

Practitioner's Guide for the Eastern Mussel Programmatic Opinion

This guide outlines the decision-making process to determine if a project can utilize the Programmatic Biological Opinion (PBO), issued to FHWA and USACE by USFWS on 6/13/18 and revised on 09/11/19. **Note: Use of the PBO is not required but is highly recommended for projects that meet all the eligibility criteria, listed below.**

PBO Eligibility

Project types covered by the PBO:

- bridge replacements, repairs, and rehabilitations.
- culvert replacements and extensions.
- bridge replacement/repair/rehabilitation and/or culvert replacement/extension portions of widening projects.

Species covered by the PBO and referred to as PBO Species:

- Tar River Spinemussel
- Dwarf Wedgemussel
- Yellow Lance and to be announced Critical Habitat
- Atlantic Pigtoe and Critical Habitat

Project Requirements for PBO use:

- Project is located within Divisions 1-8.
- Project type is covered by the PBO (see project types above).
- USFWS range by basin maps, and/or county list for project study area includes at least one of the species covered by the PBO (see species list above).
- Project has a federal nexus (federal funds/federal permit/federal document/federal authorization).
- Project can adhere to all the following requirements in the PBO: all the Conservation Measures (Section 2.5), RPM 2 of the Reasonable and Prudent Measures (Section 9.2), as well as Terms and Conditions (Section 9.3) and Monitoring and Reporting Requirements (Section 9.4). **See Appendix A for these sections.** Also, the PBO can be found here: [Programmatic Biological Opinion Bridge and Culvert Replacement/Repairs/Rehabilitations in Eastern North Carolina, NCDOT Divisions 1-8.](#)

If **ALL** requirements can be met, the PBO process is eligible for use. If none or only some of the requirements can be met, the PBO process cannot be used and standard protocols/procedures for listed mussel species should be followed.

Regardless of eligibility an ETRACS Section 7 request can be submitted and the Biological Survey Group (BSG) will handle Endangered Species Act (ESA) compliance.

PBO Process

The step-by-step process below provides assistance with interpretation of the PBO flow charts. All PBO Species must be reviewed to determine their Biological Conclusion (BC). **Please note that modification of study area or design will require a review of project PBO eligibility and PBO biological conclusion(s). This may result in project delays, project exclusion from the PBO process, and/or formal consultation with USFWS.**

PBO Flow Charts

[Bridge Replacement with Bridge/Repair/Rehabilitation \(Bridge to Bridge\)](#)

[Culvert Replacement or Extension \(Culvert\)](#)

[Bridge to Culvert Replacement \(Bridge to Culvert\)](#)

Step-by-Step Biological Conclusion (BC) determination process by project type.

- 1) All project types use the [USFWS Information for Planning and Consultation](#) (IPaC) website to determine if the project study area includes any of the four PBO Species.
 - a) PBO Species not identified by IPaC have a “No Effect” BC as the project is outside the species’ range. If all PBO Species are “No Effect”, this process is completed.
 - b) If any PBO Species are identified by IPaC; Bridge to Culvert type projects cannot use the PBO and must follow standard guidance (conduct survey and/or consult with USFWS as shown in flow chart).

Bridge to Bridge projects go to **Step 2**.
Culvert projects go to **Step 3**.
- 2) Bridge to Bridge projects, determine if any in-channel work will occur, or will any earthwork occur within 100 feet of stream banks?
 - a) If there is no in-channel work or earth work within 100 feet of stream bank, then BC is “MA-NLAA” for all IPaC PBO Species and the PBO submittal form must be completed (as discussed in Step 4).
 - b) If there is in-channel work or earth work within 100 feet of stream bank, go to **Step 3**.
- 3) Bridge to Bridge (with in-channel work) and Culvert Projects only: GIS Review
Download the “[Identified Mussel Stream Reach](#)” (ISR) layers, add the downloaded data to GIS to determine if your project “intersects an ISR or a tributary within 0.25 mile of such”. * **Always check for an updated ISR layer on the Connect NCDOT Environmental Analysis website every time the PBO is used for a project evaluation.**
 - a) If the project (both Culvert and Bridge to Bridge) intersects an ISR or a tributary within 0.25 mile for any PBO Species (identified in Step 1), you can assume presence and a BC of “MA-LAA” for all PBO species identified in Step 1. BC of “MA-LAA” requires PBO Project Submittal Form(s) and In-Lieu Fee (ILF) Payment(s) as discussed in Steps 4 and 5.
 - b) If the project is more than .25 mile from an ISR for all IPaC PBO Species (identified in Step 1),

Culvert projects can use a BC of “MA-NLAA” and go to Step 4.
Bridge to Bridge projects can either have mussel surveys conducted **OR** assume presence and a BC of “MA-LAA”. BC of “MA-LAA” requires PBO Project Submittal Form(s) and In-Lieu Fee (ILF) Payment(s). Go to Steps 4 and 5.

