



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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June 3, 2014

Keith Lynch  
Federal Highway Administration  
228 Walnut Street, Room 508  
Harrisburg, PA 17101-1720

RE: USFWS Project #2011-0727

Dear Mr. Lynch:

This responds to your letter of February 27, 2014 requesting our review of the Tier II biological assessment for the Cochran Truss Bridge (S.R. 173) Replacement Project, located in the Borough of Cochran, Crawford County, Pennsylvania. Your request to initiate formal consultation was received on March 3, 2014. The following comments are provided pursuant to the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

On December 15, 2011, the Fish and Wildlife Service (Service) issued a programmatic biological opinion (PBO) to the Federal Highway Administration (FHWA) regarding the effects of the Pennsylvania Department of Transportation (PennDOT) bridge replacement, removal, restoration/rehabilitation, and preservation program within the Ohio River basin in Pennsylvania (hereafter referred to as the Bridge Program). The Service's PBO evaluated the potential effects of PennDOT's bridge program activities on the endangered northern riffleshell (*Epioblasma torulosa rangiana*) and clubshell (*Pleurobema clava*) mussels. The PBO was revised on December 7, 2012, to consider three recently-listed species, the rayed bean (*Villosa fabalis*), snuffbox (*Epioblasma triquetra*), and sheepnose (*Plethobasus cyphus*). The PBO was revised again on December 13, 2013, to consider the newly-listed rabbitsfoot mussel (*Quadrula cylindrica cylindrica*). In this PBO, we determined that carrying out the Bridge Program during the five-year period considered, with full implementation of avoidance, minimization, and conservation measures, as proposed, was not likely to jeopardize the northern riffleshell, clubshell, rayed bean, snuffbox, sheepnose, or rabbitsfoot mussels. All references to the PBO are intended to correspond to the latest revision, dated December 13, 2013.

Although the Service provided a PBO for the Bridge Program to the FHWA and PennDOT, the Service will review site-specific projects that the project proponents determine "may affect" federally listed species. The Service will determine if any adverse effects are likely to occur as a result of a site-specific project in a manner, or to an extent, not evaluated or

previously disclosed and considered in the Service's PBO. We consider this site-specific project analysis to be "Tier 2" of the consultation process, with the programmatic consultation (and resulting PBO) constituting the "Tier 1" consultation. Our project-specific (Tier 2) consultations will focus on: 1) compliance with the reasonable and prudent measures and associated terms and conditions in the PBO; 2) consistency with the scope and effects previously analyzed in that opinion; 3) project-specific incidental take versus take estimated in the PBO; and 4) any project-specific reasonable and prudent measures and associated terms and conditions that may further reduce the likelihood or quantity of take. If implementation of the measures outlined in the PBO can avoid the take of listed mussels, such that the Service can determine that a project is not likely to adversely affect listed species, no further evaluation by the Service is necessary, and section 7(a)(2) consultation will be considered complete for that project with documentation provided via our written concurrence.

We reviewed the information provided in the "Tier 2" Cochranon Truss Bridge (S.R. 173, locally known as Adams Street) replacement project biological assessment, which describes the potential effects of the proposed project on federally listed species. The proposed project type (*i.e.*, bridge replacement) and the anticipated effects were discussed and evaluated in the Bridge Program biological assessment and PBO. Therefore, this consultation qualifies as a "Tier 2" consultation under the Bridge Program PBO (Tier 1) consultation.

This document also includes the Service's conference opinion on the effects of the Cochranon Truss Bridge replacement project on proposed critical habitat for the rabbitsfoot mussel. As the PBO did not consider the effects of the Bridge Program on critical habitat, those effects are considered in this project-specific conference opinion.

#### FHWA and PennDOT Effect Determinations for Listed Species

In response to a November 19, 2009, search of the Pennsylvania Natural Diversity Inventory (PNDI) database, PennDOT initiated a freshwater mussel survey to determine if the proposed Cochranon Truss bridge replacement project *may affect* northern riffleshell or clubshell. Through a search of the Pennsylvania Natural Diversity Inventory (PNDI) database, potential conflicts with the resources under the jurisdiction of the Service were identified. The receipt from that search (PNDI #20110420294334) was provided to us on May 29, 2011. In response, the Service letter of May 19, 2011, recommended that surveys be completed in the project action area to determine the possible effects of the project on clubshell and riffleshell. However, PennDOT's consultant, EnviroScience, Inc., had already completed a mussel survey at the Cochranon Truss Bridge in August 2010. Based on the results of that survey, and an evaluation of the anticipated effects resulting from replacement of the Cochranon Truss Bridge, PennDOT determined that the project "may affect, and is likely to adversely affect" northern riffleshell, which had been documented in the action area. Subsequently, the Service listed snuffbox and rayed bean as endangered species. Both of these species were also documented in the action area during the August 2010 survey. Two additional species, the endangered clubshell and threatened rabbitsfoot mussel were not detected in the action area, but are known from nearby reaches of French Creek. Therefore, PennDOT and FHWA determined the Cochranon Truss Bridge replacement project may affect, and is likely to adversely affect all five endangered or threatened freshwater mussels (*i.e.* clubshell, northern riffleshell, rayed bean, snuffbox, rabbitsfoot).

Based on our review of the Cochranon Truss Bridge biological assessment, the Bridge Program biological assessment, mussel survey results, and best available scientific information, the Service concurs that four of these five mussel species (*i.e.*, the northern riffleshell, rayed bean, snuffbox and rabbitsfoot) are likely to be adversely affected. Clubshell mussels were not detected during the August 2010 survey and have not been found in French Creek within at least 4 miles downstream of the Cochranon Bridge and more than 10 miles upstream. Consequently, the Service concludes that clubshell are not likely to occur in the action area of the Cochranon Truss Bridge, and therefore are not likely to be adversely affected by the proposed project.

#### FHWA and PennDOT Effect Determination for Proposed Critical Habitat

Proposed critical habitat for the rabbitsfoot mussel occurs within the project action area. Under Section 7(a)(4) of the Act and the associated Fish and Wildlife Service regulations, Federal agencies may confer with the Service on actions that “may affect” proposed critical habitat. Federal agencies are required to confer with the Service on actions that are “likely to destroy or adversely modify proposed critical habitat”. When critical habitat is listed, Federal agencies must consult with the Service on any action they authorize, fund, or carry out if those actions “may affect” designated critical habitat. In the project biological assessment (page 29), PennDOT and the FHWA determined that the proposed project may affect proposed rabbitsfoot critical habitat but that adverse modification will not occur.

