

DOLORES RIVER NATIVE FISH HABITAT RECOMMENDATIONS AND ALTERNATIVES TO WILD AND SCENIC DESIGNATION

Prepared by:
Colorado Department of Natural Resources
Southwest Aquatic Section-DOW
Southwest Wildlife Conservation-DOW
DOW Water Resources Unit

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INTRODUCTION

The native warmwater fish of the Dolores River in southwest Colorado have declined in range, abundance, and species diversity. One native fish species, Colorado pikeminnow, has been extirpated from the river, and was last documented in the river in Colorado in 1973. Three other native fish species; flannelmouth sucker, bluehead sucker and roundtail chub now occur in only 63% of historically occupied habitat in the main stem river. Historically, these three fish were present in the river upstream to the town of Dolores and today are considered rare above Disappointment Creek (see map). The primary cause of native fish declines in the Dolores River is habitat loss associated with trans-basin diversion of water, main stem river impoundment, and the alteration of downstream hydrograph and habitat associated with the impoundment.

Recently, with the Bureau of Land Management updating resource management plans, stream segments are being reviewed for designation under the Wild and Scenic Rivers Act (WSRA). Several segments of the Dolores have been identified as suitable by the BLM and several others have been found eligible, with the suitability decision upcoming. One of the Outstandingly Remarkable Values (ORV) being considered in the eligibility and suitability phases of the reviews concerns native fish. The DOW has supported suitability in one segment of the Dolores but generally has only participated in the stakeholder groups and provided input specifically on the fish ORV's and management alternatives to protect them. Suitability and designation under the WSRA would provide enhanced protections to native and sport fish resources as well as other wildlife species dependent upon the river and riparian ecosystems (e.g. river otters, peregrine falcons, bighorn sheep). Designation could also bring with it a Federal Reserved Water Right to protect ORV's identified in the suitability process. It is unclear if a reserved water right would add any water to the stream but it would possibly protect the river from any future depletion. A federal water right may have significant benefits for native fish in the Dolores River, but is objectionable to certain state interests and many in the local water communities. Because of these objections, interested parties to WSRA designation in Colorado have initiated discussions regarding the issues; several stakeholder planning efforts have been underway to explore management

alternatives to Wild and Scenic River designation. The DOW has participated in these efforts, but believes the alternatives currently being proposed in the stakeholder groups do not sufficiently protect the native fish ORV. The objective of this document is to present alternatives to Wild and Scenic designation that would sufficiently protect the native fish in the Dolores in lieu of a federal water right.

Background

The two largest historical events that affect flows in the Dolores River were the 1886 trans-basin water diversion below the town of Dolores and the 1983 construction of the Bureau of Reclamation's Dolores Project and McPhee Reservoir. The trans-basin diversion removed late summer perennial flows from the river downstream of the diversion point. Alternatively, the development of McPhee returned perennial flows to the river below the reservoir but allowed for capture of spring peak flows, substantially reducing the total annual volume of water flowing downstream. This has greatly altered the fluvial geomorphological processes of the river and had large impacts on native fish habitat. These habitat changes have resulted in the conversion of lotic to lentic habitat (fast moving water to slow moving water), alteration of aquatic environmental parameters including temporal and seasonal fluctuations of temperature, nutrient, and hydrograph patterns, and the restriction of fish migration to previously occupied habitat above the impoundment.

The impacts to the downstream river environment were addressed by several key federal documents including the 1977 Environmental Impact Statement and Definite Plan Report (EIS/DPR) for the construction of the Dolores Project and the 1996 Environmental Assessment (EA) for the reoperation of the project. The 1977 EIS/DPR committed to establishing 11 miles of "good quality cold water sport fishery" in the Dolores River downstream of the Project. However, due to water appropriations, contractual obligations, and operational management practices, this commitment has not been met. The river currently supports trout biomass around 26 kg/ha or 38% of the Gold Medal biomass standard. The 1996 EA attempted to address deficiencies in the mitigation of downstream impacts by establishing a goal of a fish pool of 36,500 acre feet of water available for downstream release. The concept behind this change in operation was to provide state and federal biologists with some operational flexibility (seasonal base flow management to address habitat utilization issues as well as summer season temperature and dissolved oxygen issues) over the previous strategy which was a static dry-normal-wet year flow schedule. The realization of a 36,500 acre foot pool has not occurred and total downstream releases (fish pool and supplemental non-Project sources) currently total 31,798 acre feet, 87% of the identified fish pool target.

