FY-2002 PROPOSED SCOPE OF WORK for: **Project #: 113**
Gunnison River Management Plan

Lead Agency: U.S. Fish and Wildlife Service
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Category:	Expected Funding Source:
_ Ongoing project	x Annual funds
_ Ongoing-revised project	_ Capital funds
x Requested new project	_ Other
_ Unsolicited proposal	

I. Title of Proposal:

Develop a management plan for the Gunnison River Basin that promotes recovery of endangered fishes of the Upper Colorado River Basin and offsets impacts of existing and foreseeable future water depletions from the Gunnison River to meet human needs.

II. Relationship to RIPRAP:

Colorado River Action Plan: Gunnison River
1.A.2. Develop Gunnison River management plan

III. Study Background/Rationale and Hypotheses:

A management plan will be developed for the Gunnison River Basin to serve as the basis for the U.S. Fish and Wildlife Service (FWS) to render a programmatic biological opinion (PBO). The PBO will encompass both federal and non-federal existing and future water development projects in the Gunnison River Basin. The management plan will quantify water depletions to be covered and recovery actions to be implemented to offset the impacts of depletions and promote recovery of the endangered fish. Recovery actions will include provision for and protection of instream flows, habitat restoration and maintenance, nonnative fish control, endangered fish stocking and monitoring endangered fish populations and their habitats.

The Gunnison River, the largest tributary to the Colorado River in Colorado, is considered important to the recovery of the endangered fish species in the Upper Colorado River Basin: Colorado pikeminnow, humpback chub, bonytail, and razorback sucker (Tyus and Saunders 2001, Table 1). The hydrology of the Gunnison River has been modified by a series of three dams and reservoirs, Blue Mesa, Morrow Point, and Crystal, collectively known as the Aspinall Unit, operated by the U.S. Bureau of Reclamation (USBR) for water supply, hydro-electric power generation and flood control. In addition, there are numerous other federal and non-federal water projects that deplete water from the Gunnison River and its tributaries. Nevertheless, the Gunnison River not only provides habitat for Colorado pikeminnow and razorback sucker, but its flows contribute to creation and maintenance of habitats for all four species on the Colorado River from the Gunnison River confluence at Grand Junction downstream to Lake Powell.

Table 1. Relative contributions of tributaries and obstacles to endangered species recovery (adapted from Tyus and Saunders 2001).

Tributary	Contributions to Recovery			Rank[2]	Obstacles to Recovery
	Direct	Indirect[1]	Total		
Green River Subbasin					
Yampa River	5	14	19	1*	Nonnatives
Little Snake River	3	11	14	5*	Nonnatives
Tributary Green River[3]	4	6	10	6*	Flow regulation, temperature, nonnatives
Duchesne River	3	6	9	8	Flow depletion, nonnatives
White River	3	12	15	4	Barrier, nonnatives
Price River	2	5	7	10	Flow depletion
San Rafael River	3	5	8	9	Flow depletion
Colorado River subbasin					
Tributary Colorado[4]	4	14	18	2*	Barriers
Plateau Creek	1	6	7	10	Barriers
Gunnison River	4	13	17	3	Barriers, water quality
Dolores River	1	9	10	6	Water quality(?)
Lake Powell					
Dirty Devil Arm	1	5	6	12	Little prospect of recovery
Escalante Arm	1	5	6	12	Little prospect of recovery

[1] Weighted score based on 1 point for low, 2 points for medium, and 3 points for high values in each of 5 different flow/sediment attributes

[2] Ranked by total score (* covered by existing or imminent PBO's or BO's.)

[3] Upstream from Yampa River – covered by Flaming Gorge BO

[4] Upstream from Gunnison River – covered by Colorado River ("15-mile reach") PBO

Tyus and Saunders (2001) rank the Gunnison River 3rd out of 13 tributaries evaluated for their contribution to recovery. Only the Yampa and tributary Colorado are ranked higher, and these streams have been covered under previous biological opinions. Therefore, it is appropriate that the Gunnison be the next in a series of PBO's for the major tributary basins of the Upper Colorado River system.