The following Tier 2 biological opinion and conference opinion considers the effects to northern riffleshell, rayed bean, snuffbox, rabbitsfoot, and rabbitsfoot critical habitat from the removal of the existing Cochranon Truss Bridge and bridge pier; construction of a new, replacement bridge; construction and use of temporary construction pads, cofferdams, and access areas; and implementation of avoidance and minimization measures, as described in the biological assessment (BA). We also consider a mussel salvage that is proposed to minimize the number of federally listed species killed during bridge replacement activities. This Tier 2 opinion estimates the incidental take anticipated due to implementation of the Cochranon Truss Bridge replacement project and the cumulative total incidental take due to the Bridge Program.

#### Description of the Proposed Action

The existing structure is a two-span truss bridge that was constructed around 1929. This bridge is 307 feet long and consists of two travel lanes. The existing bridge is about 23 feet wide and includes a cantilevered sidewalk on the upstream side of the bridge. The existing bridge has a single, mid-channel, 5.25-foot-wide concrete pier. Bridge deck runoff drains directly into French Creek via scuppers (holes) in the bridge deck.

Demolition of the existing bridge will be completed by dismantling the structure by picking off workable sections, and placing them on the adjacent shore for complete demolition. The existing pier will be similarly removed.

The proposed new structure is a three-span bridge set on abutments and two, 3-foot-wide concrete instream piers to support the proposed 336-foot-long bridge, which will be placed in the same location as the existing bridge. The proposed new bridge has two 12-foot-wide travel

lanes, two 4-foot-wide shoulders for a total curb-to-curb width of 32 feet. In addition, 5-foot-wide sidewalks are proposed and the total bridge width described in the BA is 41.5 feet. The three-span deck will be constructed of reinforced concrete supported on pre-stressed concrete PA bulb-tee beams. The proposed deck will be continuous over the piers with no joints in the concrete, as this eliminates bridge deck joints and reduces future bridge maintenance. The outside edges of the deck will be lined by 3.5-foot-high concrete barriers, along with improved guide rails and guide rail end treatments on the approaches to provide improved crash protection compared with the existing bridge. The bridge deck of the new structure will convey runoff along the bridge barriers to the approaches where it will be discharged to rock-lined dry swales before entering French Creek.

In conjunction with the bridge replacement, the roadway approaches will be reconstructed approximately 175 feet on the west side and 320 feet on the east side of the bridge (including approach slabs). Stormwater drainage at the bridge approaches currently drains to two inlets that lead to a ditch paralleling Adams Street. These inlets and the outlet culvert-pipe will be replaced, with no predicted increase to the flow over the existing condition.

Both demolition of the existing bridge and construction of the new bridge will be completed from shore and a temporary instream causeway positioned upstream of the existing structure. The causeway will consist of two work platforms connected by a temporary bridge. Causeway sections will be constructed within vertical walls (such as stone gabion baskets or sheet piling) to limit the area of disturbance that would otherwise result from sloped sides. Causeway construction will be staged, with the first causeway installed in mid-March and second in mid-April. Removal of both causeway sections and the temporary bridge is planned for October to complete the instream portion of demolition and construction in a single construction season. In addition to the causeway work platforms, two cofferdams will be constructed at the proposed pier locations. Pile driving and pier construction will be completed within these cofferdams. Further, each pier and cofferdam location will also have an additional section of causeway extending downstream from the two work platforms.

In the BA, the total area of proposed direct instream disturbance is 1,268.4 m<sup>2</sup> (13,653 ft<sup>2</sup>). A portion of this (21.8 m<sup>2</sup>; 235 ft<sup>2</sup>) is currently occupied by the existing pier location and does not represent streambed disturbance and is not mussel habitat. Therefore, based on our calculations and the information provided, we estimate that approximately 1,246.6 m<sup>2</sup> (13,418 ft<sup>2</sup>) of streambed will be directly disturbed by the proposed project.

Interrelated and interdependent actions are those that, but for the bridge project, have no independent utility, or would not otherwise occur. Interrelated and interdependent actions associated with the Cochran Truss Bridge replacement project include (1) relocation of existing overhead utilities (cable, phone, electric) with all direct disturbances anticipated to occur outside the wetted stream channel, and (2) relocation of a gas line located beneath French Creek just upstream from the bridge. This line will be relocated by the owner a year prior to bridge construction. Relocation is proposed to be completed via directional drilling. In their BA, PennDOT and FHWA do not anticipate any direct or indirect to federally listed endangered or threatened species. The pipeline owner will seek any necessary permits separately for this portion of the action, which may, therefore, have no federal nexus.

As described in the PBO for Bridge Program actions in Management Unit 1, including the Cochranon Truss Bridge, impact minimization can be achieved through a mussel salvage in the anticipated areas of direct streambed disturbance and surrounding buffer. A mussel salvage is proposed at the Cochranon Truss site within the direct disturbance areas (permanent and temporary impact areas) and a 0.75-meter buffer. The buffer is included to account for any local downstream movement of mussels between salvage and construction, and includes uncertainty regarding exact locations of scour and sedimentation effects immediately adjacent to the causeways/piers, and any small variations in the placement of the causeways/piers by the contractor. The salvage is proposed during low-flow conditions in August or early September of 2014, with construction planned to start in March of 2015.

The planned direct disturbance area will be marked by PennDOT prior to the start of the salvage effort. The salvage will be completed by an experienced mussel surveyor using agency-approved techniques that have been successful at similar PennDOT project sites in French Creek. A target search rate of 5 minutes per square meter is proposed for a total search effort of 60 person-hours. The project proponents anticipate a greater than 70 percent success rate at finding mussels. A comparable relocation site will be identified prior to the mussel salvage. The Elk River at Queen Shoals, WV is proposed as the relocation site, although other sites, including the Shenango River in Pennsylvania, Big Darby Creek in Ohio, or the Vermillion River in Illinois may be feasible. A detailed salvage plan will be submitted to the USFWS and PFBC for review and approval prior to fieldwork. Two post-construction monitoring events are proposed, approximately one and three years following the translocation, to assess survival of relocated animals. A report will be provided to the USFWS and PFBC describing the results of the salvage effort including an actual estimate of take, as well as a report describing the mussel translocation monitoring effort.

