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 wavy-rayed lampmussel *(Lampsilis fasciola)* and the State threatened purple wartyback mussel (*Cyclonaias tuberculata*) in Vermilion County, Illinois (as described/shown in the conservation plan received by the Department on 19 March 2009) 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/replacement/repair of the Illinois Route 1 bridge over the North Fork of the Vermilion River (FAP 332: BDE Seq.No. 14901), in Vermilion County, Illinois.

Procedural History

IDOT 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 wavy-rayed lampmussel and the purple wartyback mussel were received by the Illinois Department of Natural Resources (Department) on 19 March 2009. Public notice of IDOT's request for authorization of the incidental take of these mussels was published in the Arlington Heights Daily Herald (Official State newspaper) and the Danville Commercial News on March 26, 2009, as well as on April 2, 2009 and April 10, 2009. Public comments on IDOT's conservation plan were accepted by the Department until May 11, 2009. No comments were received by the public during the period of March 26, 2009 through May 11, 2009.

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:

> This bridge scour mitigation project is located at the 2nd Principal Meridian, Township 22 North, Range 12 West, Southwest Quarter of the Southwest Quarter of Section 25, in Vermilion County, Illinois; Latitude: 40.3311453424456 North/Longitude: -87.6612200978165 West. The two (2) State listed mussel species of concern are the:
>
> Wavy-rayed lampmussel
>
> The wavy-rayed lampmussel inhabits clear rivers and streams with steady water flow and gravel or sand substrate often stabilized with cobble or boulders. It is most abundant in small to medium sized streams. Wavy-rayed lampmussels spawn in August, but the glochidia (larvae) are not released until the following summer. Two (2) known fish hosts for this mussel species are the smallmouth bass (*Micropterus dolomieu)* and largemouth bass (*Micropterus salmoides*).

Purple Wartyback

Purple wartybacks are found in gravel or mixed sand/gravel in waterways ranging in size from small streams to large rivers. The species was once widely distributed in Illinois, but is now found in only a few basins, including this one. The spawning period for the purple wartyback mussel begins in June and ends in August. The host species are the black bullhead (*Ameiurus melas*), yellow bullhead (*Ameiurus natalis)*, channel catfish (*Ictalurus punctatus*), and flathead catfish (*Pylodictis olivaris*).

The North Fork of the Vermilion River is approximately 80 feet in width with an approximate depth of 10 feet at this project/bridge location. The proposed project will repair damage to the bridge structure caused by scour. The proposed construction activities associated with the scour mitigation will likely result in the take of wavy-rayed lampmussels and purple wartybacks in the area of the construction activities.

Anticipated adverse effects on the listed species:

Situations caused by the construction activities necessary to mitigate the scour damage at this structure will most likely be the leading cause of adverse effects to most freshwater mussels, including the wavy-rayed lampmussel and purple wartyback. These activities include, but are not limited to, in stream work, construction of a temporary work pad, and stabilization of the stream banks. Any mussels that are not relocated will likely be crushed or buried by the work activities. Overall, it is technically impossible to guarantee relocation of all mussels in the project area, so some take will likely occur.

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.

All applicable erosion and sediment control measures will be used during construction of the project. Before construction begins, Illinois Natural History Survey (INHS) representatives shall relocate all species of mussels (all mussels) found in the immediate vicinity of the structure (existing right-of-way) to a suitable habitat elsewhere in the North Fork of the Vermilion River. The footprint of the work zone has been minimized to reduce the impact to the mussel species habitats.

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, any applicable adjacent land areas will contain erosion and sediment control features to keep these suspended solids from reaching the river. IDOT's Erosion and Sediment control policy will be followed and will be in compliance with comparable U.S. Army Corps of Engineers Section 404 permits, the water quality certification policies of

Illinois, and comparable requirements within typical NPDES construction permit. It is expected, that after the in-stream work has been completed, the area will potentially be available for re-colonization by all species of mussels including the wavy-rayed lampmussel and the purple wartyback mussel.

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

Overall, the duration of the bridge scour mitigation work at this project site shall be minimized in an effort to limit and reduce impacts to all State listed aquatic species - most notably, the wavy-rayed lampmussel and the purple wartyback mussel.

The Illinois Department of Transportation (IDOT) shall ensure that the contractor performing the work will implement best management practices in order to minimize impact to listed species. Best management practices are described in detail in the IDOT Bureau of Design and Environment Manual Chapter 59 and IDOT's Standard Specifications for Road and Bridge Construction Section 200 and can be accessed through the IDOT website.

Any areas disturbed by the scour countermeasures shall be re-seeded using IDOT class 7 seed mixture and covered with erosion control blankets. If needed, any temporary access pads shall be constructed in accordance with Check Sheet 8 of the IDOT Supplemental Specifications and Recurring Special Provisions, adopted January 1, 2009, and any provisions provided in the plans and contract documents. After completion of the in-stream work, any temporary access pads shall be removed and the area restored to its original configuration.

