Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (520 ILCS 10/5.5) the Illinois Department of Transportation's (IDOT) authorization for the incidental take of the State endangered/Federally endangered fat pocketbook mussel *(Potamilus capax)* in Wabash County, Illinois (as described/shown in the conservation plan received by the Department on 4 December 2007) is hereby granted, subject to the terms and conditions described in the attached Authorization and Implementing Agreement. The Illinois Department of Natural Resources has determined that this authorized take is incidental to the removal and replacement of the Illinois Route 15/Indiana Route 64 bridge over the Wabash River (FAP 827: IDOT Job No. P-97-016-93), in Wabash County, Illinois.

Procedural History

IDOT (in conjunction with the Illinois Natural History Survey), prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and IDOT's request for authorization for incidental take of the fat pocketbook mussel were received by the Illinois Department of Natural Resources (Department) on 4 December 2007. Public notice of IDOT's request for authorization of the incidental take of fat pocketbook mussels was published in the Edwardsville Intelligencer (Official State newspaper) and the Mt. Carmel Daily Republican Register on January 9, 2008, as well as on January 16, 2008 and January 23, 2008. Public comments on IDOT's conservation plan were accepted by the Department until February 23, 2008. One (1) non-technical comment was received by Diana M. Burns of Mt. Carmel, Illinois on January 14, 2008 by Joseph Kath of the IDNR. These comments were formally addressed by IDOT in a correspondence dated March 6, 2008 and remain in the project file in Springfield, Illinois.

Fat Pocketbook Mussel

Compliance with the Endangered Species Protection Act

The Illinois Endangered Species Protection Act includes six (6) criteria which must be met for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each criteria are listed below.

1. The taking will not be the purpose of, but will only be incidental to, the carrying out of an otherwise lawful activity:

The project area is depicted on the Mount Carmel U.S. Geological Survey Topographic Quadrangle 7.5' series, 1959, photo-revised 1989. The bridge location is near latitude 38.3881 degrees North, longitude 087.7549 degrees West (Second Principal Meridian: Township 1S, Range 12W, Section 28). A mussel survey of the Mt. Carmel bridge site was accomplished on September 14, 2007 and yielded 253 live mussels from 18 species. Eight (8) individuals of the federal, Illinois, and Indiana endangered species, fat pocketbook (*Potamilus capax*), were recorded at the bridge site.

Sampling occurred in a reach of the Wabash River from approximately 50 feet upstream to 175 feet downstream of the bridge and included the area directly beneath the bridge. Stream width at this reach of the river was 300 feet with depths ranging from 0.1 to 9 feet. Current was moderate in this reach of the river. Substrate was mostly sand and mud with small patches of gravel. The banks were relatively steep, muddy, and tree-lined. The eight individuals of the fat pocketbook were widely distributed and were found in a variety of habitats. The species was collected on silted sand (3 individuals), on clean sand (2 individuals), in silted gravel (1 individual) and within leaf/woody debris (2 individuals).

Over the last 50 years, the fat pocketbook mussel has been found alive only in the Little Wabash and Wabash Rivers. Since 1987, the fat pocketbook has been found alive at fifteen (15) sites in the Wabash River in Gallatin, Wabash, and White counties in Illinois and in Gibson, Knox, and Posey counties in Indiana.

The project involves constructing a new two lane bridge over the River approximately 100 feet south of the existing bridge. After completion of the new bridge, the existing Mt. Carmel Bridge will be demolished. Activities involved with the construction and demolition of the bridges will most likely affect the fat pocketbook mussel.

Anticipated adverse effects on the listed species:
The project may have both direct and indirect affects on the fat pocketbook. Direct affects involve construction of the new bridge and the subsequent removal of the old bridge. Construction of the new bridge will require the placement of piers into the river. Construction in the river will likely be done from temporary bridges and/or barges. The construction of the piers for the new bridge will use steel sheet piling as coffer dams to pump the water out of the pier locations in order to excavate footings for the piers. This activity may affect the species. Removal of the existing bridge will likely be done by first removing as much of the above water materials as possible and then explosives will be used for the remainder of the structure. The debris will be removed from the river by barge. Indirect affects involve the potential temporary release of sediment into the river during construction on the bridge approaches within the Wabash River floodplain. Though erosion and sediment control will be practiced at the project site, the removal of vegetation and the presence of erodible soils could cause a silt plume to enter the river during heavy rainfall events. These silt plumes could adversely affect the mussel. Construction is anticipated to last 2.5 years.