Bridge demolition and construction is anticipated to start in the early spring of 2015, and the new bridge is expected to be substantially complete and opened to traffic by the end of 2015. The new bridge has a design life of 100 years. Over the design life of this bridge, minor rehabilitation actions are anticipated, including deck patching, resurfacing or partial depth replacement; miscellaneous concrete repairs to the barriers; and minor repairs to beams and other structural members, including bearings, abutments and piers.

The action area described in the BA (Page 24) includes the section of French Creek extending from 15 m (50 ft.) upstream of bridge to 61 m (200 ft.) downstream to encompass the section of the stream and adjacent shoreline where any direct and indirect effects from the project are anticipated to occur. This is described as the areas of direct streambed disturbance (causeway system, bridge pier, etc.) and streambed scour; earth disturbance at the bridge approaches and staging areas with possible soil erosion and resulting siltation and sedimentation; and temporary and permanent hydrologic alteration. The BA includes in the action area, the disturbance necessary to conduct directional drilling during the gas line relocation. By contrast, the August 2010 mussel survey area is described as encompassing all direct and indirect adverse effects. That study encompassed 330 linear meters of stream, extending from 70 meters upstream to 260 meters downstream of the Cochranon Truss Bridge.

Based on the project description the causeway construction pads will extend more than 50 feet upstream of the centerline of the existing bridge and, for a period, will block much of the flow in French Creek creating backwater effects. The changed pier configuration (going from one to two instream piers) is likely to alter flow patterns downstream. Therefore, we do not concur that

the action area defined in the BA will encompass all indirect effects, but conclude that the mussel survey area better described the instream portion of the action area, which further extends along S.R 173 to include the onshore approach of approximately 175 ft. on the west side and 320ft. on the east side of the bridge.

Consistent with commitments detailed in the programmatic biological assessment, a list of avoidance and minimization measures have been incorporated into the Cochranon Truss Bridge replacement project design as described on pages 18 to 24 of the biological assessment. A significant deviation from those commitments is the use of two instream piers instead of one, as exists at the current bridge.

### Status of the Species

Species descriptions, life histories, population dynamics, status and distributions are fully described in the PBO on pages 28 to 40, for the northern riffleshell, rayed bean, snuffbox, and rabbitsfoot and are hereby incorporated by reference. Since issuance of the Service's Tier 1 PBO, there are no substantial changes in status of any of the aforementioned species.

### Status of Proposed Critical Habitat

Critical habitat was proposed for the rabbitsfoot in the October 16, 2012, *Federal Register*. Overall, the Service proposed 2,664 river kilometers (1,655 river miles) in 12 states, including Alabama, Arkansas, Illinois, Indiana, Kansas, Kentucky, Mississippi, Missouri, Ohio, Oklahoma, Pennsylvania, and Tennessee. In Pennsylvania, the Service identified 133 river miles of proposed critical habitat in Crawford, Erie, Mercer and Venango counties as essential to the conservation of the rabbitsfoot mussel. Areas of proposed critical habitat in Pennsylvania include portions of the Allegheny River, French Creek, and the Shenango River. No critical habitat is proposed that is not known to be occupied by the species. The comment period on the proposed rule was re-opened for public comment in the August 27, 2013, *Federal Register*, and again in the May 14, 2014, *Federal Register*.

Primary constituent elements (PCEs) are the physical or biological features that, when laid out in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species. PCE components include features such as space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; and sites for breeding, reproduction, or rearing. In order to be considered critical habitat, an area must have all or most of the PCEs present, with the absent PCEs being readily developable. With respect to rabbitsfoot critical habitat, the PCEs include:

- 1) Geomorphically stable stream channel and banks (channels that maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with habitats that support a diversity of freshwater mussels and native fish (*e.g.*, stable riffles, sometimes with runs, and mid-channel island habitats that provide flow refuges consisting of gravel and sand substrates with low to moderate amounts of fine sediment and attached filamentous algae).



- 2) A hydrologic flow regime (the severity, frequency, duration, and seasonality of discharge over time) necessary to maintain benthic habitats where rabbitsfoot are found and to maintain connectivity of rivers with the floodplain, allowing the exchange of nutrients and sediment for maintenance of the mussel's and fish host's habitat, food availability, spawning habitat for native fishes, and the ability for newly transformed juveniles to settle and become established in their habitats.
- 3) Water and sediment quality (including, but not limited to, conductivity, hardness, turbidity, temperature, pH, ammonia, heavy metals, and chemical constituents) necessary to sustain natural physiological processes for normal behavior, growth, and viability of all life stages.
- 4) The presence and abundance of fish hosts (currently unknown) necessary for recruitment of the rabbitsfoot. The occurrence of natural fish assemblages, reflected by fish species richness, relative abundance, and community composition, for each inhabited river or creek will serve as an indication of appropriate presence and abundance of fish hosts until appropriate host fish can be identified.
- 5) Either no competitive or predaceous invasive (nonnative) species or such species in quantities low enough to have minimal effect on survival of freshwater mussels.

### Environmental Baseline

The Environmental Baseline for the overall Bridge Program action area and for the northern riffleshell, rayed bean, snuffbox, and rabbitsfoot is described on pages 40 to 48 of the Tier 1 PBO, and is hereby incorporated by reference. Since issuance of the Service's PBO, there have been no substantial changes in the environmental baseline for any of the aforementioned species. The environmental baseline for the action area associated with the Cochranon Truss Bridge replacement project is described below.

#### *Status of the Species in the Action Area*

A freshwater mussel survey was conducted in French Creek at the Cochranon Truss Bridge site on August 27 and 28, 2010. The surveyed area encompassed 330 linear meters of stream, extending from 70 meters upstream to 260 meters downstream of the Cochranon Truss Bridge. This area was divided into 40 cells of approximately 450 m<sup>2</sup> (15 m x 30 m) each, and encompasses the anticipated direct and indirect effect area of the proposed action. Each cell was qualitatively searched by at least two surveyors for 40 minutes, for an average search time of 80 person-minutes per cell. Quantitative surveys were conducted between 22 meters upstream and 28 meters downstream of the centerline of the existing bridge. A total of 341, 0.25-square meter quadrats were searched to a depth of approximately 10 to 15 centimeters. Excavated material (aside from boulders) was sieved (0.25 in [1.61 cm] mesh) and searched in a separate streamside location in order to locate all mussels present.

