



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES  
MONTANA FIELD OFFICE  
585 SHEPARD WAY  
HELENA, MONTANA 59601  
PHONE (406) 449-5225, FAX (406) 449-5339

March 7, 2012

M.04 – BR  
Lower Yellowstone Project

## Memorandum

**To:** Area Manager, U.S. Bureau of Reclamation, Montana Area Office, Billings, Montana  
(Attn: Dan Jewell)

**From:** Field Supervisor, Montana Ecological Services Field Office, Helena, Montana 

**Subject:** Biological Assessment Addressing Operation and Maintenance of the Intake Headworks and Fish Screens, Lower Yellowstone Project

This memorandum responds to your February 10, 2012 (received on February 13, 2012) request for U.S. Fish and Wildlife Service (Service) concurrence with the Bureau of Reclamation (Reclamation) effects determinations contained in the *Biological Assessment, Lower Yellowstone Irrigation Project, Intake Headworks and Fish Screens Operations and Maintenance* (BA). The purpose of the February 2012 BA is to determine to what extent the proposed operations and maintenance (O&M) of the newly constructed headworks and associated fish screens for the Lower Yellowstone Irrigation Project (LYIP) may affect threatened, endangered, or candidate species. The BA pertains to the interim O&M period starting when the new headworks and fish screens are completed (projected April 2012) and ending when a fish passage design alternative that provides passage around or over Intake Diversion Dam is constructed and operational. This response is authorized under the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et. seq.), Migratory Bird Treaty Act (MBTA)(16 U.S.C. 703 et seq.), as amended, Executive Order 13186 *Responsibilities of Federal Agencies to Protect Migratory Birds*, Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250), as amended, and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).

The proposed project is located on the Yellowstone River in Section 25, Township 18 North, Range 56 East, Dawson County, Montana. Reclamation and the Corps of Engineers (Corps) ultimately propose to modify Intake Diversion Dam on the Yellowstone River to improve passage for the endangered pallid sturgeon (*Scaphirhynchus albus*) and other native fish and to reduce entrainment of fish into the LYIP's main canal at Intake, Montana. Intake Diversion Dam likely has impeded upstream migration of pallid sturgeon 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 2010 overall Reclamation and Corps Intake Project proposal included construction of a new irrigation water intake/headworks containing fish screens, a replacement concrete diversion dam, and a rock-lined ramp around/over the diversion dam to provide fish passage. On May 12, 2009, Reclamation, the Corps, and the Service reached an agreement that informal Section 7 consultation was appropriate for the construction of the proposed Intake Project, so long as concurrent formal Section 7 consultation continued on operation of the LYIP. Reclamation and the Corps submitted the *Biological Assessment for Construction Activities Associated with the Intake Diversion Dam Modification, Lower Yellowstone Project* to the Service on March 18, 2010, which assessed construction of all originally-proposed project components including the new headworks and fish screens, rock-lined fish passage ramp, and replacement concrete dam. That BA also detailed the consultation history on the Intake Project. On April 8, 2010, the Service provided written concurrence that the proposed construction of these project features was not likely to adversely affect listed species.

Similarly, the *Intake Diversion Dam Modification Environmental Assessment* was prepared by Reclamation and the Corps to analyze and disclose effects associated with construction of the proposed modifications to the diversion dam and headworks. In April 2010, Reclamation and the Corps approved a finding of no significant impact (FONSI) to complete the National Environmental Policy Act (NEPA) compliance process for construction of the rock ramp, replacement concrete dam, and fish entrainment protection structures. It is our understanding that, subsequent to approval of the FONSI, Reclamation and the Corps determined that additional alternatives to the originally proposed rock ramp passage structure required consideration due to: 1) significant increases in estimated ramp construction costs; and 2) increased concerns regarding potential ice damage to the ramp. An amended EA is currently being prepared by Reclamation and the Corps to analyze and disclose potential effects associated with additional fish passage alternatives. We understand that the final amended EA process is tentatively scheduled for completion by April 15, 2013.