IV. Study Goals, Objectives, End Product:

A. Goal: The goal of the Gunnison River Management Plan is to contribute to recovery of endangered fishes while allowing water depletions for current and foreseeable future human needs to continue in accordance with state water law and interstate compacts.

B. Objectives:

1. Develop a framework to address issues raised by Recovery Program participants and others.

2. Review/update consumptive use (demand) projections describing the amount of water that is needed to meet current and future human needs.

3. Determine the role of the Gunnison River in the recovery of the endangered fishes.

4. Describe when and how much water should be released from the Aspinall Unit to meet the seasonal flow needs of the endangered fishes under current and future demand conditions.

5. Determine if existing diversion structures and natural barriers impede fish migration and develop appropriate remedies.

6. Determine if the existing thermal regime limits the range of endangered fishes, the extent to which these fishes might benefit if the thermal regime were modified, and the practicability of modifying the thermal regime.

7. Develop management actions to reduce/minimize impacts on native fishes due to the presence of competitive and predatory nonnative fishes.

8. Develop a management plan that incorporates the above items in cooperation with local stakeholders, the Colorado Water Conservation Board (CWCB), Colorado River Water Conservation District (River District), National Park Service (NPS), Western Area Power Administration (WAPA), USBR and others, as appropriate.

9. Develop and implement a formal agreement among appropriate parties to implement the management plan.

C. End Products:

1. Tributary report

2. Flow recommendations report

3. Water demand estimate

4. Draft Gunnison River Management Plan

5. Final Gunnison River Management Plan

6. Formal agreement between the FWS, USBR, NPS, WAPA and the State of Colorado to implement the Gunnison River Management Plan.

V. Study area:

The geographic scope of depletions to be considered in the Gunnison River Management Plan is the Gunnison River and its tributaries from their headwaters downstream to the Colorado River at Grand Junction, Colorado. Because Colorado pikeminnow and razorback sucker are migratory species, recovery actions taken in the Grand Valley of the Colorado River also may benefit Gunnison River populations that use both rivers.

VI. Study Methods/Approach

Overall direction for development of the Gunnison River Management Plan will be provided by a workgroup, comprised of representatives from the State of Colorado, USBR, FWS, WAPA, NPS and other federal agencies, as appropriate, environmental groups, water users, and other Gunnison Basin stakeholders. The USBR, in cooperation with the CWCB will model basin hydrology using CDSS and Riverware to investigate alternative operations of the Aspinall Unit to meet the instream flow needs of the endangered fishes while allowing for future water development. USBR reoperation of the Aspinall Unit will be considered the federal action for the purposes of fulfilling NEPA and ESA requirements.

VII. Task Description and Schedule

1. Determine the role and relative importance of the Gunnison River to the recovery of the endangered fishes (March 2001).

2. Determine when and how much water is needed to augment instream flows in the Gunnison River to benefit the endangered fishes (December 2001).

3. Estimate current and foreseeable future (ca. 2050) depletions from the Gunnison River and its tributaries (March 2002).

4. Identify and evaluate alternative Aspinall Unit operations to serve FWS flow recommendations and offset impacts of current and foreseeable future depletions (March 2002 – September 2003).

5. Gunnison River Temperature Model Development and Scenario Testing

   a. Preliminary feasibility assessment of modifying water temperatures in the Gunnison River downstream from the Aspinall Unit to benefit native fishes (December 2001).

Determine feasibility of increasing water temperatures in the Gunnison River near Delta, Colorado, through structural and/or operational modifications to Aspinall Unit dam(s) (July 2003).

6. Evaluate fish passage/entrainment issues at Hartland Diversion and recommend appropriate remedial measures (deferred pending completion of Task 5).

7. Prepare Draft Gunnison River Management Plan (September 2003).

8. Prepare Final Gunnison River Management Plan; Biological Assessment (December 2003).

9. Develop and execute an agreement to implement the Gunnison River Management Plan (June 2004).

10. Public Involvement Activities: Implement public outreach activities to obtain public input in developing the Gunnison River Management Plan and promote acceptance of the plan.