4) Eastern Mussel Programmatic Project Submittal Form

This form must be completed for each project with a BC of “MA-NLAA” or “MA-LAA”. The form should be filled out as soon as PBO eligibility is verified and PBO use is determined. **Please note person responsible for Biological Conclusion is verifying that the project is PBO eligible by completing this form.** A maximum of 4 bridges/culverts can be covered in a single form submission.

- 5) In-Lieu Fee (ILF) payments are made for “MA-LAA” projects based on structure type and number of structures regardless of the number of PBO Species. Each bridge is one \$25,000 payment and each culvert 72 inches or greater is one \$10,000 payment. Pipe structures < 72 inches in diameter do not require payment, but other conservation measures apply (see conservation measures below).

BSG will submit payment to the WRC NC Nongame Aquatic Species Fund (NCNASF) and handle quarterly and annual tracking submittals. The PBO states: “The expectation is that both Division and centrally managed projects will be submitted and tracked by the Environmental Analysis Unit to ensure consistency and compliance.”

Language for environmental documents and permit applications

May Affect – Not Likely to Adversely Affect (MA-NLAA)

Section 7 compliance for the Tar River Spiny mussel, Dwarf Wedgemussel, Yellow Lance, and Atlantic Pigtoe will be met through the Programmatic Biological Opinion (PBO) issued by the U.S. Fish & Wildlife Service (USFWS). The use of the PBO indicate the following biological conclusions:

Dwarf Wedgemussel: May Affect, Not Likely to Adversely Affect; Tar River Spiny mussel: May Affect, Not Likely to Adversely Affect; Yellow Lance: May Affect, Not Likely to Adversely Affect; Atlantic Pigtoe: May Affect, Not Likely to Adversely Affect.

May Affect – Likely to Adversely Affect (MA-LAA)

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The highlighted area should be adjusted to only list PBO species identified by IPaC for each project. Once MA-LAA has been determined through use of the PBO, all species identified by IPaC become MA-LAA.

If you have questions or concerns and would like to discuss the project, please feel free to contact Jared Gray (919-707-6120 or jgray@ncdot.gov) or Anne Burroughs (919-707-6106 or amburroughs@ncdot.gov).

* The “Identified Stream Reaches” file is a zipped file of GIS layers that USFWS will update and provide to BSG. Once received, the old file on Connect will be replaced with the new one and will be labeled to include a date.

Appendix A

Conservation Measures (Section 2.5 From PBO)

An in-lieu fee program has been developed for this programmatic consultation/conference (see Section 2.7). For individual bridge or culvert projects that may affect, and are likely to adversely affect (MA-LAA) one or more listed mussel species, the NCDOT will remit \$25,000 for each bridge project and \$10,000 for each culvert (including pipe structures >72 inches) project to the N.C. Nongame Aquatic Species Fund. Pipe structures <72 inches do not require payment into the Fund.

For all individual projects covered in this PBO that may affect (both MA-NLAA and MA-LAA) federally listed/proposed mussel species, Design Standards in Sensitive Watersheds [15A NCAC 04B.0124 (b) – (e)] will be incorporated into the plans. Design Standards in Sensitive Watersheds are erosion control measures that exceed the standard BMPs (e.g. measures are designed to provide protection from runoff of 25-year storm event). Environmentally Sensitive Areas shall also be designated and defined as a 50-foot buffer zone within the right-of-way (and any easements required for construction) on both sides of the stream measured from top of streambank. Within Environmentally Sensitive Areas the following shall apply:

- The contractor may perform clearing operations but not grubbing operations until immediately prior to beginning grading operations.
- Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete.
- Erosion control devices shall be installed immediately following the clearing operation.
- Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment.
- Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope or greater than two acres in area, whichever is less.

The following commitments will apply to all bridge and culvert projects covered in this PBO which may affect (both MA-NLAA and MA-LAA) federally listed/proposed mussels:

- Offsite detours will be utilized to the maximum extent practicable.
- No heavy equipment will be placed in the streams.
- BMPs for bridge demolition and removal will be implemented (NCDOT 2003, NCDOT 2014a, NCDOT 2015, or newer).
- Bridges will be removed from the top down, first removing the asphalt with containment measures in place to prevent asphalt from dropping into the stream. The method of containment will be proposed by the contractor and approved by the project engineer. This will be followed by removal of the decking, girders, and finally the piles/shafts/columns.
- No new bents will be placed in the channel (unless justification is provided and then accepted by the Service).
- Existing abutments will be completely removed unless removal would result in destabilization of banks or increase adverse effects to listed/proposed mussels.
- Deck drains will not be allowed to discharge directly into the stream.