Only the new headworks and fish screen components of the overall Intake Project are currently under construction; the fish passage ramp and replacement concrete dam components were not constructed for reasons stated above. The original proposed construction phase of the overall project was therefore split, and it became necessary to address the interim operation of the new headworks and fish screens in the absence of the fish passage ramp and replacement concrete dam. Therefore, this current consultation pertains only to the interim headworks/fish screens O&M period. The interim period starts when the new headworks and fish screens are completed (projected April 2012) and ends when an appropriate fish passage design alternative that provides passage around or over Intake Diversion Dam is constructed and operational. The Service will continue consultation with Reclamation and the Corps on the construction of the selected fish passage alternative, its associated project components, and operational impacts of the overall proposed Intake Project in conjunction with the amended EA process.

This current consultation pertains only to the current proposed federal action. The proposed federal action is to operate the new irrigation canal headworks and fish screens, as described below and in the 2010 EA, in the absence of fish passage and permanent dam modification components. Operating the new headworks and fish screens would include the following actions:

- The track mounted fish screens would be lowered into place prior to the initiation of the irrigation season. The range of dates may vary due to ice-off variability, but the screens would always be lowered before the gates are opened to divert water.

- Daily and seasonal adjustments to headworks gates by the irrigation district in response to flow conditions and crop demands, generally from May 1 to October 1. Weather and flow conditions could increase the irrigation season by up to 2 weeks earlier or later. Gates are fully automated and accessed from the bridge deck on the headworks.
- Diversions between 600 – 1,380 cfs from the Yellowstone River into the main canal during the irrigation season, depending on weather and crop demands.
- Periodic screen maintenance. Fish screen units may be periodically raised during the water diversion season for general maintenance. When a screen requires repair or maintenance, the gate to that screen would be closed and an auxiliary screen and gate employed. However, in the event that two or more screens need to be raised simultaneously, unfiltered water would enter the canal. Screens may also need to be raised in the event of inadequate water delivery, such as during extreme drought or screen blockage or congestion. All repairs and maintenance would be made as expeditiously as possible to minimize the duration of unfiltered water diversion. Screens are accessed by the bridge deck.
- The new headworks structure is approximately 115 feet upstream of the previous headworks. The existing diversion structure would need to be raised approximately 11 inches during the 2012 irrigation season to provide adequate head for the diversion of water into the new headworks. This would be completed by dumping rocks from the existing cableway as has historically occurred. This typically takes place once annually (typically in mid-late July) after the hydrograph descends, to replace rocks dislodged by ice and high spring flows. This activity would continue on an as needed basis until a suitable passage option and new weir are constructed.
- A coffer box that can be lowered on the fish screen tracks is being built that would allow a gate to be isolated from the river to allow maintenance and repair of gates without the need to dewater the structure. This coffer box would be used as needed when gates become damaged or non-operational. The gate would be closed, if functional, prior to removal of the fish screen and placement of the coffer box. If the gate is not functional, the coffer box would be on site prior to screen removal and installed immediately to minimize entrainment.
- Fish screen units would be raised on tracks when water is not being diverted to avoid potential damage from ice and debris.
- Continued O&M activities performed by the LYIP Districts, such as canal maintenance, inspections, upgrades, canal access road maintenance, and weed control.
- Continued conveyance of diverted water through LYIP canals, laterals, and drains.

This project occurs within the known range of the endangered pallid sturgeon, Interior least tern (*Sterna antillarum athalassos*), whooping crane (*Grus americana*), black footed ferret (*Mustela nigripes*), as well as the candidate greater sage-grouse (*Centrocercus urophasianus*) and Sprague's pipit (*Anthus spragueii*). Reclamation has determined that the O&M activities associated with this proposed federal action for the specified time period may affect, but are not likely to adversely affect the pallid sturgeon. Specifically, the BA states *"Until passage and spawning are achieved above the diversion dam, operation of the headworks and screens are not likely to adversely affect the pallid sturgeon. Dumping rock on the existing diversion dam is not likely to adversely affect juvenile and/or adult pallid sturgeon due to the boulder field and diversion dam hydraulics that have historically limited upstream passage of pallid sturgeon."* Conservation measures proposed in the BA include:

- Reclamation would draft a proposed monitoring plan to evaluate the effectiveness of the new fish screen and headworks. Reclamation would work cooperatively with the U.S. Fish and Wildlife

Service, Montana Fish, Wildlife and Parks (FWP) and the Upper Basin Pallid Sturgeon Work Group to formulate a monitoring plan to analyze impacts to fish less than 40 mm in length related to entrainment into the canal or loss to impingement upon the screen.