11. Hydrology Support: Model existing and alternative future flow scenarios for Task 3 above using existing USBR models and CRDSS.

12. Technical Project Support and Coordination. Provide technical support and coordination related to the development of the Gunnison River Management Plan:

    a. Preparing/reviewing scopes of work related to development and implementation of the management plan

    b. Coordinating activities of Gunnison workgroup

    c. Coordinating public involvement activities

    d. Responding to requests for information

    e. Performing staff work for the Gunnison workgroup

    f. Writing, reviewing and/or synthesizing documents

VIII. FY-2002 Work

Task 2. Estimate instream flow needs of endangered fishes

Deliverables: Flow recommendations

FY 2002 Budget: $0 – funded in FY 2001 (see SOW for Project # 54)

Task 3. Estimate future human water demands

Deliverables: Final demand projections ca. 2050

FY 2002 Budget: $0 – funded in FY 2001 (see SOW for Project # C-30)

Task 4. Identify and evaluate water management alternatives

Deliverables: Annual report(s)

FY 2002 Budget: $0 (see Tasks 11 & 12)

Task 5. Aspinall Unit temperature modeling

Deliverables: Separate scope of work and final report

FY 2002 Budget: $0 (see SOW for Project # 107)

Task 10. Public Involvement Activities

Deliverables: Separate scope of work and annual report

FY 2002 Budget: $0 (see SOW for Project # PIP-12K)

Task 11. Hydrology Support

Deliverables: Separate scope of work and annual report

FY 2002 Budget: $0 (see SOWs for Project # 19B & 71)

Task 12. Technical Project Support and Coordination

Deliverables: Scope of work; annual work plan; annual report

FY 2002 Budget: $0 (see PD's Program Management SOW)

<u>FY-2003 Work</u>

Task 4. Identify and evaluate water management alternatives

Deliverables: Final report; preferred alternative

FY 2003 Budget: TBD (may be incorporated into EIS for Aspinall – USBR)

Task 5. Aspinall Unit temperature modeling

Deliverables: Separate scope of work and final report

FY 2003 Budget: $0 (see SOW for Project # 107)

Task 7. Draft Gunnison River Management Plan

Deliverables: Draft River Management Plan

FY 2003 Budget: $0 (see PD's Program Management SOW)

Task 10. Public Involvement Activities

Deliverables: Public Involvement Plan

FY 2003 Budget: $0 (see SOW for Project # PIP-12K)

Task 11. Hydrology Support

Deliverables: Hydrologic analyses

FY 2003 Budget: $0 (see SOWs for Project # 19B & 71)

Task 12. Technical Project Support and Coordination

Deliverables: Scope of work; annual work plan; annual report

FY 2003 Budget: $0 (see PD's Program Management SOW)

IX. Budget Summary

	FY 2002	FY 2003	TOTAL	COMMENTS
Task 1:	–	–	–	completed in FY 2001
Task 2:	$0	–	$0	funded in FY 2001
Task 3:	$0	–	$0	funded in FY 2001
Task 4:	$0	TBD	TBD	may need separate SOW
Task 5:	$0	$0	$0	Project # 107
Task 6:	–	–	–	Deferred until ??
Task 7:	–	$0	$0	Program Management
Task 8:	–	–	–	FY 2004
Task 9:	–	–	–	FY 2004
Task 10:	$0	$0	$0	Project # PIP-12K
Task 11:	$0	$0	$0	Project # 19B & 71
Task 12:	$0	$0	$0	Program Management
	$0	TBD	TBD	

TBD = To be determined

X. Reviewers:

FWS (Bob Muth, Angela Kantola, George Smith)

CWCB (Dan McAuliffe, Randy Seaholm)

CRWCD (Ray Tenney, Eric Kuhn)

BR (Brent Uilenberg, Bob Norman)

XI. References

Tyus, H.M. and J.F. Saunders. 2001. An evaluation of the role of tributary streams for recovery of endangered fishes in the Upper Colorado River Basin, with recommendations for future recovery actions. Final Report to Upper Colorado River Endangered Fish Recovery Program; Project No. 101. Univ. of Colorado, Boulder. 121 pp.