteria for declaring reestablished populations as extirpated
- 4) Develop and implement genetic protocol for managing populations
 - Task 4.1 (priority 2) Facilitate genetic exchange among reestablished populations as needed
 - Task 4.2 (priority 2) Conduct additional genetic studies of POOC populations
- 5) Study life-history, genetics, ecology, and habitat of POOC and interactions with nonnative aquatic species -- Task 5.0 (priority 2)
- 6) Inform and educate the public and resource managers -- Task 6.0 (priority 3)

Razorback Sucker (XYTE):

- 1) Prevent extinction of major extant XYTE populations and permanent loss of genetic diversity of existing populations
 - Task 1.1 (priority 1) Protect fish in refugia and maintain genetic diversity
 - Task 1.2 (priority 1) Restore physical habitats and provide fish access
 - Task 1.3 (priority 1) Reduce adverse biological impacts
 - Task 1.4 (priority 1) Augment wild populations
 - Task 1.5 (priority 1) Monitor populations and habitat status
- 2) Establish and protect additional wild populations
 - Task 2.1 (priority 2) Develop criteria for selecting additional recovery areas
 - Task 2.2 (priority 2) Assess restoration and access needs
 - Task 2.3 (priority 2) Select additional recovery areas in critical habitat reaches
 - Task 2.4 (priority 2) Determine habitat restoration needs
 - Task 2.5 (priority 2) Restore needed habitats and provide fish access
 - Task 2.6 (priority 2) Augment or reintroduce XYTE in recovery areas
- 3) Protect and maintain XYTE populations and their habitats
 - Task 3.1 (priority 3) Determine threats to XYTE populations
 - Task 3.2 (priority 3) Monitor and assess the impact of development projects
 - Task 3.3 (priority 3) Refine and enforce existing laws and regulations protecting XYTE
 - Task 3.4 (priority 3) Develop and implement cooperative interagency programs to protect and recover XYTE
- 4) Develop quantitative recovery goals and a long-term habitat protection strategy
 - Task 4.1 (priority 4) Develop quantitative recovery goals for each recovery area
 - Task 4.2 (priority 4) Develop quantitative recovery goals for the species
- 5) Promote and encourage improved communication and information dissemination
 - Task 5.1 (priority 5) Develop and conduct workshops to coordinate recovery efforts
 - Task 5.2 (priority 5) Conduct nationwide information and education programs
 - Task 5.3 (priority 5) Conduct local information and education programs
 - Task 5.4 (priority 5) Promote information and education programs within management agencies
 - Task 5.5 (priority 5) Encourage and support publication of research and other recovery results in technical literature

Appendix B. Project Evaluation Scoring Form (UPDATES COMING SOON)

**Gila River Basin Native Fishes Conservation Program
Proposal Evaluation Form**

Fiscal Year Project Duration Total Cost

Proposal Title

Evaluator(s)

Restoration (10 pts possible)

- Project addresses one of the 5 priority species (1 pt)
- Project addresses more than one of the priority species (1 pt)
- Project addresses recovery objectives reducing threats or establishing populations (2 pt)
- Project addresses other recovery objective (1 pt)
- Project is likely to provide long-term benefits for priority species and habitats (1 pt)
- Project conveys large conservation benefit to priority target species (1 pt)
- Project directly benefits multiple native species (1 pt)
- Urgency: project window is short, or immediate action is required to forestall degradation or deterioration of the resource (2 pts)

Five Priority Species

Spikedace: List the task and number of each recovery task/action identified in the 1991 Spikedace Recovery Plan.

Loach Minnow: List the task and number of each recovery task/action identified in the 1991 Loach Minnow Recovery Plan.

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Gila Topminnow: List the task and number of each recovery task/action identified in the 1999 draft Topminnow Recovery Plan.

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Razorback Sucker: List the task and number of each recovery task/action identified in the 1998 Razorback Sucker Recovery Plan.

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Gila Chub: List the task and number of each recovery task/action identified in the draft Gila Chub Recovery Plan.