2. The parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.

A. Plans to minimize the area affected by the proposed action, the number of individuals of an endangered or threatened species that will be taken and the amount of habitat affected.

The project will be restricted to the stated right-of-way. The right-of-way is approximately 200 feet in width. Erosion and sediment control will be used during construction of the project. It is understood that up to 8 individuals of the fat pocketbook could be taken. Approximately 1.4 acres of river habitat could be affected by pier placement, temporary fills, bridge removal, and potential sediment plumes.

B. Plans for management of the area affected by the proposed action that will allow continued use of the area by the species.

During construction, adjacent land areas will contain erosion and sediment control features to keep these suspended solids from reaching the river. The Departments Erosion and Sediment control policy will be followed and will be in compliance with the U.S. Army Corps of Engineers Section 404 permit, the water quality certification policies of Illinois and Indiana, and the requirements within the NPDES construction permit. It is expected, that after the instream work has been completed, the area will be available for re-colonization by all species of mussels including the fat pocketbook.

C. Description of all measures to be implemented to minimize or mitigate the effects of the proposed action on endangered and threatened species.

To minimize and mitigate the affects of the project on the fat pocketbook mussel, the plan is to relocate all individuals of this species. The relocation area will be to an area with suitable stable substrates and a similar unionid assemblage that is near the project area. The relocation area would either be 6,560 feet upstream of the construction zone or downstream near the end of Patoka Island. The temporary holding of mussels will be in containers that allow the animals to remain moist and un-crowded. The relocation will occur between May 1 and November 1, 2008 and will be done as to avoid extreme temperatures.

The IDOT will discuss the following items with the contractors at the pre-construction meeting:
1). Prior to construction all contractors and construction personnel will receive training regarding legal and ecological aspects of fat pocketbook mussel conservation.
2). The best available methods to minimize erosion, soil runoff and spills of fuel, oil, grease, and other hazardous materials will be utilized.
3). The introduction of zebra mussels into the work zone during construction will be avoided. The contractor's equipment to be used in the Wabash River has not been in zebra mussel infested waters (Mississippi and Illinois Rivers, Great Lake watershed streams) for at least a week without exposure to rain.
4). Demolition work will be conducted in a manner that will minimize the footprint and duration of bridge debris in the river.

D. Plans for monitoring the effects of the measures implemented.

Multiple follow-up mussel surveys and monitoring efforts will occur. All surveys will be conducted during appropriate water level and temperature conditions. Monitoring of the construction site will occur at least once during the following year (2009). The purpose of the monitoring effort is to determine if the mussels, including the fat pocketbook, have recolonized the area. It is anticipated that the habitat at the construction site will have recovered and that the host fishes have recolonized the area. Based on the results of the 2009 survey the need for further monitoring will be assessed. *See Authorization Section of this document for further details regarding monitoring.

Monitoring of the mussel relocation site will occur as close as feasible to 3 months after relocation (2008) and the following year (2009). The purpose of the monitoring effort is to determine the survival of the relocated fat pocketbook mussels at this location.

The relocation of the fat pocketbook is scheduled to occur in the spring of 2008. Relocation is dependent on the flow and volume of water in the river at that time. If the flow is swift and/or the water levels are high the relocation will not take place. The flow and volume of water in the Wabash River will be monitored through the USGS gage station at Mt. Carmel. Mussel relocation will occur when water levels are low and current conditions are moderate.

