

United States Department of the Interior

U.S. Fish and Wildlife Service

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In Reply Refer To:

AESO/SE

22410-2010-F-0567R1

March 8, 2011

Memorandum

To: Field Supervisor, Utah Ecological Services Office, Fish and Wildlife Service, West Valley City, Utah

From: Field Supervisor

Subject: Revision to Final Biological Opinion on the Virgin River Gorge (Gorge) Rotenone Treatment between the Stateline Fish Barrier in Washington County, Utah, and the Virgin River Gorge Fish Barrier, Mohave County, Arizona and Washington County, Utah

This constitutes our revision to the subject biological opinion dated October 8, 2010. This revision is necessitated by changes to the timing of the proposed action due to requirements of the Bureau of Land Management (BLM) National Environmental Policy Act appeal process and flow conditions in the Virgin River during November and December 2010 that did not allow for the rotenone treatment to occur this year. Further, changes to the proposed action were made to increase the chances of success using a series of treatments in a short amount of time instead of one treatment.

Background

The following changes to the proposed action are the subject of this revision.

Our October 8, 2010 biological opinion covered the period through May, 2011 as it was anticipated that the single treatment would be completed before the next spawning season for the endangered roundtail cutthroat trout (*Plagopterus argentissimus*) and Virgin River chub (*Gila seminuda*). The treatment scheduled for October, 2010 did not occur due to the additional time needed to complete the BLM appeal process on the Environmental Assessment. The treatment dates were moved to December, 2010; however, Virgin River flows were higher than the protocol for a successful treatment recommended and the treatment was called off for 2010.

The Fish and Wildlife Service (FWS), the Arizona Game and Fish Department (AGFD), the Utah Division of Wildlife Resources (UDWR), and the Virgin River Resource Management and Recovery Program (Program) met at the fall Virgin River Recovery Team Meeting on December 2, 2010, and discussed the implementation of the rotenone treatment in 2011. The following is the proposed schedule for the treatment:

- Pre-treatment fish community surveys: July 18-29 (visual and some seining, full or partial pass through the treatment reach depending on conditions), August 15-26 (visual, seining, hoop netting, full pass through the treatment reach).
- Salvage operations: September 5-18 with salvaged fish relocated upstream into Utah as described in the October 8, 2010 biological opinion.
- Treatment operations: Up to four treatments each lasting four days (Monday afternoon through Thursday morning) with a flushing flow of 150-220 cubic feet per second reaching the treatment reach on Thursday evening). The first treatment is scheduled for September 19-23. Post-treatment monitoring of the reach would occur the week following the treatment to evaluate success (no nonnative fish present). The second treatment is scheduled for October 3-6, with the next week for additional post-treatment monitoring. The third treatment is scheduled for October 17-20. Within the next two-week period, additional post-treatment monitoring will occur, and if an additional treatment is necessary, it is scheduled for November 7-11.

As indicated in the above schedule, the proposed action was altered from a single treatment to multiple treatments over a short time frame. This change was implemented to provide greater chance of a successful renovation through having more than one opportunity to remove all nonnative fish (eggs of fish are not susceptible to rotenone, and if any of the nonnative species were still breeding during September, additional treatments would be needed to kill newly hatched larvae or fry). Under the original schedule for a single treatment in October, it was assumed that nonnative fish were no longer reproducing, so a single treatment would be sufficient.

Additional modifications to the proposed action were discussed by the partner agencies in a conference call on February 2, 2011. Concerns about the post-treatment flushing flows displacing salvaged native fishes from the Utah reach of the Virgin River down into the treatment reach were discussed, and resolved. The amount of extra flow (100-200 cubic feet per second) is not a large amount, and past experience in the Utah reaches of the Virgin River have not documented any significant movement of native fish moved upstream. In addition, larger native fish salvaged before rotenone treatments in the Utah reaches are placed above the outflow from Quail Creek Reservoir and thus flows where the fish are located are not affected by the increased flows.

As a result of this conference call, the pre-treatment salvage operations will include the following:

- AGFD and the Utah partners will meet in the field to examine the river reaches where salvaged native fish would be moved sometime before the salvage operations begin.
- Salvage of as many native fish as possible prior to the first treatment. The emphasis is on removing the larger (over 150 millimeters) fish and as many of the smaller fish (including young-of-the-year [YOY]) as feasible. If there is a robust cohort of YOY fish, not all of them would be feasibly removed prior to the first treatment. Removal of very small native fish from the treatment reach for placement into Utah must ensure that no nonnative red shiner are included in the salvaged fish, so there is a need for careful size selection and sorting to ensure the Utah reaches are not contaminated.