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Comments:

Total points: _____

Partnership Involvement (3 pts.)

- Project has multiple and diverse partners working in collaboration, including important local/regional partners (1 pt)
- Project is part of a larger collaborative conservation effort (1 pt)
- Project builds upon previously or currently funded GRBNFCP projects (1 pt)

Comments:

Total points: _____

Technical Merits of the Proposal: (4 pts possible)

- Project demonstrates sound technical and scientific merit and is supported by established scientific studies or principles (1 pt)
- Project objectives are realistic, measurable, and achievable; methods are clearly defined and appropriate to meet stated objectives (1 pt)
- Environmental and regulatory compliance requirements already met or not required (1 pt)
- Mechanism in place to evaluate, monitor and disseminate the results of the project, including lessons learned and best practices (1 pt)

Comments:

Total points: _____

Total Proposal Points: _____

Appendix C. Work Plan Template

Fiscal Year 20XX

Project Title: *Full title of the project*

Implementing Entity: *The organization(s) conducting the work.*

Partners: *Entities assisting the work.*

Start Year: *Year this project began*

Location(s): *List the location(s) by waterbody name of where this project will be taking place.*

Species Protected: *List all of the species this project will protect beginning with the priority species*

Project Description:

Provide a short description of the project. Less than 300 words.

Strategic Plan Goals:

List the recovery need first and then the goal number followed by the goal. See example below:

- *Preventing Extinction and Managing Toward Recovery*
 - *Goal 4. Continue and expand repatriations of native fish communities.*
 - *Goal 7. Monitor on-the-ground activities to quantitatively measure and evaluate programmatic success in improving the status of target species and their habitats.*
 - *Goal 9. Periodically evaluate the success of species repatriations and surface water renovations.*

Recovery goals:

Identify which recovery plan goal(s) this project is meeting. List the species recovery plan and then the task number followed by the task description. See example format below:

- *Gila Topminnow recovery plan (1999 draft)*
 - *Task 2.2 (priority 1): Reestablish into suitable habitats*
 - *Task 3.1 (priority 1): Develop standardized population and habitat monitoring protocols and implement them*

Appendix D. Example Budget Request for Proposed Projects

LINE ITEM DETAILS FOR EACH PROJECT ACTIVITY:

Budget Categories:	Rate or Cost Explanation	CAP Program to Fund:	Applicant Contribution:	Total Cost per Category:
Personnel (Labor)	\$00/hr wage/FTE	\$	\$	\$
Fringe Benefits (ERE)	Labor cost x 00%	\$	\$	\$
Travel (Per Diem)	\$00/day x 00 days	\$	\$	\$
Equipment (Capital Expenses)	Vehicle or items valued at \$5,000+	\$	\$	\$
Supplies (AOO)		\$	\$	\$
Contractual (Professional Outside Services)	# seasonal or part-time staff x \$00/hr or job	\$	\$	\$
Construction		\$	\$	\$
Other		\$	\$	\$
Total Direct Charges		\$	\$	\$
Indirect Charges	Labor cost x 00%	\$	\$	\$
Total Cost per Year		\$	\$	\$
Total Cost over duration of project		\$	\$	\$

Notes:

Example for Project AAA, Activity 1 (duration = 2 years)

Budget Categories:	Rate or Cost Explanation	CAP Program to Fund:	Applicant Contribution:	Total Cost per Category:
Personnel (Labor)	\$28.85/hr wage	\$30,000	\$30,000 in-kind	\$60,000
Fringe Benefits (ERE)	Labor cost x 35%	\$10,500	\$10,500 in-kind	\$21,000
Travel (Per Diem)	\$40/day x 50 days	\$2,000	\$0	\$2,000
Equipment (Capital Expenses)	Vehicle or items valued at \$5,000+	\$0	\$0	\$0
Supplies (AOO)	(see itemized list)	\$4,000	\$0	\$4,000
Contractual (Professional Outside Services)	3 contract interns x \$4000/intern (=12 wks of fieldwork)	\$12,000	\$0	\$12,000
Construction		\$0	\$0	\$0
Other		\$0	\$0	\$0
Total Direct Charges		\$58,500	\$40,500 in-kind	\$99,000
Indirect Charges	Labor cost x 30%	\$9,000	\$0	\$9,000
Total Cost per Year		\$67,500	\$40,500 in-kind	\$108,000
Total Cost over duration of project		\$135,000	\$81,000 in-kind	\$216,000