Status of Fish Populations below McPhee Dam

The Dolores River from McPhee Dam to the San Miguel River confluence has one of the most depauperate native fish populations of any large river in western Colorado. The river supports less than 1 kg/ha of native fish compared to 100-400 kg/ha in other rivers, and the range of native fish has contracted significantly over the last twenty-seven years. The native fish are of smaller average size, smaller size at maturity and there is poor age class representation compared to other similarly sized rivers. Sportfish populations in this reach of the river have been impacted as well. Trout populations below McPhee peaked above Gold Medal biomass in 1993 and have deteriorated dramatically since. The decline of native and coldwater sport fish populations in the Dolores River is due to a lack of suitable habitat as a result of inadequate flows, non-native fish interactions (primarily smallmouth

bass, black bullhead and channel catfish) and water quality issues. Habitat modeling for both native fish and coldwater sport fish indicates that minimum instream flows necessary to support viable fish populations are not being met. The Colorado Water Conservation Board (CWCB) retains a 78 cfs instream flow (ISF) appropriation from McPhee Dam to the confluence of the San Miguel River, a distance of approximately 105 river miles, which was determined to be the biological minimum flow necessary to protect the river environment to a reasonable degree. The instream flow water right is junior to the Montezuma Valley Irrigation District and Dolores Project water rights and is typically not met for most of the year. For example, between September 6, 2000 and April 1, 2005, the ISF was met for only 9 days. The current downstream allocation from McPhee Dam (31,798 AF) is about 46% of the pool required to meet the 78 cfs ISF appropriation year-round. Current reservoir operations annually produce base flows of less than 30 cfs and habitat modeling indicates this flow regime supports less than 42% of potential trout habitat and less than 5% of potential native fish habitat.

Status of Fish Populations below the San Miguel River Confluence

The Dolores River below the San Miguel River confluence supports more abundant native fish populations than upriver. Good densities of the three native fish exist and the population size structure improves considerably. Above the San Miguel River confluence, routine fish sampling efforts for the three native fish species reveal 14 fish per mile, while below the confluence numbers increase to 64 fish per mile. Although the loss of one major fish species, the Colorado pikeminnow, is significant, generally the native fish community in this reach of river is intact. The character of the Dolores River changes dramatically below the San Miguel River confluence as tributary inputs reduce the magnitude of the flow alterations associated with McPhee Reservoir. The San Miguel River does not have any major main stem impoundments and has a relatively intact hydrograph. The irrigation diversions on the San Miguel River are significant and do remove perennial flows from some reaches of the river in late summer but because the water is used in basin, the river benefits from return flows and groundwater accretions. The lower San Miguel River below Tabeguache Creek (see map) has adequate base flows and an intact peak flow hydrograph to support all life stages of the three native fish. This reach of river to the confluence with the Dolores River supports abundant populations of all three species of native fish and provides the flows to the Dolores below the confluence to adequately sustain native fish populations. The San Miguel River and the water it contributes to the Dolores River under current water use patterns are vital to sustaining native fish populations in the greater Dolores River basin. There are currently no instream flow appropriations protecting flows for native fish in the Dolores River below the San Miguel.

RECOMMENDATIONS

The alternative recommendations focus on two broad objectives that reflect the different flow regimes of the river above and below the San Miguel River. From McPhee Dam to the San Miguel River confluence, new management strategies must be explored and implemented to ensure the persistence of native fish in the river. The current situation has likely caused the significant decline in the range and abundance of native fish and any alternative that does not alter the current water release patterns and volumes below McPhee will not be as effective in protecting the native fish ORV within that reach (with or without a federal water right). Below the San Miguel River confluence, the current flow and water use patterns are sufficient to preserve native fish populations, but the current conditions should be protected from future significant alterations and depletions.

Recommended Minimum Strategies to Protect Native Fish in the Dolores River

The State of Colorado's instream flow right for 78 cfs year round from McPhee Reservoir to the San Miguel River confluence should be recognized as the goal to protect both native and sport fish to a reasonable degree. Senior upstream water rights can prevent this biological minimum flow from being met every year, however, five major strategies could attempt to meet this minimum flow more frequently and increase protection against future depletions on the San Miguel River as well as the Dolores River downstream from the confluence with the San Miguel; 1) a guaranteed annual increase to the fish pool; 2) improvement of reservoir operation to benefit native fish populations; 3) adaptive spill management oversight by the Dolores Biological Team; 4) establishment of instream flow protection for existing native fish populations and stream flows on the San Miguel River and the Dolores River represented by 4A and 4B below downstream of the San Miguel River confluence, and, although it is a temporary and more costly solution to long term issues, 5) potential increase of water to the Fish Pool through a lease via the CWCB.

1. Enlarging the fish pool water in McPhee Reservoir to at least 36,500 acre feet as identified in the 1996 EA. This can be accomplished through the leasing and/or purchase of existing water supplies from willing sellers. A permanent fish pool of 36,500 acre feet would provide enough water for a year-round minimum flow of approximately 50 cfs, depending on release patterns determined by the Dolores Biology Team. With periodic reservoir spills, which are not debited against the fish pool, a flow of 78 cfs could be met more frequently as hydrologic conditions allow.
2. Native fish habitat improvement should be an explicit goal of spill management. The use of existing stream flow forecasts in a new adaptive spill management strategy should be used to provide an adequate hydrograph for native fish while ensuring the best possibility for a full reservoir given the hydrologic conditions. The strategy should be similar to the operations of other federal reservoirs (e.g., Flaming Gorge on the Green River, Aspinall Unit on the Gunnison River) where the April 1st runoff forecast from the Colorado River Basin Forecast Center is used to plan for a managed spill that accomplishes multiple objectives. Using current reservoir elevations and the forecasted April to July inflows, a predicted spill volume could be used to plan for a managed spill that minimizes debts to the fish pool by declaring spills earlier and starting low volume spills that mimic the pre-dam hydrograph and current reservoir inflow patterns. This operation would be in contrast to current operations where a spill is only declared when the reservoir is assuredly going to fill. In most recent cases, the spill declaration has occurred late in the run off season which has led to an abrupt increase in flows from the reservoir. This unnatural hydrograph pattern (one without a gradual ascending limb) leads to a cold water thermal shock to native fish in the river when they are physiologically preparing to spawn. It also increases the amount of time when downstream releases are debited against the fish pool account in the reservoir. It is important to note that this reoperation of the spill would require some stakeholder interactions with the recreational boating community as well as some type of formal agreement with the Bureau of Reclamation defining the principles of this managed spill concept. DOW staff is confident that the rafting community representatives would work with us on this issue; they have been quite cooperative with DOW biologists regarding reservoir operations issues in recent years.

