2/14/2011

FY-2011 PROPOSED SCOPE OF WORK for:
GVIC Fish Screen Return Pipe Monitoring

Lead Agency: U.S. Fish and Wildlife Service
Submitted by: Travis A Francis, U.S. Fish and Wildlife Service, 764 Horizon Drive Building B, Grand Junction, Colorado 81506, 970-245-9319, Fax 970-245-6933, travis_francis@fws.gov

Date:

Category:
__ Ongoing project
__ Ongoing-revised project
xx Request for new project
__ Unsolicited proposal

Expected Funding Source:
xx Annual or O&M funds
__ Capital funds
__ Other (explain)

I. Title of Proposal: GVIC Fish Screen Return Pipe Monitoring

II. Relationship to RIPRAP: Colorado River Action Plan: Mainstem II.B.1b Screen GVIC diversion to prevent endangered fish entrainment, if warranted.

III. Study Background/Rationale and Hypotheses: The Recovery Program has constructed fish screens in the Government Highline Canal, the Grand Valley Irrigation Companies Canal, and at the Redlands Irrigation Canal (Grand Valley Area Fish Screens) as an important component of recovery efforts for Colorado pikeminnow and razorback sucker. The Recovery Program adopted a 3/32" wedge wire screening material as a standard as it prevents entrainment of a wide range of fish life stages, minimizes operation and maintenance problems and represents state of the art technology.

The Service issued a biological opinion for the Grand Valley endangered fish passage facilities containing an incidental take statement to the Bureau of Reclamation for operations of the Grand Valley Project Fish Passage and Government Highline Canal Fish Screen (ES/GJ-6-CO-99-F-033-CP016 MS 65412GJ). The Grand Valley Water Users Association, Orchard Mesa Irrigation District, Palisade Irrigation District, Mesa County Irrigation District, and Xcel Energy (formerly Public Service Company of Colorado) all received incidental take coverage for their diversion and depletions under the umbrella of the "15 Mile Reach" programmatic biological opinion when they entered into Recovery Agreements with the Service. The biological opinion required the Recovery Program to develop a plan to monitor the amount of take by September 30, 2001 and incorporate it into the Recovery Action Plan.

IV. Study Goals, Objectives, End Product:

Goal: Evaluate Grand Valley Area Fish Screens design and operations and its effects on fish condition.

Objectives:

The following goals of the monitoring work are as follows:

1. Document condition of white sucker (analogous substitute for native fishes) after deployment in GVIC Fish Screen.

Monitoring results will be presented in an annual report to the Biology Committee of the Recovery Program for their review and approval. Included in the report will be recommendations, if any, to extend and expand research, and/or modify fish screen design or operations to minimize incidental take or improve fish screen functions.

V. Study area: The GVIC Diversion Dam is located on the Colorado River, near Palisade, Colorado, approximately 3 miles below the abandoned Price-Stubb Diversion Dam at river mile 185.3.

VI. Study Method/Approach: The purpose of the proposed fish screen monitoring work is to evaluate the effectiveness of the Recovery Program's fish screen in removing and returning native and endangered fish to the Colorado River from the GVIC Canal.

Description of Proposed Work: USFWS with the technical assistance of the USBR proposes to design and construct a fyke net structure (deflector and fyke net) in the Colorado River to monitor fish screened from the GVIC Canal. A similar system has been used to monitor fish screens in the Columbia River Basin on the Yakima River in the Pacific Northwest (Neitzel et al, 1990; Mueller et al, 1995) (see Figure). Two phases of monitoring are proposed to achieve the goals describe above.

