

Biological Opinion
Guttenberg, IA Train Wreck Emergency Response
February 18, 2010

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion based on the Service's review of the Guttenberg Train Wreck located in Clayton County, Iowa, and the emergency consultation on the effects of that action on Higgins eye pearl mussel (*Lampsilis higginsii*) in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.).

Summary of Findings

The Service has determined that the emergency response activities conducted during the summer of 2008 at the Guttenberg, Iowa Train Wreck Site did not jeopardize the continued existence of federally listed species. The federally listed endangered Higgins eye pearl mussel occurs in the action area and there was likely incidental take of Higgins eye pearl mussel during response related construction activities.

Consultation History

There was minimal prior coordination between the Service, the U.S. Environmental Protection Agency (USEPA), and the emergency response personnel regarding response related construction activities at the Guttenberg Train Wreck Site. The Service subsequently initiated discussions on this matter with the USEPA according to the Spills Memorandum of Agreement (USCG *et al.* 2001) and the endangered species consultation regulations (50 CFR §402).

The Service received a Biological Assessment from the USEPA Region 7 in a letter dated August 31, 2009. A complete administrative record of this consultation is on file in the Rock Island, Illinois Ecological Services Field Office.

Biological Opinion

1. Description of the Action

On July 9th, 2008, four train engines along with several rail cars derailed along the Mississippi River south of the City of Guttenberg, Iowa (Pinnacle Engineering 2009). A large boulder had fallen before the train arrived pushing the tracks out toward the river. One engine went completely into the river and the other three were partially in the river. The train wreck was at Mississippi River mile 610 on the right descending bank in navigation pool number 11.

The emergency response activities included boom deployment to contain the floating diesel oil that was leaking from the train engines into the river and to help reduce the amount of shoreline oiling. Heavier oil products that sink were also discharged from the train engines onto the

riverbed. Emergency response activities also included removal of some of the oiled shoreline debris.

In June 2008, the responsible party constructed a rock ramp into the river between the tracks and the engines to extract the train engines. The rock ramp footprint was about 30 feet by about 270 feet along the shoreline (8,100 square feet or 301 square meters). The rock ramp covered part of an existing mussel bed that likely contained Higgins eye pearl mussels based on the presence of this species in the area. In early October 2008, the responsible party relocated the mussels including one Higgins eye pearl mussel from around the edges of the rock ramp after it was constructed. In late October 2008, the responsible party then removed the rock ramp.

2. Status of the Species

This section presents the biological and ecological information relevant to the formulation of the Biological Opinion. Appropriate information on the species' life history, its habitat, distribution, and other factors necessary to its survival are included to provide background for the analysis in later sections of this Biological Opinion.

The Service listed the Higgins eye pearl mussel as an endangered species on June 14, 1976 (41 FR 24064). The Biological Assessment (USEPA 2009) and the species Recovery Plan (USFWS 2004) contains the species life history, biology, ecology, and threats for survival. Relevant information from the Biological Assessment and Recovery Plan are summarized below.

The Higgins eye pearl mussel typically comprises less than two percent (0.02) of the total population in a mussel bed. It is associated with a variety of river habitat kinds and substrate types. Factors that contribute to the species decline include riverine habitat alterations, sedimentation, water quality problems, hazardous substance spills, and zebra mussel infestation.

The reproduction of the Higgins eye pearl mussel is similar to that of other native mussels. The female produces and incubates the eggs in brood pouches. The larvae (glochidia) from the mature eggs are injected into the mouth of a fish when they attempt to feed on the adult mussel lure. The glochidia then attach themselves to the gills of suitable host fishes where they live off the nourishment for a short period of time. The glochidia metamorphose into juvenile mussels and then drop off onto the substrate.

The historic range for the species is the main stem of the Mississippi River between St. Paul, Minnesota and St. Louis, Missouri plus in eight tributary rivers (USFWS 2004 and Miller and Payne 2007). The species occurs today in the upper reaches of the main stem Mississippi River range and reintroduction projects are on going for the tributary rivers once part of its historic range (USFWS 2004 and Neves 2004).

There are 14 Essential Habitat Areas for the Higgins eye pearl mussel (USFWS 2004 and USFWS 2008). The Essential Habitat Areas are specific locations capable of supporting reproducing populations of Higgins eye pearl mussels and are important to the conservation of the species. There is one designated Essential Habitat Area in Pool 11 of the Upper Mississippi

River adjacent to Cassville, Wisconsin. Guttenberg, Iowa is several miles upstream of Cassville, Wisconsin. The Service has not listed critical habitat as defined under the ESA for the Higgins eye pearl mussel.

