



United States Department of the Interior

Fish and Wildlife Service

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M.04 – BR Informal
Lower Yellowstone Project

Memorandum

To: Manager, Resources Management Division, U.S. Bureau of Reclamation,
Montana Area Office, Billings, Montana
(Attn: Mr. Jeff Baumberger)

From: Supervisor, Montana ES Field Office, Helena, Montana *R. Mark Wilson*

Subject: Biological Assessment for Construction Activities Associated With The Intake
Diversion Dam Modification, Lower Yellowstone Project

This memo responds to your March 18, 2010 request for concurrence with the Bureau of Reclamation (Reclamation)/U.S. Army Corps of Engineers' (COE) effects determination contained in the *Biological Assessment for Construction Activities Associated with the Intake Diversion Dam Modification, Lower Yellowstone Project* (BA). The project proposal consists of constructing a new irrigation water intake containing a fish screen, along with a rock-lined ramp around the existing diversion dam for fish passage purposes. This response is provided by the U.S. Fish and Wildlife Service (Service) under the authority of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.).

Under the authority of the National Environmental Policy Act (NEPA) (2 U.S.C. 4321) and as a cooperating agency, the Service has fulfilled its duty to comment (40 CFR 1503.2) and utilized its expertise to assist the action agencies full consideration of fish and wildlife needs. Under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), Reclamation and COE have incorporated our recommended means and measures to fully consider wildlife conservation. Reclamation's *Draft Environmental Assessment for the Intake Diversion Dam Modification, Lower Yellowstone Project* (Intake Draft EA) documents our long consultation history and the inclusion of Federal and State wildlife considerations.

On May 12, 2009, Reclamation, the COE, and the Service reached an agreement that informal Section 7 consultation is appropriate for the construction of the proposed Intake Project, so long as concurrent formal Section 7 consultation continues on operations of the Lower Yellowstone

Project. The formal Section 7 consultation addresses operation of the new proposed Intake Project structures, in addition to operation of the overall Lower Yellowstone Project. Therefore, the BA is only focused on construction of the proposed fish passage and entrainment protection structures.

This project is in the known range of the endangered pallid sturgeon (*Scaphirhynchus albus*), Interior least tern (*Sterna antillarum athalassos*), and whooping crane (*Grus americana*). Reclamation has determined that the construction activities associated with this proposed federal action are not likely to adversely affect the interior least tern, whooping crane, or pallid sturgeon. The Service concurs with Reclamation's determination, and that the overall effect of the Intake Project would provide future long-term benefits for pallid sturgeon recovery by allowing fish passage and minimizing entrainment.

Reclamation and COE are proposing to modify Intake Diversion Dam to improve passage for the endangered pallid sturgeon and other native fish and to reduce entrainment of fish into the Lower Yellowstone Project's main canal at Intake, Montana. The Intake Draft EA analyzes and discloses effects associated with construction of the proposed modifications to the Intake Diversion Dam and Lower Yellowstone Project's main canal headworks. Reclamation and the Corps are joint-lead agencies for preparation of the Intake EA. Reclamation is the administrative lead agency for the NEPA activities associated with the proposed Intake Project.

The proposed project is located on the Yellowstone River in Section 25, Township 18 North, Range 56 East, Dawson County, Montana. Construction of the Lower Yellowstone Project began in 1905 under the Reclamation Act of 1902 and included Intake Diversion Dam – a 12-foot high wood and stone structure that spans the Yellowstone River and raises the water level for diversion of water into the main canal. Intake Diversion Dam likely has impeded upstream migration of pallid sturgeon, an endangered species, and other native fish for more than 100 years. The dam is a total barrier to several fish species, including pallid sturgeon, due to increased turbulence and velocities associated with the rocks at the dam downstream.

The purpose of the project is to correct unsatisfactory passage conditions for endangered pallid sturgeon and other native fish in the lower Yellowstone River and reduce entrainment of fish into the Lower Yellowstone Project main canal. The proposed project is needed to:

- a. Improve upstream and downstream fish passage for adult pallid sturgeon and other native fish in the lower Yellowstone River.
- b. Minimize entrainment of pallid sturgeon and other native fish into the Lower Yellowstone Project main canal.
- c. Continue effective operation of the Lower Yellowstone Project in compliance with the ESA.
- d. Contribute to restoration of the lower Yellowstone River ecosystem.