VII. Task Description and Schedule:

Task 1-Controlled Screened Fish Condition Investigations: White sucker (as an analogous substitute for sensitive native species) of various size classes would be collected from the Grand Valley Project Fish Passageway after spring runoff (~ early July) and used to document the effects of canal screening on fish condition. A total of 120 white sucker (if possible, of varying size classes) would be collected from the fish trap and floy-tagged for individual identification. Each fish would be weighed, measured, examined and photographed to document general fish condition and health. 20 white sucker would be sacrificed to complete a baseline fish autopsy based Health Condition Profile (Goede and Mellenthin, 2002) prior to the test. The fish would be acclimated to the canal conditions and released in the GVIC Canal upstream of the fish screen. One test with 50 white sucker will occur in July or August and another in

September. During a two-day period following release, fish would be collected in a fyke-net structure attached to the fish return pipeline outlet.

The fyke net structure would consist of a removable punch plate deflector wing attached to the concrete fish return outlet and posts driven into the river substrate with a fyke net attached to the deflector wing. The deflector wing would protect the net from trash and debris, provide an anchor point to prevent entanglement of the net, and ensure that fish would not be harmed when exiting the fish return pipe. The Fyke net would have a net mouth 1.0 m wide and 1.4 m tall and taper to a 0.5 m-square cod end over a length of 5 m. A hoop net (1 m diameter), 4 m long) would be fastened to the cod end to provide additional holding area for fish, extending the net to about 8 m. The portion of the net attached to the deflector would be constructed of solid vinyl sheeting to protect the fish from net abrasion as they exited the fish return pipe. Modifications may be necessary, considering differences in debris load in the Yakima and Colorado Rivers.