The recovery criteria for the goal of delisting the Higgins eye pearl mussel are outlined below (USFWS 2004).

1. Delisting requires that populations in at least five of the 14 Essential Habitat Areas are reproducing, self-sustaining, not threatened by zebra mussels, and are sufficiently secure to assure long-term viability of the species. The five Essential Habitat Areas must meet the criteria for the intermediate goal of reclassification to threatened status and must include the Prairie du Chien Essential Habitat Area in Pool 10 and at least one Essential Habitat Area each in the St. Croix River and in Mississippi River Pool 14.
2. The use of double hull barges or other actions have alleviated the threat of spills to each of the identified Essential Habitat Areas.
3. Habitat information and protective responses to conserve each of the identified Essential Habitat Areas have been incorporated into all applicable spill contingency planning efforts.
4. Water quality criteria may be added to the criteria for the final goal of delisting upon completion of the tasks referred to under the criteria for the intermediate goal of reclassification from endangered status to threatened species status.

3. Environmental Baseline

Regulations implementing the ESA (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area, which have already undergone Section 7 consultation, and the impacts of State and private actions, which are contemporaneous with the consultations in progress.

Environmental baseline analyses are used as the starting point from which to assess the effects of the action. In simplest terms, environmental baseline is the status of listed species or critical habitat within the action area given the response of these listed resources to past and present factors. Using the baseline analysis, the Service is able to identify the effects anticipated to result from the action from those effects that are anticipated to occur regardless of whether the action is carried out.

The action for the endangered species consultation is the emergency response for this train wreck including construction and subsequent removal of the rock ramp in the Mississippi River plus the relocation of mussels from around the edges of the rock ramp prior to the removal phase.

Action area is defined in 50 CFR §402.02 as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For this consultation, the action area is defined as the entire emergency response zone including the rock ramp footprint and some distance around the river edges of the footprint affected by heavy equipment used to build and remove the rock ramp.

The action area is also within range of the Federal candidate listed mussel species, sheepsnose mussel (*Plethobasus cyphus*). The sheepsnose mussel is not known to occur in the action area because it was not found along the edges of the rock ramp or elsewhere in this area of the Mississippi River (Helms and Associates 2008 and Helms and Associates 2009). The sheepsnose mussel is not known to occur at this specific Mississippi River location according to historic distribution reports, but that may be due to the lack of field surveys (USFWS 2002).

The population of the Higgins eye pearlymussel species is declining (USFWS 2006). There are not any known past or current Federal or non-Federal development projects in the Mississippi River at or near the action area that can affect local mussels beyond the following impacts. There are concerns for water quality problems and exposure to contaminants in the Mississippi River on mussel reproduction and health (USFWS 2006). The lock and dam system for commercial navigation and related navigation channel maintenance have affected the physical and biological features of the Upper Mississippi River (USFWS 2004) from a natural flowing riverine system, to a partial reservoir system. Mussels adapted to riverine habitats have been eliminated from reservoir sections of the Upper Mississippi River. The introduction of non-native bivalves from other parts of the world especially the zebra mussel (*Dreissena polymorpha*) into the Mississippi River has also adversely affected native mussels (USFWS 2006).

The action area contains a mussel bed with at least 26 mussel species including the federally listed endangered Higgins eye pearlymussel (Helms and Associates 2008). The mussel densities around the action area range from 18.4 mussels square meter up to 49 mussels per square meter depending on year and location (Helms and Associates 2008 and Helms and Associates 2009). Higgins eye pearlymussels occurred at a rate of at least 0.07% (0.0007) in the action area. Zebra mussel infestation on the native mussels inspected as part of this action was low (Helms and Associates 2008). One Higgins eye pearlymussel was found along the edge of the rock ramp and was transferred to the Service’s Genoa, Wisconsin National Fish Hatchery to use as local brood stock for artificial propagation purposes.

The action area is important to the recovery of the Higgins eye pearlymussel by contributing breeding adults. Breeding adults infest host fish with glochidia on an annual basis and a small percentage of these young are recruited into the population. Juvenile mussels released at or around the action area can be transported into area and downstream mussel beds. There is an Essential Habitat Area several miles downstream of the action area. The downstream Essential Habitat Area is one of 14 Essential Habitat Areas in the Upper Mississippi River.

4. Effects of the Action

The Effects of the Action section for emergency consultations analyzes the effects of the emergency response actions taken. It does not analyze the effects to the species from the discharge of oil and oil products during the incident per instructions in the Spills Memorandum of Agreement (USCG *et al.* 2001).