A total of 885 living mussels of 15 species, including the northern riffleshell, rayed bean, and snuffbox, were located during all survey phases combined. The mussel community is dominated

by mucketts (*Actinonaias ligamentina*), which comprised 82.5% of the mussels found, followed by northern riffleshell (6.9%) and kidneyshells (*Ptychobranchnus fasciolaris*) (3.7%). The greatest concentration of mussels is located along the right-descending-bank (western side), largely downstream of the bridge. Comparatively, fewer mussels of any species were found between mid-channel and the left-descending-bank.

In the immediate vicinity of the bridge (*i.e.*, 22 meters upstream to 28 meters downstream), the overall mussel population density is estimated to be 0.897 mussels/m<sup>2</sup>. Study area-wide, the northern riffleshell population density is estimated to be 0.097/m<sup>2</sup> (90% confidence interval of 0.043 to 0.218); while the rayed bean population density is estimated to be 0.012/m<sup>2</sup> (90% confidence interval of 0.002 to 0.061). Snuffbox were detected during qualitative sampling only; therefore, this species is presumably present at a density of less than 0.012/m<sup>2</sup> (the detection limit in this survey). Due to the clumped distribution pattern observed, the local population density is less in the vicinity of proposed direct instream disturbance area upstream of the bridge.

In addition, the rabbitsfoot may be present in the action area. This species is found near the Cochranon Sewage Treatment Facility, approximately 1 mile downstream of the Cochranon Truss Bridge (EnviroScience 2006). Further, the bridge is within an area of proposed critical habitat for rabbitsfoot (USFWS 2012), as discussed below.

#### *Factors Affecting the Species' Environment in the Cochranon Truss Bridge Action Area*

The proposed project is in a rural residential area comprising the Borough of Cochranon and Fairfield Township. There are several buildings near the bridge, along with some commercial developments and agriculture nearby. There is an active Western New York & Pennsylvania Railroad rail line that runs parallel to French Creek and crosses the eastern bridge approach. The confluence of Sugar Creek and French Creek is about 450 feet upstream of the bridge on the eastern side of French Creek. The Cochranon Sewage Treatment Plant outfall is located about 1 mile downstream of the bridge. A 2006 mussel survey in this area documented several mussel species not found in the area of the Cochranon Truss bridge, including rabbitsfoot.

#### *Status of Proposed Critical Habitat in the Action Area*

Proposed critical habitat for rabbitsfoot includes 120.4 river-kilometers (74.8 river-miles) of French Creek from Union City Reservoir Dam northeast of Union City, Erie County, Pennsylvania, downstream to its confluence with the Allegheny River near Franklin, Venango County, Pennsylvania (Unit RF23). This unit was occupied at the time of listing and contains all or some components of the physical and biological features essential to the conservation of the rabbitsfoot, and contains all five PCEs (USFWS 2012). The presence of a diversity of freshwater mussels in the action area demonstrates that all PCEs are present at the Cochranon Truss Bridge site.

#### Effects of the Action

Based on our analysis of the information provided in the Tier 2 BA, we anticipate that adverse effects will result from the Cochranon Truss Bridge replacement project when northern riffleshell, rayed bean, snuffbox and rabbitsfoot are killed or injured. Effects of the

Cochranton Truss Bridge replacement project are expected to be comparable to those that are discussed in the PBO (pages 52 to 62) for bridge replacement projects having features similar to subject bridge (*e.g.*, an instream causeway, piers). Therefore, effects described in the PBO are hereby incorporated by reference, to the extent that they apply to this project.

The Programmatic Biological Assessment estimated that, without avoidance and minimization measures, replacement of the Cochranton Truss Bridge could result in a disturbance area of up to 1,380 m<sup>2</sup>, but that this could be reduced to 814 m<sup>2</sup> with such measures. The disturbance area proposed in the Tier 2 biological assessment is 1,268 m<sup>2</sup>, a portion of which is not currently habitat because of the presence of the existing bridge pier (Table 1). Although some avoidance and minimization of take of northern riffleshell, rayed bean, snuffbox, and rabbitsfoot will be achieved by bridging the two proposed instream construction platforms, the proposed design exceeds the level of streambed disturbance that was considered in the PBO.

**Table 1.** Instream disturbance areas (*i.e.*, direct effects areas) associated with the Cochranton Truss Bridge Project

Activity	Area of Direct Impact (square meters [square feet]) <sup>1</sup>
Causeway work platforms	609 m <sup>2</sup> [6,555 ft <sup>2</sup> ]
Causeway extensions	307 m <sup>2</sup> [3,306 ft <sup>2</sup> ]
Cofferdam and new piers	170 m <sup>2</sup> [1,832 ft <sup>2</sup> ]
Buffer	160 m <sup>2</sup> [1,720 ft <sup>2</sup> ]
<b>Total</b>	1,246 m <sup>2</sup> [13,413 ft <sup>2</sup> ]

<sup>1</sup> Disturbance areas are taken from the biological assessment, Table 6-1. Area proposed for disturbance at the existing pier (21.8 m<sup>2</sup>; 235 ft<sup>2</sup>) is removed because this does not represent mussel habitat. Note: Table 6-1 indicates that 235 ft<sup>2</sup> is 29 m<sup>2</sup> is, not 21.8 m<sup>2</sup>.

PennDOT has minimized potential take by placing some project features in areas of reduced mussel abundance (*e.g.*, selecting an upstream causeway alignment). Mussel populations are typically distributed in a patchy fashion, and the survey report for this site indicates that this is the case at Cochranton Truss Bridge. The configuration of the direct disturbance area avoids some of the greater northern riffleshell, rayed bean and snuffbox population areas. In addition, the observed population densities are less than predicted in the PBO. Therefore, although the disturbance area exceeds the minimized area considered in the PBO of 814 m<sup>2</sup>, the take estimates for listed mussels are less than those considered in the PBO.

Strict implementation of siltation and erosion measures, off-site storage of toxic materials (aside from crane refueling), and construction crew education is necessary to reduce the risk of an accidental or unintended catastrophic event. Such an event could increase the amount of take beyond the level anticipated in this biological opinion and expand the area in which endangered mussels are killed, harmed, or harassed.

