

Upper Colorado River Endangered Fish Recovery Program

Noreen Walsh, Chairman
Implementation Committee

Thomas E. Chart
Program Director

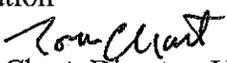
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Memorandum

February 26, 2013

To: Larry Walkoviak, Director, Upper Colorado Region, Bureau of Reclamation
Heather Hermansen, Chair, Flaming Gorge Technical Working Group, Bureau of Reclamation

From:  Thomas Chart, Director, Upper Colorado River Endangered Fish Recovery Program

Subject: Recovery Program's Research Request for 2013 Green River Spring Flows

The Upper Colorado River Endangered Fish Recovery Program (Recovery Program) supports the Bureau of Reclamation's (Reclamation) operations at Flaming Gorge Dam in 2013 consistent with the 2005 biological opinion (U.S. Fish and Wildlife Service 2005) and 2006 record of decision (ROD; U.S. Department of Interior 2006). As in 2011 and 2012, the primary objective of our request this year is to build on past research (Bestgen et al. 2011) to benefit the razorback sucker population throughout the Green River by timing the river-floodplain connection with the presence of wild-produced razorback sucker larvae.

As was the case last year, this Recovery Program 2013 spring flow request is based on objectives outlined in our *Study Plan to Examine the Effects of Using Larval Sucker Occurrence in the Green River as a Trigger for Flaming Gorge Dam* (LTSP) (Larval Trigger Study Plan Ad Hoc Committee 2012). In the LTSP we describe the range of experimental floodplain connection scenarios we would like to study and how we would evaluate the results of Reclamation's operations to achieve those scenarios. More specifically, our study design matrix (Table 2 in the LTSP) details the range of experimental conditions we would like to assess with recognition that more than one cell of that matrix could be accomplished in a single year. Minimally, to complete the experiment, the

Recovery Program requests three years with flows < 18,600 cfs and three years with flows \geq 18,600 cfs and with connecting flows in each of these years of at least seven days duration. However, spring peak flow magnitude requests will be driven by hydrologic conditions in the upper Green River Basin; therefore, it may not be possible to complete the experiment in six consecutive years.

In 2012, snowpack accumulation in the Yampa River drainage was categorized as 'dry' and 'moderately dry' in the Upper Green River drainage. The Recovery Program and the Flaming Gorge Technical Work Group (FGTWG) ultimately agreed to focus the 2012 spring flow request on the driest category of experimental conditions outlined in the LTSP. We applaud Reclamation's Flaming Gorge releases last May, which were timed coincident with the presence of larval razorback sucker (first larval detection – May 16, 2012; Bestgen et al. 2012a) and which proved integral in establishing a floodplain connection at Stewart Lake and Old Charley Wash. As per the LTSP, Utah Division of Wildlife Resources (UDWR) crews were able to document larval entrainment and describe physical conditions at that floodplain site (Breen and Skorupski 2012). Similarly, USFWS crews detected larval entrainment into the Old Charley site as well. During the spring and summer months of 2012, USFWS crews also (Webber and Jones 2012) sampled fish and monitored water quality at a variety of other floodplains that still held water from the extensive period of connection in 2011, but that did not connect in 2012. The Recovery Program is poised and properly funded to follow through on specific LTSP field investigations again in 2013 (e.g., Project Nos. 22F, 164 and 165; Scopes of Work available at: <http://www.coloradoriverrecovery.org/documents-publications/work-plan-documents/project-scopes-of-work.html>); sampling protocols and rationale are discussed further in Bestgen et al. (2012b).

As described in Breen and Skorupski 2012, the magnitude and period of inundation at the Stewart Lake site was limited last spring due to sedimentation in the inlet channel that occurred during the high flows of 2011. During summer 2012, UDWR excavated the inlet channel to restore connection conditions more consistent with those described for this site in the LTSP. Also, personnel from Western Area Power Administration (Western), Argonne National Laboratories (funded by Western), and the Recovery Program surveyed Reach 2 levee breach elevations in Autumn 2012 to better assess connection flows for future LTSP experimentation. We are hopeful the results of those surveys are available to the Recovery Program and the FGTWG this spring.

