

**Conservation Plan for the Fat Pocketbook Mussel (*Potamilus capax*) at the Mt. Carmel Bridge (IL 15/IN 64) over the Wabash River (Wabash County, Illinois and Gibson County, Indiana)**

**1. Description of the impact likely to result from the proposed taking**

**A. Legal description of the project area**

The project area is depicted on the Mount Carmel U.S. Geological Survey Topographic Quadrangle 7.5' series, 1959, photorevised 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).

**B. Biological data**

A mussel survey of the Mt. Carmel bridge site was accomplished on September 14, 2007 and yielded 253 live mussels from 18 species. Eight individuals of the federal, Illinois, and Indiana endangered species, fat pocketbook (*Potamilus capax*), were recorded at the bridge site.

**C. Habitat and description of activities that will result in take**

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).

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.

**D. Explanation of the 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 1/2 years.

## **2. Measures the applicant will take to minimize and mitigate that impact**

### 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 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. 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 it is planned 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.

A follow-up mussel survey and monitoring 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.

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 plan prepared by the Illinois Natural history survey is attached.

E. Projected costs of each measure that will minimize or mitigate the effects of proposed action on endangered or threatened species.

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.

F. Adaptive management practices that will be used to deal with changed or unforeseen circumstances that affect the effectiveness of measures instituted to minimize or mitigate the effects of the proposed action on endangered or threatened species.

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.

G. Verification that funding to support mitigation activities will be available for the life of conservation plan.

The Illinois Department of Transportation has contractual obligation with the Illinois Natural History Survey. The Survey will be in charge of the mussel relocation and the monitoring survey.

### 3. Alternative actions that would not result in take.

Three alternatives were considered; the no-build, rehabilitation of the existing structure; and the construction of a new structure adjacent to the existing structure and demolition of the old structure. Only the no-build alternative would not result in a take.

### 4. Data and information to assure that the proposed taking will not reduce the likelihood of the survival of the species.

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 sites in the Wabash River in Gallatin, Wabash, and White counties in Illinois and in Gibson, Knox, and Posey counties in Indiana.

### 5. An implementing agreement, which shall include, but not be limited to:

A. Names of all participants in the execution of the conservation plan, including public bodies, corporations, organizations, and private individuals.

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Region 4  
Deputy Director of Highways  
Illinois Department of Transportation  
Region 4, District 7  
Effingham, Illinois

B. The obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities in the conservation plan and a schedule for preparation of progress report to be provided the Department.

The Illinois Department of Natural Resources is responsible for the review of this Conservation Plan and for subsequent issuance of the Incidental Take Authorization.

The Illinois Natural History Survey, in consultation with the Illinois Department of Transportation and the Illinois Department of Natural Resources, will relocate the fat pocketbook from the construction site to a site up or downstream of the project area. A

post construction survey will be done at the construction site to determine the success of fat pocketbook re-colonization. Surveys will be conducted at the relocation site to determine the success of the fat pocketbook survival.

The Illinois Department of Transportation is responsible for the construction site, the placement and function of the erosion and sediment control, all items in the Incidental Take Authorization, and coordination with the Illinois Department of Natural Resources, U.S. Fish and Wildlife Service, and the Indiana Department of Natural Resources.

C. Assurances that each participant in the execution of the conservation plan has the legal authority to carry out their respective obligations and responsibilities under the conservation plan.

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 and related activities described elsewhere in this document. 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.

D. Assurances of compliance with all other federal, state, and local regulations pertinent to the proposed action and to execution of the conservation plans.

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.

E. Copies of any federal authorizations for taking already issued to the applicant.

Attached is a copy of the Biological Opinion and Incidental Take authorization from the U.S. Fish and Wildlife Service.

F. For projects that will result in the taking of endangered or threatened species of plants, copies of expressed written permission of the landowner.

Not Applicable.