Maintaining similar hydrologic conditions around a bridge is an important avoidance and minimization measure, because altering flow patterns can increase take of northern riffleshell, rayed bean, rabbitsfoot and snuffbox following construction as the stream channel shifts in response to the new structure. The proposed new bridge adds an additional pier that creates more of an instream obstructed area than the existing pier. Although in their BA PennDOT and FHWA predict that changes in velocity will neither cause accelerated bed erosion nor create a condition in which aggradation occurs, the proposed change in pier design is likely to alter flow patterns and result in streambed and streambank changes until a new equilibrium is established. Because freshwater mussels are dependent on flow for many biological functions, even minor changes can harm, harass or kill these species. However, in the action area, French Creek appears to have a dynamic and shifting streambed due to the constrained, armored streambank upstream of the bridge (in association with the railroad track). While the new bridge design is not likely to improve stability of the area, it also does not appear that it will appreciably exacerbate the existing condition.

Removal and relocation of northern riffleshell (and to a lesser extent rayed bean, rabbitsfoot, and snuffbox, which are less common in the project area) is vital to reduce the number of individuals killed in the area of direct streambed disturbance. In the Tier 2 BA, PennDOT and FHWA anticipated a 70 percent success rate during the mussel salvage based on 60-person-hours of search effort for a search rate of 5 minutes per square meter. The total direct disturbance area is 1,246 m<sup>2</sup>. To achieve the proposed search rate and the anticipated search efficiency during the mussel salvage, the search effort would need to be 103.75 person-hours.

The proposed project may affect, and is likely to adversely affect the proposed rabbitsfoot critical habitat in the action area during construction, due to the instream cofferdams, causeway sections, and new piers and following construction until the streambed and banks achieve a new equilibrium with the new structure. This will likely occur following several bank-full flow events.

The effect of the Bridge Program on proposed rabbitsfoot critical habitat has not been considered in the PBA. Project impacts to proposed rabbitsfoot critical habitat were assessed by PennDOT and FHWA in the Tier 2 BA and concluded that the project may affect proposed rabbitsfoot critical habitat but would not result in adverse modification. Adverse Modification is direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical. Our analysis includes assessing how the action affects the primary constituent elements (PCEs) or other pertinent habitat features, and how such effects on the PCEs will affect the survival and recovery of rabbitsfoot. The PCE's of rabbitsfoot critical habitat are detailed above.

- 1) Will the proposed action temporarily to permanently alter a geomorphic stability of French Creek in a manner that reduces the habitat function to support a diversity of freshwater mussels and native fish?*

The change of the bridge structure from one to two instream piers is likely to result in long-term effects, as French Creek flow patterns adjust to the presence of the new structure. We anticipate

that shifts in habitat locations of suitable habitat will occur, but that streambed will achieve a new equilibrium over time and that the overall amount and quality of proposed rabbitsfoot critical habitat will then be similar to the existing condition.

- 2) *Will the proposed action temporarily or permanently alter the hydrologic flow regime necessary to maintain (1) benthic habitats where rabbitsfoot are found; (2) connectivity of rivers with the floodplain, allowing the exchange of nutrients and sediment for maintenance of the mussels' and fish hosts' habitat and food availability; (3) spawning habitat for native fishes; and (4) the ability for newly transformed juveniles to settle and become established in their habitats?*

The presence of causeway work platforms across much of French Creek will result in a temporary alteration of flow in the action area as a consequence of upstream backwater and increased water velocity between the causeway sections. During the relatively long period of time during which the work platforms will be in place (approximately 6 to 9 months), there will likely be substrate scouring within several feet of these in-stream structures during high flows, due to increased water velocities. The material will be deposited downstream when water velocity decreases.

A long-term reduction in habitat quality may occur within the footprint of the work platform, and in the vicinity of the work platform. Sand and fine gravel may be scoured from rabbitsfoot habitat located in the shallow waters surrounding the platform, and under the temporary bridge during high flows. In addition, removal of the causeway material is not likely to be complete. The presence of large rock material within the proposed critical habitat may reduce the quality and availability of habitat post-project. Scouring may also result in subtle changes in area hydrology, as channels are formed in the river bottom, and substrate composition is altered.

- 3) *Will the proposed action degrade water or sediment quality necessary to sustain natural physiological processes for normal behavior, growth, and viability of all mussel life stages?*

Habitat degradation in the form of water quality impairment may also occur. Instream areas are likely to be adversely affected by runoff from the bridge deck when rain flushes oil, dirt, and other road surface deposits directly into the river, though this will be reduced by directing bridge deck runoff to riparian locations. Declines in mussel populations have been documented downstream of bridges; these declines appear, in part, to be related to water quality changes (Andersen *et. al* 2003). Water quality degradation may result from bridge approach road runoff carrying silt, hydrocarbons, deicing materials, and spilled toxic materials (should an accident occur on the bridge or approach road). Truck traffic and the related risk of potentially toxic spills may increase (in comparison to the existing bridge) because of the improved access provided by more direct bridge approaches. Treatment of some runoff near the bridge abutments is proposed. The extent of risk to proposed critical habitat from bridge deck runoff is related to the amount of the deck for which runoff can be intercepted and treated, rather than being directly discharged to the Allegheny River.

- 4) *Will the proposed action preclude presence or reduce abundance of fish hosts (currently unknown) necessary for recruitment of the rabbitsfoot?*

Habitat for fish species that serve as hosts for rabbitsfoot glochidia, could be adversely affected by substrate disturbance (e.g., scouring), increased turbidity, sediment deposition, and introduction of petroleum products into the river. The physical presence of construction activities may modify host fish behavior, travel patterns, or habitat use. These effects are expected to be short-term and localized in extent, and largely limited to the period of instream construction. Like the habitat modification described above, the amount and quality of fish habitat is likely to return as the stream channel shifts in response to the presence of the new structure.

- 5) *Will the proposed action introduce or increase abundance of competitive or predaceous invasive (nonnative) species, to levels that effect the survival of rabbitsfoot?*

In the PBA and Tier 2 BA, PennDOT and FHWA committed to wash and inspect all vehicles and equipment for zebra mussels and other potential invasive or exotic species before entering French Creek, and to provide evidence that this has been done following accepted protocols (BA, page 20). We do not anticipate any long-term habitat alteration will occur that would make proposed critical habitat more conducive to invasive species that could reduce the amount or quality of habitat for survival of rabbitsfoot.