Most notably, in order to minimize and mitigate the affects of the project on the wavy-rayed lampmussel and the purple wartyback mussel, IDOT (through the direct actions of Illinois Natural History Survey/INHS staff) shall relocate **all** mussels found within the project corridor prior to any construction. The relocation area will be to an area with suitable stable substrates and if possible, a similar unionid assemblage that is near the project area. The temporary holding of mussels shall be in containers that allow the animals to remain moist and un-crowded.

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

As stated above, specified erosion and sediment control practices will be implemented. Inspections to ensure proper working order and maintenance shall be made weekly by IDOT staff in order to ensure compliance with applicable environmental regulations.

In addition, IDOT shall conduct, or cause to be conducted, a thorough survey of the construction area following the completion of bridge construction/repair. "Completion" shall be defined as the date the bridge is officially open for public use. All freshwater mussels located within the construction right-of-way shall be identified as to species, numbered, and measured. 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, number, and sizes of

mussels found shall be provided to the IDNR (Attn: Joseph Kath-Division of Natural Heritage) within 60 days of the completion of each survey. Each report shall also include a qualitative evaluation of the habitat for freshwater mussels in the construction right-of-way area and the manner in which that habitat has changed since the last survey. *See Authorization Section of this document for further details regarding monitoring.

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 19 March 2009, IDOT verified that adequate funding exists to support and implement all (mitigation) activities described in the official Conservation Plan (for the wavy-rayed lampmussel and the purple wartyback mussel). As an official IDOT project, the FAP 332 (IL 1) 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.

The estimated cost of the bridge replacement is $300,000.00. 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 mussel species of concern. The cost of the scour mitigation at this structure is part of a contract that includes scour mitigation measures at six (6) structures. The INHS has a contractual obligation with IDOT for evaluation and study of threatened and endangered species.

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:

In order to minimize and mitigate the affects of the project on the wavy-rayed lampmussel and the purple wartyback mussel, the IDOT/INHS shall relocate **all** mussels collected in the project corridor (both common and listed species). The mussel relocation shall be to an area with suitable stable substrates and if possible, a similar unionid assemblage that is near the project area. The temporary holding of mussels will be in containers that allow the animals to remain moist and un-crowded.

Multiple follow-up mussel surveys and monitoring efforts shall occur. All surveys shall be conducted during appropriate water level and temperature conditions. The purpose of these monitoring efforts is to determine if any mussels, including the wavy-rayed lampmussel and the purple wartyback mussel, have recolonized the area. It is anticipated that the habitat at the construction site will eventaully recover and that the host fishes will also recolonize the impact area. *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 this bridge scour mitigation project will implement sediment control and construction management measures to minimize the extent and duration of project related disturbance to the Vermilion River and any potential for direct/indirect impacts on mussels and/or mussel habitat.

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)". 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 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 wavy-rayed lampmussel and the purple wartyback mussel were received by the Illinois Department of Natural Resources (Department) on 19 March 2009. Public notice of IDOT's request for authorization of the incidental take of these mussels was published in the Arlington Heights Daily Herald (Official State newspaper) and the Danville Commercial News on March 26, 2009, as well as on April 2, 2009 and April 10, 2009. Public comments on IDOT's conservation plan were accepted by the Department until May 11, 2009. No comments were received by the public during the period of March 26, 2009 through May 11, 2009.

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 likely small number of listed mussels, namely wavy-rayed lampmussels and purple wartyback mussels, due to the bridge scour mitigation project associated with the FAP 332 - IL. Route 1 bridge over the Vermilion River in Vermilion County, Illinois. Further, it is our opinion that the take (relocation) authorized herein would not diminish the likelihood of the survival of these listed mussels 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 five (5) years after IDOT approval of the project punch list (otherwise referred to as the "project completion date") for the proposed bridge repair/scour mitigation, 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 the removal/replacement/repair of the Illinois Route 1 bridge over the North Fork of the Vermilion River (FAP 332: BDE Seq.No. 14901), in Vermilion County, Illinois, 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 repair to suitable habitat preferably upstream of the project site. The relocation area shall be an area with suitable stable substrates and if possible, a similar unionid assemblage that is near the project area. 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 60 days of completion of the relocation.

3. 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 second (2nd) and fifth (5th) year(s) following completion of bridge construction/scour repair. "Completion" shall be defined as the date the bridge is officially open for public use. For example, if the FAP 332 bridge work is completed in 2010, these surveys shall be conducted in 2012 and 2015. All 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 60 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.

4. 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.

5. 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. Erosion and sediment control shall be used during construction of the project.

6. 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 Department's Erosion and Sediment control policy will be followed and will be in compliance with comparable U.S. Army Corps of Engineers Section 404 permits, the water quality certification policies of Illinois, and comparable requirements within typical NPDES construction permit.

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

8. 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 listed mussels beyond that which is incidental to the repair/scour mitigation of the Illinois Route 1 bridge over the North Fork of the Vermilion River (FAP 332: BDE Seq.No. 14901), in Vermilion County, Illinois.

9. 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

John D. Rogner
John Rogner, Assistant Director
Office of Resource Conservation

5/11/09
Date Signed

For the IL. Department of Transportation

Joseph E. Crowe
Signature

Joseph E. Crowe, Regional Engineer
Please print name and official title

8/6/09
Date Signed