The emergency response actions included booming, use of absorbent pads, removal of oiled debris, construction of a rock ramp, relocation of mussels from around the rock ramp, and subsequent removal of the rock ramp. In constructing the rock ramp, we anticipate that individual Higgins eye pearlymussels were crushed by rock materials and by the heavy equipment operations. We estimated the number of Higgins eye pearlymussels killed by multiplying the mussel density by the size of the impact area by the occurrence rate of the species. Table 1 below outlines the range of the loss for Higgins eye pearlymussels.

Table 1. Direct loss of Higgins eye pearlymussels at the Guttenberg Train Wreck Rock Ramp.

Mussel Density ^a	Impact Area Size (square meters)	Occurrence Rate ^b	Number Killed
18.4 (low)	198 ^c	0.0007 (site specific)	2
49 (high)	301	0.02 (potential)	295

^a Mussels per square meter

^b Percent Higgins eye pearlymussels of total mussels

^c This area value considers the shoreline zone up to 2.6 meters deep as void of mussels.

The losses of Higgins eye pearlymussels were restricted to one non-essential habitat mussel bed in Pool 11 of the Upper Mississippi River. There is good potential for some natural re-colonization by Higgins eye pearlymussels on remaining suitable substrate in the action area through recruitment from adjacent mussel beds with adult Higgins eye pearlymussels (Helms and Associates 2008).

5. Cumulative Effects

Regulations implementing the ESA (50 CFR §402.14(g)(3) and (4)) require the Service to evaluate the cumulative effects on the listed species under consultation. Cumulative effects are defined as those effects of future private, or State actions, not involving Federal funding, that are reasonably certain to occur in the action area. The Service knows of no projects or actions reasonably certain to occur in the action area that will produce cumulative effects as defined here.

6. Conclusion

After reviewing the biology of the species, status of the Higgins eye pearlymussel, the environmental baseline conditions, and the effects of the action, it is the Service's biological

opinion that the proposed action is not likely to jeopardize the continued existence of the species. No critical habitat has been designated for this species. Therefore, none will be affected.

We conclude that mussels including the Higgins eye pearly mussel were killed by the construction of the rock ramp. However, based on the best available information, the loss of the Higgins eye pearlymussels by this action when added to the existing baseline condition will not cause a detectable negative effect in reproduction and sustainability of the species in the Upper Mississippi River or at any of the Essential Habitat Areas.

7. Incidental Take Statement

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), take that is incidental to and not intended as part of the agency action is not considered to be prohibited under ESA provided that such take is in compliance with the terms and conditions of this incidental take statement.

The Service estimates between 2 to 295 Higgins eye pearlymussels were incidentally killed because of the construction and subsequent removal of a rock ramp at the Guttenberg, Iowa Train Wreck Site.

The Incidental Take Statement Section for emergency consultations documents the recommendations given to minimize take during the informal consultation process, the success of the agency in carrying out these recommendations, and the ultimate effect on the species. In this consultation, incidental take of mussels occurred during the construction of the rock ramp and during the relocation activity. There was no coordination with the Service prior to the construction of the rock ramp, and therefore, the Federal agencies could not develop conditions that minimize take of Higgins eye pearlymussels.

The responsible party in coordination with the Iowa Department of Natural Resources directed a mussel expert to relocate mussels from around the rock ramp out of harms way prior to the rock ramp removal as a reasonable and prudent measure (Helms and Associates 2008b). One Higgins eye pearlymussel was found along the edge of the rock ramp and was taken into captivity for use as brood stock by an existing Service propagation program should that become an elected method to offset the loss of Higgins eye pearlymussel at the action area (Helms and Associates 2008b).

Relocation prior to the action is an effective method to save individual mussels from being killed by the action. The Service has best management practices as part of its permitting process for relocation projects to help ensure a high rate of survival for the relocated individuals. It is important to consider safety first because discharges of oil products or the release of other chemicals onto mussel beds or into the water may create a hazardous condition for divers attempting to relocate mussels.

Terms and Conditions

Not applicable for an emergency consultation

Conservation Measures

Section 7(a)(1) of the ESA directs Federal agencies to further the purposes of the ESA by implementing conservation programs for the benefit of endangered and threatened species to the extent that the agencies have the authority to do so. The Service may make discretionary conservation recommendations to other Federal agencies to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat. These recommendations may include assistance in recovery plan implementation, monitoring and information collection efforts.

The Service recommends that partners and stakeholders enhance the on-going spill contingency planning for the Upper Mississippi River to include recognizing the location and spill response protection strategies for the 14 Essential Habitat Areas and for mussels in general. The Service, USEPA, U.S. Coast Guard, and State agencies are in the process of mapping sensitive areas along the Upper Mississippi River as part of its long-standing effort to keep the Upper Mississippi River Area Spill Contingency Response Plan up to date coordinated by Upper Mississippi River Basin Association (2006). The goal of the sensitive areas mapping project is to include the entire Mississippi River and the Missouri River.