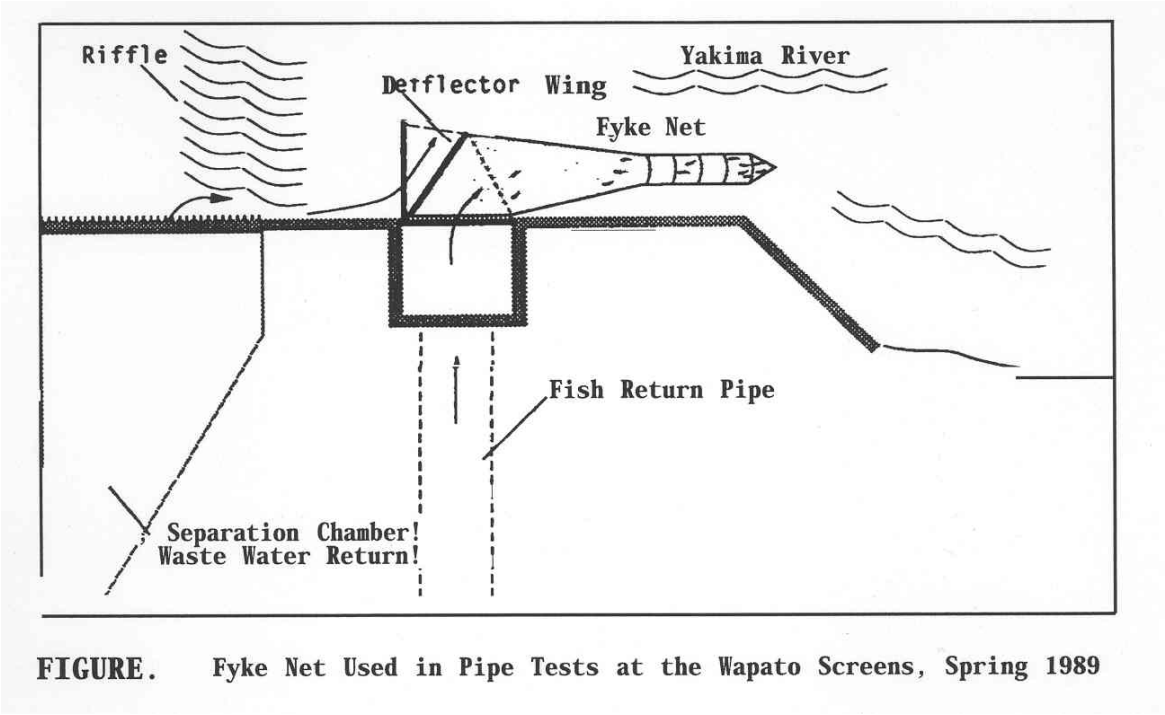

FIGURE. Fyke Net Used in Pipe Tests at the Wapato Screens, Spring 1989

Recaptured fish would be weighed, measured, examined and photographed to determine general fish condition and to evaluate fish descaling. An evaluation system developed by the U.S. Army Corps of Engineers (Basham et al. 1982) would be used to monitor the condition of screened fish. Descaling would evaluate 10 areas on each fish, 5 on each side. When 40% or more scale loss is observed in 2 areas on one side of a fish, the fish will be classified as descaled. Descaled fish are in poor condition (have a poor chance for survival). Temporary holding facilities would be installed onsite to hold fish during the descaling evaluation. All recaptured fish would be kept in the holding facility and observed for 48 hours following capture to document mortality. The holding facility

would consist of two circular fiberglass tanks 1.22 m (4ft.) in diameter supplied with canal or river water pumped from behind the fish screen. All recaptured white sucker will be sacrificed to perform a complete autopsy based health condition profile developed by the Utah Division of Wildlife Resources (Goede and Mellenthin, 2002).

VIII. FY-2011 or 2012 Work:

Deliverables/Due Dates: Monitoring will begin in July 2011 or 2012 and an annual report will be delivered discussing results and recommendations.

Budget

Task 1:

Personnel Costs

Field Work	Project Leader (8 hrs)	$ 578
	Assistant Project Leader (23 hrs)	$ 1,412
	Principal Biologist (10 Days, 80 hrs)	$ 3,326
	GS-6 Crew Leader (10 Days, 80 hrs)	$ 1,916
	GS-5 Biological Technician (10 Days, 80 hrs)	$ 1,396
	Admin Officer (28 hrs)	$ 1,080
Data & Report Prep	Principal Biologist (5 Days, 40 hrs)	$ 1,663
Total Staffing (approx. 0.1 FTE)		**$11,371**
Truck Lease ($329 per month x 1)		$ 329
Truck Mileage (200 miles x .300)		$ 60
Gas ($3.00/Gallon 16.5 gallons)		$ 50
Truck Maintenance		$ 500
Equipment and Supplies (Floy Tags, Tagging Equipment, Fyke Nets, deflector material)		$ 5,790
Equipment Total		**$ 6,729**
Project Total		**$18,100**

IX. Budget Summary: Total amount requested: $18,100

X. Reviewers: Dale Ryden, USFWS, Grand Junction, Colorado

XI. References:

Basham, L.R., M.R. Delarm, J.B. Athern, and S.W. Pettit. 1982. Fish Transportation Oversight Team Annual Report, FY 1981-Transport Operations on the Snake and Columbia River: Technical Services Division, Northwest Regional Office, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Portland, Oregon.

Goede, R. and R. Mellenthen. 2002. Excel version: AUSUM, A Computer Program for Autopsy Based Fish Health/Condition Assessment System. Utah Division of Wildlife Resources, Fisheries Experiment Station, Logan, Utah.

Mueller, R. P., CS Abernethy, and D.A. Neitzel. 1994. A Fisheries Evaluation of the Dryden Fish Screening Facility, Annual Report to Bonneville Power Administration, Contract No. DE_A179-93BP00029, Project No. 85-062 (BPA Report DOE/BP-00029-2), Pacific Northwest Laboratory, Portland Oregon, 56 electronic pages.