The extent of both direct and indirect effects on proposed critical habitat PCEs will depend on construction practices; river flows during construction; silt load in disturbed substrates; and the effectiveness of erosion and sedimentation control, and pollution prevention and remediation measures. Indirect effects may continue for the life of the bridge, especially since bridge maintenance is expected to be an ongoing periodic activity that may intermittently affect both species, and the new piers will result in ongoing channel re-configuration, affecting the distribution and abundance of suitable mussel habitat.

### Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions, not involving a Federal action, that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation under section 7 of the Endangered Species Act. Cumulative effects are described on page 63 of the Tier 1 PBO, and are hereby incorporated by reference.

In addition, as a consequence of the replacement of the Cochranon Truss bridge, a gas pipeline will need to be relocated. As described in the BA, the pipeline relocation will be completed by directional drilling under French Creek, and should not result in an adverse effect to mussels. Further, the BA indicates that the pipeline owners are undertaking responsibility for acquiring any required permits or environment clearance. Directional drilling may not require a federal permit and, if not part of the proposed bridge project, may not have federal nexus. In this case, the gas pipeline relocation that needs to be done as a

result of the bridge replacement constitutes a possible cumulative effect in the action area. Directional drilling requires excavation at both entrance and exit points that can introduce silt, if erosion controls fail. Directional drilling can also result in an inadvertent release of drilling fluid that typically contains clay that can be particularly deleterious to freshwater mussels and could rapidly increase the amount of take. Avoidance measures are available, which if implemented, would reduce the likelihood of erosion or an inadvertent release of drilling fluid. We do not anticipate that State permits will be issued for this activity without either avoiding take of listed species or the gas facility obtaining a section 10(a)(1)(B) incidental take permit.

### Conclusion

After reviewing the size and scope of the project; the environmental baseline; the overall status of the northern riffleshell, rayed bean, snuffbox, and rabbitsfoot; the effects of the action; and the cumulative effects, the Service has concluded that the Cochranon Truss Bridge replacement project will not result in adverse effects to these four species that are beyond those that were considered in the Service's PBO.

This project has not resulted in a jeopardy determination because: 1) the project-specific level of anticipated take is less than that considered in the PBO, 2) the Federal Highway Administration and PennDOT will implement a mussel salvage to reduce the number of mussels directly killed or injured in the action area, 3) the project design incorporates avoidance and minimization measures that increase the likelihood that endangered mussels will be able to recolonize the area once the project is completed, and 4) implementation of this project is not expected to cause the cumulative level of incidental take authorized in the PBO to be exceeded.

The Cochranon Truss Bridge project is also likely to adversely affect proposed rabbitsfoot critical habitat during construction and for a period afterward until a new stream channel equilibrium is established. We anticipate that these changes will be temporary because a comparable area of suitable rabbitsfoot habitat will become reestablished following several high (*e.g.*, bank full) channel-shaping flow events. Therefore, after reviewing the current status of rabbitsfoot, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's conference opinion that the Cochranon Truss Bridge replacement project, as proposed, is not likely to destroy or adversely modify proposed critical habitat for rabbitsfoot.

### Incidental Take Statement

This "Tier 2" biological opinion is based on potential adverse effects to the northern riffleshell, rayed bean, snuffbox, and rabbitsfoot (and rabbitsfoot proposed critical habitat) during removal and replacement of the Cochranon Truss Bridge over French Creek. This "Tier 2" BO identifies the incidental take anticipated due to implementation of this Management Unit 1 bridge replacement project with implementation of measures to minimize take.

Consistent with the approach taken in the PBO, incidental take for listed species was calculated by multiplying the area of direct streambed habitat disturbed (square meters of

area) by the estimated population density for each species. In doing so, the observed and predicted species distributions during the 2010 mussel survey were considered. Construction related to the removal and replacement of the Cochranon Truss Bridge will occur between 2015 and 2018, and will result in take of northern riffleshell, rayed bean, rabbitsfoot and snuffbox. This take is counted toward the cumulative incidental take estimates outlined in the PBO for each affected species.

Tables 2, 3, 4 and 5 detail the estimated take of the northern riffleshell, rayed bean, snuffbox and rabbitsfoot, respectively, within the direct effects area (1,246 m<sup>2</sup>) associated with the Cochranon Truss Bridge replacement project. As noted in the PBO, an additional amount of unquantifiable take is expected to occur within the indirect effects area, which may extend as far as 70 meters upstream and 260 meters downstream of the bridge.

Several other Bridge Program actions have been proposed under the PBO that are also likely to result in the take of federally-listed mussels. To date, the sum total of project-specific incidental take that has been authorized by the Service since the inception of the PBO is below the cumulative level of incidental take estimated in the PBO (see Appendix A). Therefore, we do not anticipate that implementation of this project will cause the take levels in the PBO to be exceeded.

**Table 2.** Northern riffleshell incidental take estimates within the direct effects area associated with the Cochranon Truss Bridge (S.R. 173) Replacement Project, Crawford County, PA

<b>Area Within Which Take Will Occur</b>	<b>Type of Take</b>	<b>Estimated mean population density</b>	<b>Number of northern riffleshell (Range)</b>
Direct effects area of 1,246 m <sup>2</sup> ( <i>i.e.</i> , 609 m <sup>2</sup> for causeway work platforms, 170 m <sup>2</sup> for construction of the new pier, 307 m <sup>2</sup> for causeway extensions, and 160 m <sup>2</sup> surrounding the above features)	Animals killed by crushing or smothering during construction after an effective (70 percent) salvage effort	0.097 (90 % CI; 0.043 to 0.218) northern riffleshell/m <sup>2</sup>	36 (16 – 81) <sup>1</sup>
The number of northern riffleshells salvaged assuming a 70 percent efficiency during the mussel salvage	Animals harassed during salvage and relocation	0.097 (90 % CI; 0.043 to 0.218) northern riffleshell/m <sup>2</sup>	85 (38 – 190)
Total incidental take			121 (54 – 272)

<sup>1</sup> Direct effects area (m<sup>2</sup>) x mussel density (mussels/ m<sup>2</sup>) x 0.3 (70% salvage efficiency) = number of mussels  
1,246 m<sup>2</sup> x 0.097 (0.043 - 0.218) x 0.3 = 36 (16 - 81)

**Table 3.** Rayed bean incidental take estimates within the direct effects area associated with the Cochran Truss Bridge (S.R. 173) Replacement Project, Crawford County, PA