3. The parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided:

> In an official correspondence to the Department dated 4 December 2007, IDOT verified that adequate funding exists to support and implement all (mitigation) activities described in the official Conservation Plan (for the fat pocketbook mussel). This correspondence states that the FAP 827 (IL 15/IN 64) project is authorized by the Illinois Department of Transportation, which receives its funding from the Illinois General Assembly and the Federal Government in carrying out its programs. IDOT has committed to budget and authorize adequate funding to provide for project construction activities and implementation of all mitigation activities required and described in the official conservation plan.
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> The estimated cost of the bridge replacement is 33.7 million dollars. The use of erosion and sediment control is mandatory and will limit the amount of suspended sediments into the river. These measures will minimize the impacts to the fat pocketbook mussel. The cost of erosion and sediment control is estimated to be $250,000. The relocation of the fat pocketbook and the monitoring survey of the project area will mitigate the effects of the project on this species. These costs are estimated to be $25,000.

4. Based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of the survival or recovery of the endangered species or threatened species in the wild in Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois:

> Sampling occurred in a reach of the Wabash River from approximately 50 feet upstream to 175 feet downstream of the bridge and included the area directly beneath the bridge. Stream width at this reach of the river was 300 feet with depths ranging from 0.1 to 9 feet. Current was moderate in this reach of the river. Substrate was mostly sand and mud with small patches of gravel. The banks were relatively steep, muddy, and tree-lined. The eight (8) individuals of the fat pocketbook were widely distributed and were found in a variety of habitats. The species was collected on silted sand (3 individuals), on clean sand (2 individuals), in silted gravel (1 individual) and within leaf/woody debris (2 individuals).

To minimize and mitigate the affects of the project on the fat pocketbook mussel the plan is to relocate all individuals of this species. The relocation area will be to an area with suitable stable substrates and a similar unionid assemblage that is near the project area. The relocation area would either be 6,560 feet upstream of the construction zone or downstream near the end of Patoka Island. The temporary holding of mussels will be in containers that allow the animals to remain moist and un-crowded. The relocation will occur between May 1 and November 1, 2008 and will be done as to avoid extreme temperatures.

Multiple follow-up mussel surveys and monitoring efforts will occur. All surveys will be conducted during appropriate water level and temperature conditions. Monitoring of the construction site will occur at least once during the following year (2009). The purpose of the monitoring effort is to determine if the mussels, including the fat pocketbook, have recolonized the area. It is anticipated that the habitat at the construction site will have recovered and that the host fishes have recolonized the area. Based on the results of the 2009 survey the need for further monitoring will be assessed by IDNR and IDOT. *See Authorization Section of this document for further details regarding monitoring.

As stated in the April 1996 Technical Report (working draft) titled - "Measures to minimize harm to *Lampsilis higginsi* [federally endangered Higgins Eye mussel] caused by passage of commercial navigation vessels in the upper Mississippi River" [prepared by the U.S. Army Corps of Engineers-Waterways Experiment Station]: Relocation is one of several methods that can be used to protect freshwater mussels. Relocation can be used to recolonize areas where previous populations were extirpated, to remove mussels from proposed construction sites, to boost numbers of endangered species, or to protect against high densities of the zebra mussel *(Dreissena polymorpha)*. The survival of relocated mussels is closely linked to habitat quality.

Relocation sites should have the same conditions of substratum type and stability, and water velocity as the original habitat. Research from the federally endangered Higgins Eye mussel *(Lampsilis higginsi)* recovery team, under the guidance of the United States Fish and Wildlife Service, has determined that minimal mortality (<12%) and high recovery rate (>88%) were shown when aerial exposure of mussels was less than four (4) hours and when relocations were conducted in spring or autumn when air (12-18 C) and water temperature (15-23 C) were moderate.

As per standard IDOT construction guidelines, construction personnel associated with the FAP 827 (IL 15/IN 64) project will implement sediment control and construction management measures to minimize the extent and duration of project related disturbance to the Wabash River and any potential for direct/indirect impacts on mussels and/or mussel habitat. These measures may include the use of coffer dams, silt fencing, or other sediment control measures to limit downstream sedimentation during construction.

In addition, through a cooperative agreement with the U.S. fish and Wildlife Service, all Illinois Department of Natural Resources field staff (including Illinois Natural History Survey staff) have authority under Section 6 of the Endangered Species Act to conduct surveys for federally listed species. In addition, an Incidental Take Statement was rendered as a part of a Biological opinion of No Jeopardy by the U.S. Fish and Wildlife Service for the Mt. Carmel bridge construction and associated activities. This Statement includes several nondiscretionary measures that must be undertaken by the Federal Highway Administration through the Illinois Department of Transportation before, during, and after construction. It also includes permission to carry out those measures that result in take of federally listed fat pocketbook mussel.