Neitzel, D.A., CS Abernethy, and E.W. Lusty. 1990. A Fisheries Evaluation of the Westside Ditch and Wapato Canal Fish Screening Facilities, Spring 1989. U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife, Project No. 1985-62, Contract No. DE-AC06-76RL01830 (BPA Report DOE?BP-01830-8), Portland, Oregon, 94 electronic pages.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946

IN REPLY REFER TO:
ES/GJ-6-CO-99-F-033-CP016
MS 65412 GJ

February 8, 2001

Memorandum

To: Technical Services Division Manager, Bureau of Reclamation, Western Colorado Area Office, Grand Junction, Colorado

From: Acting Colorado Field Supervisor, Fish and Wildlife Service, Ecological Services, Grand Junction, Colorado Allen R. Pfister

Subject: Biological Opinion for the Proposed Grand Valley Endangered Fish Passage Facilities

This responds to your August 9, 2000, request for consultation under section 7 of the Endangered Species Act of 1973, as amended. Your request is for the proposed fish passage facility and fish screen at the Grand Valley Project's Dam and Canal (Government Highline) located on the Colorado River just above the confluence with Plateau Creek, Mesa County, Colorado. You requested concurrence with your biological assessment that the proposed project would have no affect on Uinta Basin hookless cactus (*Sclerocactus glaucus*), bald eagle (*Haliaeetus leucocephalus*), southwestern willow flycatcher (*Empidonax traillii extimus*), or humpback chub (*Gila cypha*). The Fish and Wildlife Service has reviewed the assessment for these species and concurs with your determinations. Your biological assessment also determined that the proposed project may affect, but is not likely to adversely affect Colorado pikeminnow[1] (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), and bonytail (*Gila elegans*). While the Service concurs that the proposed fish passage facility and canal screening will be beneficial overall to these species, these fish species may be incidentally taken at the proposed facilities, therefore, the Service must conclude that the proposed project may affect these fish species. The following are examples of how these fish could be incidentally taken either through harass or harm, at the proposed facilities:

1. Take may occur during project construction.

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[1]formerly squawfish

2. Take may occur when the screen is removed when flows in the river drop below 2,700 cfs and there is not enough flow available to operate the screen (100 cfs is necessary to operate the screen).
3. Larval fishes will not be excluded from the canal by the screen, therefore, when spawning occurs upstream of the project site, larval fish may drift downstream, enter the canal, and be removed from the river or become impinged on the screen.
4. Endangered fishes may be incidentally taken at the fish ladder in the fish trap.
5. Endangered fishes may become trapped on the intake grate of the inlet of the fish ladder.
6. After being released from the fish trap, endangered fishes in exhausted condition may fall back down over the dam.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin was initiated on January 22, 1988. The Recovery Program was intended to be the reasonable and prudent alternative to avoid jeopardy to the endangered fishes by depletions from the Upper Colorado River Basin. In order to further define and clarify the process in the Recovery Program, a section 7 agreement was implemented on October 15, 1993, by the Recovery Program participants. Incorporated into this agreement is a Recovery Implementation Program Recovery Action Plan which identifies actions currently believed to be required to recover the endangered fishes in the most expeditious manner. Fish passage at the Grand Valley Project is one recovery action identified in the Recovery Action Plan.

On December 20, 1999, the Service issued the 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 (this document is available for viewing at the following internet address: http://www.r6.fws.gov/crrip/biological.htm). The Service has determined that projects that fit under the umbrella of the Colorado River PBO would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion impacts. The proposed fish passage facility is part of the Recovery Action Plan that was evaluated in the programmatic biological opinion and is considered a necessary action to avoid jeopardy and adverse modification of critical habitat. The programmatic biological opinion contained an incidental take statement that identified the following reasonable and prudent measure to minimize the take of endangered fishes at the Grand Valley Project's Government Highline Canal.

> The Recovery Program will design, construct, and maintain fish preclusion devices to prevent or reduce adult and subadult fish (≥300 mm total length) from entering the existing major irrigation diversion systems (Grand Valley Irrigation Company Canal and Grand Valley Project Diversion Dam [Government Highline Canal]).

The Service understands that the Recovery Program's current design uses a screen of 3/32" wedge wire to preclude fish from entering the canal. This would prevent fishes much smaller than 300 mm from entering the canal.