<b>Area Within Which Take Will Occur</b>	<b>Type of Take</b>	<b>Estimated mean population density</b>	<b>Number of rayed bean (range)</b>
Direct effects area of 1,246 m <sup>2</sup> ( <i>i.e.</i> , 609 m <sup>2</sup> for causeway work platforms, 170 m <sup>2</sup> for construction of the new pier, 307 m <sup>2</sup> for causeway extensions, and 160 m <sup>2</sup> surrounding the above features)	Animals killed by crushing or smothering during construction after an effective (70 percent) salvage effort	0.012 (90 % confidence interval of 0.002 to 0.061) rayed bean/m <sup>2</sup>	4 (1 – 23) <sup>1</sup>
The number of rayed bean salvaged assuming a 70 percent efficiency during the mussel salvage	Animals harassed during salvage and relocation	0.012 (90 % confidence interval of 0.002 to 0.061) rayed bean/m <sup>2</sup>	10 (2 – 53)
Total incidental take			15 (2 – 76)

<sup>1</sup> Direct effects area (m<sup>2</sup>) x mussel density (mussels/ m<sup>2</sup>) x 0.7 (70% salvage efficiency) = number of mussels  
1,246 m<sup>2</sup> x 0.012 (0.002 - 0.061) x 0.3 = 4 (1 – 23)

**Table 4.** Snuffbox incidental take estimates within the direct effects area associated with the Cochran Truss Bridge (S.R. 173) Replacement Project, Crawford County, PA

<b>Area Within Which Take Will Occur</b>	<b>Type of Take</b>	<b>Estimated mean population density</b>	<b>Number of snuffbox (range)</b>
Direct effects area of 1,246 m <sup>2</sup> ( <i>i.e.</i> , 609 m <sup>2</sup> for causeway work platforms, 170 m <sup>2</sup> for construction of the new pier, 307 m <sup>2</sup> for causeway extensions, and 159 m <sup>2</sup> surrounding the above features)	Animals killed by crushing or smothering during construction after an effective (70 percent) salvage effort	0.012 (90 % confidence interval of 0.002 to 0.061) snuffbox/m <sup>2</sup>	4 (1 – 23) <sup>1</sup>
The number of snuffbox salvaged assuming a 70 percent efficiency during the mussel salvage	Animals harassed during salvage and relocation	0.012 (90 % confidence interval of 0.002 to 0.061) snuffbox/m <sup>2</sup>	10 (2 – 53)
Total incidental take			15 (2 – 76)

<sup>1</sup> Direct effects area (m<sup>2</sup>) x mussel density (mussels/ m<sup>2</sup>) x 0.3 (70% salvage efficiency) = number of mussels  
1,246 m<sup>2</sup> x 0.012 (0.002 - 0.061) x 0.3 = 4 (1 – 23)

**Table 4.** Rabbitsfoot incidental take estimates within the direct effects area associated with the Cochran Truss Bridge (S.R. 173) Replacement Project, Crawford County, PA

<b>Area Within Which Take Will Occur</b>	<b>Type of Take</b>	<b>Estimated mean population density</b>	<b>Number of rabbitsfoot (range)</b>
Direct effects area of 1,246 m <sup>2</sup> (i.e., 609 m <sup>2</sup> for causeway work platforms, 170 m <sup>2</sup> for construction of the new pier, 307 m <sup>2</sup> for causeway extensions, and 160 m <sup>2</sup> surrounding the above features)	Animals killed by crushing or smothering during construction after an effective (70 percent) salvage effort	>0.012 (90 % confidence interval of 0.002 to 0.061) rabbitsfoot/m <sup>2</sup>	4 (1 – 23) <sup>1</sup>
The number of rabbitsfoot salvaged assuming a 70 percent efficiency during the mussel salvage	Animals harassed during salvage and relocation	>0.012 (90 % confidence interval of 0.002 to 0.061) rabbitsfoot/m <sup>2</sup>	10 (2 – 53)
Total incidental take			15 (2 – 76)

<sup>1</sup> Direct effects area (m<sup>2</sup>) x mussel density (mussels/ m<sup>2</sup>) x 0.7 (70% salvage efficiency) = number of mussels  
1,246 m<sup>2</sup> x 0.012 (0.002 - 0.061) x 0.7 = 4 (1 – 23)

## Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the northern riffleshell, rayed bean, snuffbox, and rabbitsfoot.

- Implement all project-specific avoidance, minimization, and conservation measures, including a mussel salvage, to minimize incidental take of federally-listed mussels.

## Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Federal Highway Administration, U.S. Army Corps of Engineers, and Pennsylvania Department of Transportation, and their contractors, must comply with the following terms and conditions, which implement the reasonable and prudent measures described above, and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. Implement project-specific avoidance, minimization, and conservation measures described in the Tier 2 biological assessment (pp. 18 to 24), and all Reasonable and Prudent measures and terms and conditions detailed in the PBO that are applicable to projects in Management Unit 1.
2. To achieve the search efficiency of 5 minutes/m<sup>2</sup> during the mussel salvage proposed in the Tier 2 BA, increase the search effort to 103.75 person-hours over the 1,246 area of direct streambed disturbance.
3. Ensure that all contractors are aware of the significant consequences of deviating from project design or failing to fully implement all measures to avoid and minimize adverse effects on federally-listed mussels. Of particular importance are those measures designed to prevent the release of petroleum products or other hazardous substances, and measures intended to control erosion and sedimentation.
4. Contractors or PennDOT will maintain a daily written log of weather and river stage (utilizing the U.S. Geological Survey stream gage for the French Creek at Meadville, PA), and will immediately stabilize the work area and remove any hazardous materials from the river and the floodplain in the event that flooding is expected.
  - a. The weather and river stage-monitoring log must be made available to the Service upon request.
  - b. If a spill or siltation event does occur in French Creek, all construction must cease until emergency remediation procedures are implemented to contain the spill, and consultation and a revised biological opinion is completed.
  - c. The Service will be notified immediately of any failures of erosion and sedimentation control measures or spills of hazardous materials.

5. To the extent possible, retain natural streambed materials removed during pier excavation and stockpile this material in a manner that avoids contamination. Recess pier and abutment scour protection at least one foot below streambed grade. Cap scour protection (riprap) areas with retained streambed material or clean gravel.