3. The fish pool water and new adaptive spill management would be administered by the Dolores Biology Team, as designated by the EA, with input from the water managers from both MVIC and the DWCD. This administration team has the explicit objective of improving native fish habitat and maintaining the existing cold water sport fishery.
4. A.) Two new Colorado Water Conservation Board instream flow water rights could be filed on the San Miguel River from Calamity Draw (a key point on the river where significant irrigation return flows accrue to the river) to the confluence with the Dolores River and on the Dolores River below the San Miguel River confluence to protect minimum flows necessary to preserve native fish habitat. Instream flow studies have already been completed on the San Miguel and a new ISF study would have to be done on the lower Dolores.
4. B.) File new Colorado Water Conservation Board instream flows to protect tributary flows to the Dolores River, both perennial and ephemeral, to benefit native fish. Many tributaries downstream from McPhee Reservoir seasonally contribute water that is important in preserving native fish habitat and minimizing debts to the fish pool during spring runoff. Tributaries that should be explored for future instream flow protection include Glade Creek, Narraguinep Creek, Cabin Creek, Salter Creek, Disappointment Creek, McIntyre Canyon Creek, Big Gypsum Creek, Bull Canyon Creek, Spring Canyon Creek, Coyote Wash, Wild Steer and La Sal Creek.
5. The Environmental Fish Pool in McPhee Reservoir could be increased through potential leases or purchases of water. As stated above, leasing has the potential to address issues in the short term but lacks certainty for longer term solutions. Leasing of water, in general, also tends to be more costly than other potential solutions.

DISCUSSION

The decline of native fish in the Dolores River is primarily related to habitat limitations. The recommended changes in spill management and an increase in fish pool water would dramatically improve the chance for maintaining and enhancing the native fish populations. These changes in management would essentially be fulfilling earlier federal commitments and Records of Decision made to the downstream environment as outlined in the 1977 EIS/DPR and the 1996 EA. Throughout the BLM's planning process many ideas for alternatives to Wild and Scenic Designation have been proposed. Special land use designations such as wilderness areas, national conservation areas, and areas of critical environmental concern may be appropriate for areas of the Dolores. Such designations would provide some land use protections for the river, but would do little to address the major factor affecting the native fish ORV.

Collaborative stakeholder groups have also been suggested as an alternative that could facilitate protection of resource values on the Dolores River. Collaborative groups have been very active on Dolores River issues for over 15 years and while the dialogue and educational aspects of these groups has been positive, native fish continue to decline, the volume of fish pool water has decreased, and efforts to buy or lease water for instream flows have been stalled. Cooperation and collaboration for

educational purposes should continue and be encouraged. The Dolores Biology Team, as outlined in the 1996 EA, should be recognized as the proper and final authority on management of the fish pool releases to the Dolores River downstream of McPhee. However, as mentioned above, the Dolores Biology Team should have an expanded role in spill management. Additionally, because of the potential for multiple beneficial results from a well managed spill program, the Dolores Biology Team should continue to work with stakeholder input. This would allow for other user groups, such as rafters, to help the DBT understand how an efficient spill program could facilitate more predictable and better flows for rafting while achieving the main goal of restoring native fish habitat. It should be stressed that it is in the state's interest and in the best interest of the water users to follow through on all prior commitments and take such steps as are necessary to conserve and enhance the Dolores River native fish populations.

The Colorado Division of Wildlife and the BLM are both signatories to the Rangewide Three Species Conservation Agreement for the protection and conservation of flannelmouth sucker, bluehead sucker, and roundtail chub populations throughout their ranges. This agreement between the upper basin states, federal agencies including the USFS, BLM, and BOR, Tribes, and Non-Governmental organizations is intended to proactively prevent a federal listing of these three native fishes. Alternatives to Wild and Scenic designation that do not adequately protect these species will not fulfill the responsibilities of state and federal agencies under this agreement. The roundtail chub is currently classified as a state species of special concern and all three species are considered BLM sensitive species. The range wide decline of these native species has prompted listing petitions under the Federal Endangered Species Act (ESA). The DOW and the State of Colorado have a responsibility and inherent interest to maintaining adequate populations and habitat for these species to prevent ESA listing.

Dolores River Basin