- The larger fish salvaged from the treatment reach will be relocated to the Virgin River below the Gorge in an area unlikely to be affected by the chemicals used to neutralize the rotenone. Small fish would be relocated to Utah either in the vicinity of the Washington Fields fish barrier or above the inflow from Quail Creek Reservoir.
- If feasible, any native fish found in the treatment reach after the flushing flows move through will be salvaged and moved out of the treatment area.
- Some of the smaller Virgin River chub may be transported to Dexter National Fish Hatchery and Technology Center for use in maintaining the broodstock or to other partner-designated fish rearing or propagation facilities.
- At the end of the treatment period, the partners will move some of the salvaged fish placed below the Gorge back up into the treatment reach to re-start the native fish population there. The number of fish to be placed back into the reach is unknown; however, the goal is to return comparable numbers to what was removed.

Effects of the Action

The changes to the proposed action as detailed above do not result in any change to the types of effects anticipated, or to the magnitude or significance of those effects within the treatment area. There is a slight increase in the potential for inadvertent mortality of native fish in the portion of the Virgin River immediately below the treatment reach due to the increase in the number of treatments. While the detoxification stations at the bottom of the treatment reach are designed to nullify the toxicity of rotenone and they are set up and monitored to ensure detoxification of the rotenone, there is some risk of failure of the detoxification process. With more than one treatment, the opportunity for that failure to occur is greater; however, we do not believe there is any significant change to the level of this risk. Further, as part of the pre-treatment surveys, the reach of the Virgin River immediately below the Virgin Gorge Barrier will be evaluated and, if appropriate, native fish there will be salvaged and moved downstream below the Gorge.

Further, the use of multiple treatments over a short period of time reduces the number of times that the native fish community in the treatment reach must be disturbed by salvage operations. Since even an intensive salvage operation is not 100 percent effective in removing all the target species, there is some loss of individuals that may, over time, affect the genetic structure of the population as a whole. In addition, the invertebrate community is subject to only the one mortality event which is less damaging to species richness than repeated applications of rotenone. By providing for only one salvage effort combined with the multiple treatments, both the opportunity for success and the health of the native aquatic fauna are improved.

Conclusion

Our conclusion in the October 8, 2010, biological opinion does not change in result of these changes to the proposed action.

Incidental take statement

In our incidental take statement included with the October 8, 2010, biological opinion, we indicated that the salvage operation was, at a minimum, likely to remove 80% of the native fish species in the treatment reach, and of that number, 10% might die due to injuries acquired during

capture or handling stress. All native fish remaining in the treatment reach would be killed by the rotenone treatments, most likely during the first treatment. We believe these percentages may not be valid for the 2011 treatments due to the potential for significant reproduction of native fish species to occur in the spring of 2011. The existing snowpack in the headwaters of the Virgin River is over 250 percent of normal (Steve Meisner, Virgin River Program, pers. comm.) and the timing and extent of spring runoff is uncertain. In the last large snowpack year (2005), flows remained high late into the spring and reproduction by native fish was delayed. In that case, very small YOY were present later into the summer, and if this situation recurs in 2011, salvage of 80% of these small fish would not occur. However, most of the 2005 year class did not carry over to 2006, likely due to natural high mortality rates (summer temperatures, water quality or other factors). We do not anticipate that the loss of YOY in 2011 due to the treatments poses a risk to the species; further, if the treatment is not accomplished, those YOY are unlikely to survive in significant numbers due to the presence of the red shiners in the treatment reach. The number of woundfin and Virgin River chub that would potentially fall into one of these categories will not be known until the pre-treatment surveys and salvage operations are completed. Those numbers will be determined prior to the treatment occurring.

The AESO appreciates the efforts of all partners to contribute to the implementation of this important recovery project. Implementation of this project will benefit the Virgin River chub and woundfin through protecting upstream habitats from reinvasion by nonnative fish species and providing additional habitat for recruitment by these native species. For further information please contact Lesley Fitzpatrick at (602) 242-0210 (x236) or me at x244. Please refer to consultation number 22410-2010-F-0567R1 in future correspondence concerning this project.

/s/ Jean Calhoun for

Steven L. Spangle

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