Maintaining information on the location and protection strategies for the 14 Essential Habitat Areas in the Upper Mississippi River in regards to spill planning is one of the criteria for delisting the species as outlined in the Higgins eye pearlymussel Recovery Plan (USFWS 2004).

We can use prescriptions in the Spills Memorandum of Agreement (USCG *et al.* 2001) to help guide the development of mussel information and related endangered species consultation for the Area and SubArea spill response contingency plans. First responders can consider the potential for impacts to mussel beds in future emergencies that include disturbance to the substrate in the Mississippi River by using the information on mussels in these spill response contingency plans.

The responsible party, Service, and the Iowa Department of Natural Resources are discussing methods to offset the loss of mussels caused by the action and post project monitoring. The Service anticipates that there will be habitat enhancement projects, species propagation projects, or a combination to accelerate recovery of the action area after the spill response actions.

Reinitiation Notice

This concludes formal consultation on the actions outlined in this Biological Opinion. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect covered species or critical habitat in a manner or to an extent not considered in this Biological Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the covered species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

Literature Cited

Helms and Associates. 2008. Mussel survey at the IC & E Rail Derailment Site located at Mississippi River Pool 11, Mile 610. Prepared by Don Helms of Helms and Associates, Bellevue, Iowa. Project #0815

Helms and Associates. 2008b. Mussel relocation at the IC & E Rail Derailment Site located at Mississippi River Pool 11, Mile 610. Prepared by Don Helms of Helms and Associates, Bellevue, Iowa. Project #0824

Helms and Associates. 2009. Mussel monitoring survey at the IC & E Rail Derailment Site located at Mississippi River Pool 11, Mile 610. Prepared by Don Helms of Helms and Associates, Bellevue, Iowa. Project #0920

Neves, R. 2004. Propagation of endangered freshwater mussels in North America. *Journal of Conchology*, Special Publication 3:69-80

Miller, A.C. and B.S. Payne. 2007. A re-examination of the endangered Higgins eye pearl mussel *Lampsilis higginsii* in the Upper Mississippi River, USA. *Endangered Species Research*, 3:229-237

Pinnacle Engineering. 2009. Guttenberg derailment response report. Pinnacle Engineering, LaCrosse, Wisconsin. Project #R008452.000

USCG, USEPA, USFWS, NOAA, and USDOL. 2001. Inter-agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities Under the Federal Water Pollution Control Act's National Oil and Hazardous Substances Pollution Contingency Plan and the Endangered Species Act. Retrieved from http://www.fws.gov/contaminants/FWS_OSCP_05/fwscontingencyappendices/O-EndangeredSpecies/ESAMOAsignaturePDF.pdf

UMRBA. 2006. Upper Mississippi River spill response plan and resource manual. Public access version. Retrieved from <http://www.umarba.org/hazspills/umarplan.pdf>

USEPA. 2009. Letter and biological assessment for the Guttenberg, Iowa Train Wreck Incident from U.S. Environmental Protection Agency to the U.S. Fish and Wildlife Service dated August 31, 2009.

USFWS. 2002. Status Assessment Report for the sheepsnose, *Plethobasus cyphus*, occurring in the Mississippi River system (U.S. Fish and Wildlife Service Regions 3, 4, and 5). U.S. Fish and Wildlife Service, Asheville, NC

USFWS. 2004. Higgins eye pearlymussel (*Lampsilis higginsii*) recovery plan: first revision May 2004 original Approved: July 29, 1983. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Great Lakes/Big Rivers Region, Ft. Snelling, MN. Retrieved from http://ecos.fws.gov/docs/recovery_plan/040714.pdf

USFWS. 2006. U.S. Fish and Wildlife Service 5-year review of the Higgins eye pearlymussel (*Lampsilis higginsii*), approved May 9, 2006. U.S. Fish and Wildlife Service, Ft. Snelling, MN. Retrieved from <http://www.fws.gov/midwest/endangered/clams/pdf/hepm5year06.pdf>

USFWS. 2008. U.S. Fish and Wildlife Service Higgins eye pearlymussel (*Lampsilis higginsii*) Essential Habitat Areas 2008 Review and Addition of New Essential Habitat Areas. U.S. Fish and Wildlife Service, Ft. Snelling, MN. Retrieved from <http://www.fws.gov/midwest/endangered/clams/pdf/hepmEHA.pdf>