#### Reinitiation Notice

We would like to remind you that, in accordance with our amended December 13, 2013, programmatic biological opinion, incidental take that occurs as a result of this and other Bridge Program projects cannot exceed the cumulative incidental take levels established in the programmatic biological opinion. If implementation of any project or projects is anticipated to exceed these take levels, further consultation will be necessary. To ensure that incidental take is not exceeded, annual reports should be provided to this office tabulating the amount of incidental take (as it occurs) on projects being implemented throughout the Bridge Program action area.

If rabbitsfoot critical habitat is designated, you may ask the Service to confirm the conference opinion portion of this document as a biological opinion. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned, or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary. After designation of critical habitat and any subsequent adoption of this conference opinion, the Federal Highway Administration shall request reinitiation of consultation if: (1) new information reveals the agency action may affect critical habitat in a manner or to an extent not considered in this conference opinion; or (2) the agency action is subsequently modified in a manner that causes an effect to critical habitat that was not considered in this conference opinion.

Should new information reveal that the agency action may affect listed species in a manner or to an extent not considered in this opinion; or the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or a new species is listed or critical habitat is designated that may be affected by the action; or the amount or extent of take as identified in the above incidental take statement or Appendix A, is exceeded, reinitiation of formal consultation as outlined in 50 CFR 402.16 is required.

If you have any questions regarding this matter, please contact Robert Anderson of this office at 814-234-4090.

Sincerely,

Lora L. Zimmerman  
Field Office Supervisor

## Literature Cited

- Andersen, E. F., Eads, C., Devine, H. A., and Levine, J. 2003. Effects of land use and land cover on freshwater mussel populations in the Upper Neuse River Basin, NC: A GIS approach. The Freshwater Mollusk Conservation Society (abstract), March 16-19, 2003, Durham, North Carolina, USA.
- Barnhart, C., B. Roston. 2005. Host infection strategy of the snuffbox mussel, *Epioblasma triquetra*. Fourth biennial symposium, Freshwater Mollusk Conservation Society, May 15-18, 2005, St. Paul, Minnesota: 43. Accessed October 04, 2005 at <http://ellipse.inhs.uiuc.edu/FMCS/Symposium/FMCS2005ProgramandAbstracts04-26-2005.pdf>.
- EnviroScience. 2006. Endangered Mussel Surveys for the Development of a Sewage Treatment Facility near the Borough of Cochranon on French Creek (Crawford County, Pennsylvania). Report prepared for Lennon, Smith, Souleret Engineering, Inc. and the Borough of Cochranon. 29 pages plus appendices.
- Sherman, R. 1994. Life history information critical to the management of the state endangered snuffbox mussel, *Epioblasma triquetra* (Bivalvia: Unionidae) in Michigan. Ann Arbor, Michigan: University of Michigan.
- U.S. Fish and Wildlife Service. 2012. Proposed endangered status for the Neosho mucket, threatened status for the rabbitsfoot, and designation of critical habitat for both species. Federal Register Volume 77, No. 200, pages 63440-63536.

Appendix A. Bridge Program projects by project type and Management Unit (adapted from Appendix C of the BA). Tier II incidental take estimates (in parentheses and bold text) verses those considered during the program biological assessment.

County	Project Title	Project Type	MU	Density Estimates					Proposed area of direct riverbed disturbance (M <sup>2</sup> )	Direct Effect Take Estimate				
				Northern Riffleshell	Clubshell	Rayed bean	Snuffbox	Rabbitsfoot		Northern Riffleshell	Clubshell	Rayed bean	Snuffbox	Rabbitsfoot
Mercer; Tier 2 2012	Carlton Bridge/New Lebanon over French Creek	Replace	1	1.82 <b>(3.21)</b>	0 <b>(0)</b>	3.35 <b>(2.18)</b>	0.33 <b>(0.08)</b>	0.28 <b>(x)</b>	432 <b>(533)</b>	786 <b>(1708)</b>	4 <b>(5)</b>	1447 <b>(1160)</b>	143 <b>(43)</b>	120 <b>(52)</b>
Crawford; Tier 2 2014	Cochranton Truss Bridge (Fairfield) over French Creek	Replace	1	1.820 <b>(0.097)</b>	0.01 <b>(0)</b>	3.35 <b>(0.012)</b>	0.33 <b>(0.012)</b>	0.28 <b>(0.012)</b>	814 <b>(1,245)</b>	1,482 <b>(121)</b>	8 <b>(0)</b>	2,727 <b>(15)</b>	267 <b>(15)</b>	227 <b>(15)</b>
<b>Bridge replacement projects in MU 1 = 6</b>				<b>Tier 1 Estimated Incidental Take</b>					2475	252	4381	648	298	
				<b>Tier 2 Estimated Incidental Take</b>					<b>(1,829)</b>	<b>(5)</b>	<b>(1,175)</b>	<b>(58)</b>	<b>(67)</b>	
				<b>Potential salvaged</b>					914	1	587	29	33	
				<b>Remaining Tier 1 Incidental Take considered</b>					646	247	3,206	590	265	
Mercer; Tier 2 2013	Race Street bridge/ Greenville over Lt Shenango River	Replace	2	0.0 <b>(0)</b>	0.001 <b>(0)</b>	0 <b>(0)</b>	0.08 <b>(0.06)</b>	0	234 <b>(501+770)</b>	0	0	0	18 <b>(78)</b>	0
Allegheny; Tier 2 2014	Hulton Road Bridge over the Allegheny River	Replace	2	0.001 <b>(0.003)</b>	0.001 <b>(0.003)</b>	0.001 <b>(0.003)</b>	0.001 <b>(0)</b>	0	590 <b>(2,422)</b>	3 <b>(62)</b>	1 <b>(62)</b>	1 <b>(62)</b>	1 <b>(0)</b>	1 <b>(0)</b>
<b>Bridge replacement projects in MU 2 = 1 of 10</b>				<b>Tier 1 Estimated Incidental Take</b>					89	91	101	310	90	
				<b>Tier 2 Estimated Incidental Take</b>					<b>(62)</b>	<b>(62)</b>	<b>(62)</b>	<b>(78)</b>	<b>(0)</b>	
				<b>Potential salvaged</b>					0	0	0	15	0	
				<b>Remaining Tier 2 Incidental Take considered</b>					27	29	39	232	90	

cc:

PFBC – Urban

PennDOT – District 1-0 – Kelly

COE - Pittsburgh

DEP - NW

ES file –

Reader's file

Project file

ES:PAFO:

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