Many alternatives were considered as a means to solve the fish passage problem at the dam. Construction of a rock ramp would replace the existing timber and rock Intake Diversion Dam with a concrete dam that would have a shallow-sloped ramp to provide fish passage. This alternative best meets the project purpose and is the least environmentally damaging alternative. Therefore, the rock ramp alternative is the preferred plan for construction. The rock ramp is designed to mimic natural river function and would lower velocities and turbulence so that migrating fish could seamlessly pass over the dam. The new dam and rock ramp would be paired with new headworks

with rotating removable drum screens, which would minimize entrainment of fish into the main canal and regulate irrigation diversions.

The replacement concrete dam would be located downstream of a new headworks to create sufficient water height to divert 1,374 cfs into the main canal. This concrete dam would replace an existing timber and rock-filled dam providing long-term durability lacking in the current structure.

A rock ramp would be constructed downstream of the replacement dam by placing rock and fill material in the river channel to shape the ramp, and then it would be covered with rock riprap. The ramp would provide flow characteristics that meet the swimming abilities of the pallid sturgeon, so the endangered fish would have unimpeded access to habitat upstream of the dam. The rock ramp would be constructed to be relatively flat (approximately 0.5% slope) over much of its width to keep flow velocities as low as possible. The final configuration of the rock ramp would be optimized for pallid sturgeon passage using ongoing computer and physical scale modeling.

The new rock ramp would be constructed over the site of the existing Intake Diversion Dam, preserving most of the historic dam in place. Because the existing dam's rock field has washed downstream, part of the existing dam crest might be removed and rock moved to accommodate construction of a ramp. The rock ramp would include at least one low flow channel in conjunction with the low flow channel on the crest, which would allow fish migration during low flows. The rocks in the ramp would be sized to withstand high flows and ice jams and would range from one to four feet in diameter. The largest rocks would be placed near the crest to resist ice forces.

The rock ramp alternative would include excavation of a new segment of the main canal to connect the new headworks structure to the existing canal. The new canal extension would mimic the existing main canal geometry. The location of the new canal extension would correspond with a relatively high bank and hillside along the north bank of the Yellowstone River. Material excavated during construction of the new canal would be used to fill the existing canal behind the current headworks. Any excess material would be used as fill for the rock ramp and/or to build cofferdams needed to control water during construction. A new headworks structure would control diversion of water into the canal extension, and rotating removable drum screens would be installed in the new headworks to minimize entrainment of fish into the canal.

Impacts to wetland areas and existing streams were avoided and minimized by locating access roads and other features of the project outside of wetland areas and by pursuing the action alternative with the least impact on the Yellowstone River. No mitigation is proposed at this time.

The Final Intake EA will identify a number of Intake Project design features, best management practices, and environmental commitments that will avoid, reduce, or eliminate adverse environmental effects which may otherwise result from construction and operation of the proposed Intake Project. These features were detailed in the Intake Draft EA, BA, *Appendix J – Draft Adaptive Management Strategy (DAMS)*, and the *Draft Lower Yellowstone Project Adaptive Management Plan (DAMP)*. Based on the information found in the Intake Draft EA, BA, DAMS and DAMP for the Intake Diversion Dam Modification, the Service concurred with Reclamation's determination of effects on listed species. The environmental commitments were summarized in the Draft Finding of No Significant Impact Intake Diversion Dam Modification, Lower Yellowstone Project. Those commitments are in part:

- Reclamation and the Corps recognize that there is uncertainty in addressing natural resource issues. To manage this uncertainty Reclamation and the Corps will develop an adaptive management plan. The plan will be developed in accordance with the Department of the Interior Policy guidance (Order 3270) and the report *Adaptive Management, The U.S. Department of Interior Technical Guide 2007*.
- Reclamation and the Corps will follow the Adaptive Management Strategy in appendix J, including development of a MOU with joint-lead agencies, cooperating agencies, and the Board of Control to implement adaptive management practices. Prior to Intake Project construction, a specific Adaptive Management Plan for the selected alternative will be completed under the terms in the MOU.
- All constructed features will be monitored for no longer than 8 years in accordance with an adaptive management plan to ensure that these are operating as designed to improve fish passage and reduce entrainment.
- To ensure that Intake Project activities are completed concurrently and in full compliance with all environmental commitments, an Environmental Review Team will be formed. Members of the team, mostly state and federal agencies, will be established to review and assist Reclamation and the Corps on Intake Project actions during implementation of the environmental commitments.
- River morphology will be monitored to assess changes to the stream channel resulting from construction of the selected alternative. The Environmental Review Team will be consulted regarding specific measures to mitigate impacts if substantive changes are determined to have been caused by the Intake Project.
- A water quality monitoring program will be established for ensuring that water quality standards are not violated during construction activities..
- Discharges of fill material into waters of the U.S. will be carried out in compliance with provisions of Section 404 of the Clean Water Act and the permit requirements of the Corps.
- Erosion control measures will be employed where necessary to reduce wind and water erosion. Erosion and sediment controls will be monitored daily during construction for effectiveness, particularly after storm events, and the most effective techniques will be used.
- To avoid erosion and minimize hydrologic function impacts, construction methods that temporarily block natural flows will be limited in duration. If temporary blocks are necessary, flexible water barriers or a similar technique will be used.
- Silt barriers, fabric mats, or other effective means will be placed on slopes or other eroding areas where necessary to reduce sediment runoff into stream channels and wetlands until vegetation is re-established. This will be accomplished as soon as practical after disturbance activities.
- All work in the waterway will be performed in such a manner to minimize increases in suspended solids and turbidity, which may degrade water quality and damage aquatic life outside the immediate area of operation.
- All areas along the bank disturbed by construction will be seeded with vegetation indigenous to the area to minimize erosion.
- To avoid erosion and minimize hydrologic function impacts, construction methods that temporarily block natural flows would be limited in duration. If temporary blocks are necessary, flexible water barriers or similar technique will be used.
- To avoid impacts to fish, coffer dam construction and in-stream heavy equipment activity will be coordinated with fishery experts from the Service, Montana Fish, Wildlife and Parks (FWP), Reclamation and the COE to avoid and or minimize potential impacts.

- All pumps will use intakes screened with no greater than ¼” mesh when dewatering cofferdam areas in the river channel. Pumping will continue until water levels within the contained areas are suitable for salvage of juvenile or adult fish occupying these areas. Fish will be removed by methods approved by the Service and FWP prior to final dewatering.
- Reclamation will consult with FWP to ensure that adequate flows comparable to environmental baseline are maintained during construction to support the fishery during low-flow periods (late summer/early autumn).
- Reclamation will monitor the Service’s whooping crane sighting reports to ensure that whooping cranes are not in the Intake Project area during construction. If any are sighted within the Intake Project area, Reclamation will consult with the Service regarding appropriate actions.
- Visual surveys for Interior Least Tern will be conducted weekly from May 15 to August 15 at all potential least tern nesting areas (sparsely vegetated sandbars) within line of site of the construction area.
- All surface-disturbing and construction activities will be seasonally restricted from May 15 to August 15 within 0.25 mile or the line of site of any active interior least tern nest.
- A physical model of the rock ramp will be constructed to provide additional velocity and turbulence data needed for final design of an effective ramp.
- The construction activities within the wetted perimeter of the active channel will be observed and monitored by a qualified fisheries biologist to avoid direct impacts to adult or juvenile pallid sturgeon. In-stream construction activities will cease if the fisheries monitor determines there is potential for direct harm or harassment of pallid sturgeon, until the potential for direct harm or harassment has passed. This will include coordination with FWP to make sure radio-tagged pallid sturgeon and other monitored native fish continue to be monitored, especially during the construction season.
- Any in-stream construction activity will be conducted during periods most likely to minimize the potential impact to the pallid sturgeon. The months to avoid and/or minimize impacts to pallid sturgeon are June and July.

This concludes informal consultation pursuant to regulations in 50 CFR 402.13 implementing the Endangered Species Act of 1973, as amended. This project should be re-analyzed if new information reveals effects of the action that may affect threatened, endangered or proposed species, if the project is modified in a manner that causes an effect not considered in this consultation, or if the conservations measures stated in the Draft EA, BA, DAMS, and DAMP for the Intake Diversion Dam Modification will not be implemented.

Please contact Lou Hanebury, Fish and Wildlife Biologist, at (406) 247-7367 if additional information is needed.

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