Notes: Applicant labor/ERE is half paid by state wildlife agency using non-federal match (= 1040 hrs of a WSIII project supervisor). Applicant is providing a match of 37.5% as a cost-share to the total project cost.

Estimated Cost: Provide the estimated cost to the nearest hundreds.

Appendix E. Annual Report Template

General Report Format

1. **Project Title** – *Project or task title*
2. **Recovery Goals/Objectives** - *List the recover goal/objective number and description.*
3. **Background** - *Summary of work done to date as it relates to the action or task.*
4. **Results** - *Results of the reporting year.*
5. **Recommendations** - *Future actions as it relates to the action. Some examples of recommendations could be whether fish have established, need for additional augmentation, need for long term monitoring, success of removal and thoughts on how to improve the action, suitable habitat for species of interest, etc.*

Example Format**Acquire Spikedace, Loach Minnow and rare populations of other native fish**Recovery Objectives:

- Spikedace recovery objective 8.1. Determine wild stocks suitable for contribution to hatchery stocks.
- Loach Minnow recovery objective 8.1. Determine wild stocks suitable for contribution to hatchery stocks.
- Spikedace recovery objective 8.2. Collect and transfer wild stocks to suitable facility.
- Loach Minnow recovery objective 8.2. Collect and transfer wild stocks to suitable facility.

Background: The purpose of this task is to acquire Spikedace and Loach Minnow from all extant lineages and bring them to the Department's Aquatic Research and Conservation Center (ARCC), or another facility, for propagation and to establish refuge populations. The goal is to have 500 adults on station for each lineage. There are few natural populations left, and they need to be protected. Removing too many fish from a wild population could negatively impact it. The number of fish to remove from a given population is a coordinated decision between USFWS and state wildlife agencies, and is usually based on monitoring information about the estimated number of fish in the stream. If necessary, new individuals are brought into ARCC every year to maintain the population size and genetic similarity with wild stock.

Loach Minnow (Aravaipa Creek lineage) were first brought into the ARCC in August 2002 to develop propagation techniques (Childs 2004). Spikedace and more Loach Minnow from Aravaipa Creek were brought on station in 2007 to establish broodstocks.

Since then the number of fish and lineages brought each year has fluctuated from none to several hundred. Spikedace from Aravaipa Creek, Upper Gila River, and Gila River Forks), and Loach Minnow from Aravaipa Creek, Blue River and upper Gila River were brought on station in 2009. Only twice have more than 300 individuals of a given lineage been brought into the facility: 640 upper Gila River Spikedace in 2007, and 434 Gila River Forks Loach Minnow in 2011.

Results: On November 7, 2017, Department staff collected and transported 160 Spikedace and 100 Loach Minnow from Aravaipa Creek to ARCC. All fish were collected via seining downstream of the TNC Guest House site from NAD83 12S 556094 3638097 to 556130 3638256.

On November 30, 2017 ARCC staff acquired 110 Gila Forks lineage Loach Minnow from New Mexico Game and Fish Department and brought them back to ARCC.

No collections of the other lineages were completed because they were not planned for; repatriations using those lineages were not planned for 2018.

Recommendations: Continue to collect Spikedace and Loach Minnow from remnant populations, with goals to minimize impact on remnant population but acquiring the number of fish necessary to maintain a refuge population of at least 500 adults. The Loach Minnow population in the upper Blue River needs to be assessed and more of them brought into ARCC in 2018. ARCC staff should coordinate with NMDGF regarding acquiring more stock of the New Mexico lineages.