- To minimize the probability of entrainment during operation of the headworks without the rotating drum screens in place, one additional gate and screen have been included to provide redundancy in the system. Additionally, a coffer box would be available to allow expedient repair of damaged gates. This scenario is unlikely but could potentially occur during an emergency situation, such as when multiple screens are damaged while the back-up screen is already in use. The Service would be contacted immediately if unscreened water was diverted into the canal.

Reclamation also determined that the O&M action would have no effect on the black-footed ferret, Interior least tern, whooping crane, greater sage-grouse, or Sprague's pipit. With respect to the least tern, the following conservation measure is proposed in the BA:

- All surface-disturbing and construction activities related to headworks and screen O&M would be restricted within 0.25 mile, or within line of sight, of any active Interior least tern nest from May 15 to August 15.

Additional environmental commitments were summarized in the 2010 FONSI, which in part include:

- 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*.
- 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.
- 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.
- To avoid impacts to fish, coffer dam construction and in-stream heavy equipment activity will be coordinated with fishery experts from the Service, FWP, Reclamation and the Corps 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.

The Service concurs with Reclamation's *may affect, not likely to adversely affect* determination for the pallid sturgeon, and acknowledges the *no effect* determinations for the black-footed ferret, Interior least tern, whooping crane, greater sage-grouse, and Sprague's pipit.

However, we are concerned that fish passage has not yet been provided per original agreements, and will be delayed beyond original timeframe estimates for an unspecified period. Further, fish passage for non-listed species managed by FWP may be further impeded or prevented by raising the existing dam by 11 inches until such time as a fish passage design is implemented. It is therefore implicit in our concurrence that, consistent with previously agreed-upon overall Intake Project objectives and Reclamation and Corps commitments, analysis of fish passage alternatives will continue and means for providing such passage will be proposed and implemented in a timely manner. We expect to conclude consultation on the construction of the selected fish passage alternative, its associated project components, and operational impacts of the overall proposed Intake Project in conjunction with NEPA process conclusion, which is currently anticipated by approximately mid-April, 2013.

The overall Intake Project would provide future long-term benefits for pallid sturgeon recovery by minimizing entrainment and ultimately allowing fish passage and access to upstream reaches of the Yellowstone River, once the fish passage component is constructed. Conversely, lack of or substantively delayed fish passage implementation would impede pallid sturgeon recovery over the long term. As stated in the 2010 FONSI, the underlying need for the proposed action (i.e., the overall Intake Project) is for Reclamation and the Corps to comply with the ESA. In October 2009, the Service formally revised portions of the Reasonable and Prudent Alternative (RPA) in the Service's 2003 amended Missouri River Biological Opinion to the Corps. A new RPA element at Intake Dam and the irrigation headworks was substituted for one originally identified to be taken at Fort Peck Dam. It was determined that providing passage and reducing entrainment on the Yellowstone River would contribute more to the recovery of pallid sturgeon than flow changes from Fort Peck Dam, and that this RPA substitution would contribute to avoiding the likelihood of jeopardy. Fish passage and entrainment protection at Intake are now Corps requirements under the 2009 revised RPA for the 2003 amended Biological Opinion. It is therefore critically important to keep the fish passage component of this project moving forward, despite its fiscal challenges.

This concludes informal consultation on this proposed O&M action pursuant to regulations in 50 CFR 402.13 implementing the Endangered Species Act of 1973, as amended. This action should be re-analyzed if new information reveals effects 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 conservation measures stated in the February 2012 BA or environmental commitments applicable to this action stated in the 2010 FONSI will not be implemented. Please contact Jeff Berglund in this office at (406) 449-5225, ext. 206 if additional information is needed.

cc: USFWS, Billings, MT (Attn: George Jordan), USFWS, Denver, CO (Attn: Henry Maddux),  
 USFWS, Bismarck, ND (Attn: Jeff Towner), MFWP, Miles City, MT (Attn: Brad Schmitz),  
 USBR, Billings, MT (Attn: Justin Kucera), USACE, Billings, MT (Attn: Cathy Juhas),  
 USACE, Omaha, NE (Attn: Tiffany Vanosdall), MDEQ, Helena, MT (Attn: Jeff Ryan),  
 USEPA, Denver, CO (Attn: Toney Ott)