The Illinois Department of Transportation has the legal responsibility for the implementation and over sight of the project. All federal and state laws, regulations, permits, and commitments will be adhered to. The project has received an individual Section 404 permit from the U.S. Army Corps of Engineers (Louisville District); water quality certification from Illinois Environmental Protection Agency and the Indiana Department of Environmental Management; Biological Opinion and Incidental Take authorization from the U.S. Fish and Wildlife Service; and an Incidental Take Permit from Indiana Department of Natural Resources.

5. Any measures required under Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], will be performed:

Additional measures are listed below under "Authorization(s)" [fat pocketbook mussel]. This authorization is, by definition, subject to those terms and conditions and official IDOT signature(s) on this authorization indicates their commitment to performing those measures.

6. The public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application:

IDOT (in conjunction with the Illinois Natural History Survey), prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and IDOT's request for authorization for incidental take of the fat pocketbook mussel were received by the Illinois Department of Natural Resources (Department) on 4 December 2007. Public notice of IDOT's request for authorization of the incidental take of fat pocketbook mussels was published in the Edwardsville Intelligencer (Official State newspaper) and the Mt. Carmel Daily Republican Register on January 9, 2008, as well as on January 16, 2008 and January 23, 2008. Public comments on IDOT's conservation plan were accepted by the Department until February 23, 2008. One (1) non-technical comment was received by Diana M. Burns of Mt. Carmel, Illinois on January 14, 2008 by Joseph Kath of the IDNR. These comments were formally addressed by IDOT in a correspondence dated March 6, 2008 and remain in the project file in Springfield, Illinois.

Authorization

It is the determination of the Department that the measures to be implemented by IDOT and the INHS will adequately minimize and mitigate for the anticipated taking (relocation) of a small number of fat pocketbook mussels due to the to the removal and replacement of the Illinois Route 15/Indiana Route 64 bridge over the Wabash River (FAP 827: IDOT Job No. P-97-016-93), in Wabash County, Illinois. Further, it is our opinion that the take (relocation) authorized herein would not diminish the likelihood of the survival of the fat pocketbook mussel in the wild within the State of Illinois, the biotic community of which the species is a part or the habitat essential to the species' existence in Illinois.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], this authorization is issued subject to the following additional terms and conditions:

1. This authorization is effective upon signature of the Department and shall remain in effect for a period of seven (7) years after IDOT approval of the project punch list (otherwise referred to as the "project completion date") for the proposed bridge repair/replacement, unless terminated pursuant to Section 5.5. of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80].

2. Prior to demolition/repair of the existing bridge and construction/repair of the new IL 15/IN 64 (FAP 827) - Wabash River Bridge, Wabash County, IL./Gibson County, IN. - IDOT Job No. P-97-016-93, IDOT/INHS shall conduct, or cause to be conducted, a thorough survey of the reach of the river that will be directly affected by construction activities and shall relocate any and all (listed and/or non-listed species) freshwater mussels found within the area that will be directly affected by the bridge replacement to suitable habitat preferably upstream of the project site. Handling of mussels shall be in compliance with any and all conditions and/or protocols included in the state and/or federal authorizations for this work. Relocated mussels shall be identified to species and enumerated. A report on the species and numbers of mussels relocated and the location(s) at which they were released shall be provided to the Department within 90 days of completion of the relocation.

3. The relocation area shall be an area with suitable stable substrates and a similar unionid assemblage that is near the project area. The relocation area shall either be 6,560 feet upstream of the construction zone or downstream near the end of Patoka Island. The temporary holding of mussels shall be in containers that allow the animals to remain moist and un-crowded. The relocation shall occur between May 1 and November 1, 2008 and will be done as to avoid extreme temperatures.