THE RECOVERY PROGRAM'S SPRING 2013 GREEN RIVER FLOW REQUEST:

Implement the LTSP. The Recovery Program requests that the FGTWG match Recovery Program research needs identified in the LTSP with the best available spring flow forecast information to develop a specific Reach 2 floodplain connection scenario. The Recovery Program Director's office will distribute the pertinent FGTWG recommendation to the Biology and Management Committees and Principal Investigators as quickly as possible.

The Recovery Program will provide a real-time assessment of razorback sucker larval presence through ongoing Recovery Program monitoring efforts (Project No. 22f). Based on information provided in Bestgen et al. (2011), waiting for this larval trigger will likely cause Reclamation to make spring releases from Flaming Gorge Dam after the Yampa River has peaked, which may necessitate releases in excess of power plant capacity in order to meet the flow magnitude thresholds. As addressed in the LTSP, the Recovery Program is prepared to direct sampling efforts each year to the appropriate floodplain habitats based on hydrologic forecasting and the FGTWG request. Please refer to the LTSP for a list of ongoing or new Recovery Program studies we will use to evaluate Reclamation's operations to meet this Spring 2013 flow request.

In our request letter last year, the Recovery Program expressed reservations over Reclamation's potential use of the spillway (dam releases in excess of 8,600 cfs) in deference to the possible release of nonnative burbot from Flaming Gorge Reservoir. Accordingly, the Recovery Program, the National Park Service, UDWR, and Western committed to initiating a risk assessment of burbot entrainment associated with Flaming Gorge spring operations (also referenced in the LTSP). That risk assessment is nearly complete; a draft report will be submitted to the Recovery Program's Biology Committee by the end of February 2013. Preliminary results of that risk assessment were presented by Melissa Trammell, National Park Service, at the Recovery Program's Nonnative Fish Workshop held in Grand Junction, Colorado; December 5-6, 2012. Based on those preliminary results, the Recovery Program considers the risk of entraining burbot when dam releases exceed 8,600 cfs to be reasonably low at this time. That conclusion is based on the following:

- The incidence of adult burbot in the portion of Flaming Gorge Reservoir nearest the dam is currently very low.
- The risk of entraining adults and juveniles through the spillway will always be fairly low based on the species' behavior.
- The risk of entraining larvae is of moderate concern. According to the literature and known water temperatures in the reservoir in late May-June, Age-0 burbot would likely range in size from 10 to 40 mm (total length). Young burbot of 30-40 mm should be entering a "settlement period", i.e. transitioning from using the full water column in near shore habitats to a primarily benthic behavior, remaining near the shoreline but on the substrate. However, a portion of a larval cohort could still be limnetic during the spring runoff period. Therefore if Reclamation is considering using the spillway as part of the spring release the Recovery Program will sample for burbot larvae in the reservoir near the entrance to the spillway. This type of sampling could be accomplished quickly and on short notice.
 - If no larvae were captured, the Recovery Program would have no reservation with Reclamation's decision to use the spillway.

The Recovery Program assumes that a specific 2013 LTSP spring flow request will be developed in concert with the FGTWG using the best available flow forecast information.

Base Flow Requests

The Recovery Program will pursue experimentation outlined in the LTSP for the foreseeable future. We understand that spring operations could affect water availability for base flow operations. We reserve the right to discuss 2013 base flow operations at a later time.

In closing, the Recovery Program appreciates Reclamation's efforts in the past to achieve the flow and temperature recommendations and assist in recovery of the endangered fishes. We recognize that greater reliance on the biological trigger (presence of larval razorback sucker) may require considerably greater volumes of water during the spring in some years, but we believe this experiment is more in keeping with the intent of Muth et al. (2000) and is necessary to assist in the recovery of the endangered fish. Thank you for considering this Recovery Program request for spring flows.

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