The terms and conditions to carry out the reasonable and prudent measure identified in the PBO are as follows:

1. The Recovery Program will develop an appropriate design for fish preclusion devices that are compatible with the operation of the subject facilities.

2. Fish preclusion devices to prevent or reduce adult and subadult fish (>300 mm total length) from entering the canals within the time frame outlined in the Recovery Action Plan will be constructed by the Recovery Program.

3. If another existing water delivery system between Rifle and the 15-Mile Reach is found to result in take that may cause the incidental take limit to be exceeded, then the Recovery Program will design and construct fish preclusion devices to prevent or reduce adult and subadult fish (>300 mm total length) from entering that facility.

4. A plan to monitor the amount of take will be developed by September 30, 2001, by the Recovery Program and added to the Recovery Action Plan.

Reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take at the Grand Valley Project. Incidental take statements exempt those actions covered by the incidental take statement from the Act's section 9 prohibitions if the reasonable and prudent measures and the implementing terms and conditions of incidental take statements are complied with.

The PBO states that the anticipated incidental take of Colorado pikeminnow and razorback suckers when adults are taken in irrigation canals and municipal intakes is 1 percent of the latest adult population estimate above Westwater Canyon. Stocking plans call for stocking 796,200 (6-12") razorback sucker and 7,200 (6-12") Colorado pikeminnow upstream of the Grand Valley Project Dam (Nesler 1998). In the spring of 2000, 65 (14-18") Colorado pikeminnow (5 wild fish and 60 hatchery fish) were stocked above the project site and to date 17,913 (4-11") razorback sucker have been stocked. If, during the course of the action, this minimized level of incidental take (to include all forms of take (harass, harm, etc)) is exceeded, such incidental take represents new information requiring reinitiation of consultation to review of the reasonable and prudent measures provided. The Service will consider the causes of the taking and review the need for possible modification of the reasonable and prudent measures.

Bonytail are scheduled to be stocked between Palisade and Loma, so when the fish passage is completed at the Price-Stubb Dam and the Grand Valley Project Dam, they may occur in the project area and may be incidentally taken at the proposed facilities.

Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited

taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement. In order to fall under the umbrella of the incidental take statement of the PBO and be exempt from the prohibitions of taking endangered species, as described above, the entities that use the Grand Valley Project's Dam and Government Highline Canal to divert water will be required to sign a Recovery Agreement, as described in the PBO. The following entities divert water at the Grand Valley Project facilities:

Grand Valley Water Users Association
Orchard Mesa Irrigation District
Palisade Irrigation District
Mesa County Irrigation District
Public Service Company of Colorado

The water depletions associated with the Grand Valley Project are interdependent on the proposed action because they rely on the recovery actions outlined in the PBO to avoid jeopardy and adverse modification of critical habitat to the endangered fishes. The PBO addresses all historic depletions, therefore, it includes the water depletions associated with the Grand Valley Project (approximately 62,508 acre-feet/year) and after the above mentioned water user entities sign Recovery Agreements, all requirements for the subject water depletions to fit under the umbrella of the PBO will be met.

When the attached Recovery Agreements are signed and returned to the Service, the Service will provide Reclamation and the subject water user entities with documentation that the fish passage and fish screen project may rely on the incidental take statement in the Colorado River PBO to be exempted from the prohibitions of section 9 (take) of the Act. Furthermore, when representatives for the water user entities sign the Recovery Agreements, the Service agrees that the water depletions associated with the Grand Valley Project will avoid jeopardy and adverse modification of critical habitat for the endangered Colorado River fishes under the terms of the Colorado River PBO. To help facilitate the implementation of the fish screen project, I request that the signed Recovery Agreement be returned within 60 days.

Attachments: 5 Recovery Agreements

cc: FWS/ES, Lakewood

PGelatt:GVPassPBO.wpd:020801