4. IDOT/INHS shall conduct, or cause to be conducted, a thorough survey of both the construction area (within existing right-of-way) and the mussel relocation site(s) for freshwater mussels in the third (3rd) and sixth (6th) year(s) following completion of bridge construction. "Completion" shall be defined as the date the bridge is officially open for public use. For example, if the FAP 827 bridge is completed in 2009, these surveys shall be conducted in 2012 and 2015. Freshwater mussels located within the construction right-of-way and relocation site(s) shall be identified to species and enumerated and the length of each mussel shall be measured to the nearest millimeter. Handling of mussels shall be in compliance with any and all conditions and/or protocols included in the state and/or federal authorizations for this work. A report on the species, numbers, and sizes of mussels found shall be provided to the Department within 90 days of the completion of each survey. Each report shall also include a qualitative evaluation of the habitat for freshwater mussels being provided by the construction right-of-way area and the relocation site(s) and the manner in which that habitat has changed since the previous survey.

5. All mussels encountered within the State of Illinois during this project shall be subject to the general U.S. Fish and Wildlife Service handling protocol for determining presence/absence of species as found in "Section H" of the attached Federal Fish and Wildlife document.

6. IDOT's Erosion and Sediment Control, Landscape Design Criteria Manual shall be used for this project. This Manual utilizes the latest techniques in sediment and erosion control design and implementation. The project shall be restricted to the right-of-way. The right-of-way is approximately 200 feet in width. Erosion and sediment control shall be used during construction of the project. It is understood that up to 8 individuals of the fat pocketbook could be taken. Approximately 1.4 acres of river habitat could be affected by pier placement, temporary fills, bridge removal, and potential sediment plumes.

7. During construction, adjacent land areas shall contain erosion and sediment control features to keep these suspended solids from reaching the river. Areas of temporary impacts, including wetlands and uplands, will be re-vegetated using native plants species. The Departments Erosion and Sediment control policy will be followed and will be in compliance with the U.S. Army Corps of Engineers Section 404 permit, the water quality certification policies of Illinois and Indiana, and the requirements within the NPDES construction permit. It is expected, that after the in stream work has been completed, the area will be available for re-colonization by all species of mussels, including the fat pocketbook.

8. Note that through a cooperative agreement with the U.S. fish and Wildlife Service, all Illinois Department of Natural Resources field staff (including Illinois Natural History Survey staff) have authority under Section 6 of the Endangered Species Act to conduct surveys for federally listed species. In addition, an Incidental Take Statement was rendered as a part of a Biological Opinion of No Jeopardy by the U.S. Fish and Wildlife Service for the Mt. Carmel bridge construction and associated activities. This Statement includes several nondiscretionary measures that must be undertaken by the Federal Highway Administration through the Illinois Department of Transportation before, during, and after construction. It also includes permission to carry out those measures that result in take of federally listed fat pocketbook mussel.

9. The Illinois Department of Transportation has the legal responsibility for the implementation and over sight of the project. All federal and state laws, regulations, permits, and commitments shall be adhered to. The project has received an individual Section 404 permit from the U.S. Army Corps of Engineers (Louisville District); water quality certification from Illinois Environmental Protection Agency and the Indiana Department of Environmental Management; Biological Opinion and Incidental Take authorization from the U.S. Fish and Wildlife Service; and an Incidental Take Permit from Indiana Department of Natural Resources.

10. The effective period of this authorization may be altered by mutual agreement between IDOT/INHS and the Department.

11. This authorization may be revoked pursuant to Section 5.5 of the Act if the Department finds that IDOT/INHS has failed to comply with any of these terms and conditions or has been responsible for the take of any fat pocketbook mussels beyond that which is incidental to the removal and replacement of the Illinois Route 15/Indiana Route 64 bridge over the Wabash River (FAP 827: IDOT Job No. P-97-016-93), in Wabash County, Illinois.

12. The IDOT official identified on the last page of this document is authorized to execute this agreement. Execution by IDOT indicates acceptance of all terms and conditions described in this document.

For the IL. Department of Natural Resources

Mike Conlin

Mike Conlin, Acting Director
Office of Resource Conservation

5.28.08
Date Signed

For the IL. Department of Transportation

Signature

Roger L Driskell
Please print name and official title
Deputy Director of Highways,
Region 4 Engineer

6-30-08
Date Signed