- Special sediment control fence (NCDOT Standard No. 1606.01) or a combination of special sediment control fence and standard silt fence will be installed between the top of the stream bank and bridge embankment. Once the disturbed areas of the project draining to these areas have been stabilized, the special sediment control fence and/or silt fence and all built up sediment adjacent to these devices will be removed to natural ground and stabilized with a native grass mix.
- All appropriate sedimentation and erosion control measures, throughout the project limits, will be maintained to ensure proper function following NCDOT Erosion and Sediment Control Design and Construction Manual and NCDOT Best Management Practices for Construction and Maintenance Activities.
- Coir fiber matting or clean riprap (underlain with geotextile) will be installed on the footprint of unclassified structure excavation near the streambanks.
- Embankment construction and grading shall be managed in such a manner as to prevent surface runoff/drainage from discharging untreated into the riparian buffer. All interim surfaces will be graded to drain to temporary erosion control devices. Temporary berms, ditches, etc. will be incorporated, as necessary, to treat runoff before discharging into the riparian buffer (as specified in NCDOT BMP manuals).

All sedimentation and erosion control measures will be appropriately maintained following NCDOT standards to ensure proper function of the measures. The NCDOT adheres to the permit conditions of General Permit NCG 010000 to Discharge Stormwater under the National Pollutant Discharge Elimination System for Construction Activities. NCDOT is required to “select, install, implement and maintain best management practices (BMPs) and control measures that minimize pollutants in the discharge to meet the requirements of this permit.” Among other conditions, the permit requires: 1) all erosion and sedimentation control measures must be inspected at least once every seven calendar days and 2) within 24 hours after any storm event of greater than 1.0 inch of rain per 24 hour period. It is understood that these requirements and implementation of other appropriate BMPs are monitored through multiple layers of oversight. At a minimum, the following personnel monitor erosion control measures:

- Contractor project manager
- NCDOT Division Environmental Officers and Environmental Specialists
- NCDOT Roadside Environmental Field Operations staff

Reasonable and Prudent Measures (Section 9.2 from PBO)

The Service believes the following reasonable and prudent measures (RPMs) are necessary or appropriate to minimize the impact of incidental take caused by the Action on DWM, TRSM, YL, and AP.

RPM 1. Schedule for ILF Payments. The ILF payments detailed in Section 2.7 will be remitted on a quarterly basis.

RPM 2. Utility Relocations. Utility relocations necessitated by bridge or culvert replacements must minimize sedimentation effects to mussels and their habitat.

Terms and Conditions (Section 9.3 from PBO)

In order for the exemption from the take prohibitions of Section 9(a)(1) and of regulations issued under Section 4(d) of the ESA to apply to the Action, the FHWA and USACE must comply with the terms and conditions (T&Cs) of this statement, provided below, which carry out the RPMs described in the previous section. These T&Cs are mandatory. As necessary and appropriate to fulfill this responsibility, the FHWA and USACE must require any permittee, contractor, or grantee to implement these T&Cs through enforceable terms that are added to the permit, contract, or grant document.

T&C 1. Funding Agreement (RPM1). Within 90 days of the issuance of this PBO, NCDOT must complete a funding agreement in order to remit ILF payments to the N.C. Nongame Aquatic Species Fund on a quarterly basis as per the terms of the funding agreement. A copy of the funding agreement must be provided to the Service.

T&C 2. Directional Boring (RPM 2). Unless technically unfeasible, NCDOT must require utility relocations through streams to utilize directional (horizontal) boring instead of open trench cutting.

Monitoring and Reporting Requirements (Section 9.4 from PBO)

In order to monitor the impacts of incidental take, the FHWA and USACE must report the progress of the Action and its impact on the species to the Service as specified in the incidental take statement (50 CFR §402.14(i)(3)). This section provides the specific instructions for such monitoring and reporting (M&R). As necessary and appropriate to fulfill this responsibility, the FHWA and USACE must require any permittee, contractor, or grantee to accomplish the monitoring and reporting through enforceable terms that are added to the permit, contract, or grant document. Such enforceable terms must include a requirement to immediately notify the FHWA, USACE, and the Service if the amount or extent of incidental take specified in this ITS is exceeded during Action implementation.

M&R1. Project Submittal Form. NCDOT must develop a “Project Submittal Form” which includes the following information for bridge and culvert projects addressed through this formal consultation:

1. county
2. stream
3. 10-digit HUC
4. structure #
5. WBS # and STIP # (if applicable)
6. road #
7. bridge or culvert?
8. replacement or repair or rehabilitation or extension?
9. Is bridge or culvert work part of road widening project?
10. estimated let date
11. mussel species adversely affected
12. amount of ILF payment - \$25,000 or \$10,000
13. person(s) who made biological conclusion of MA-LAA

The Project Submittal Form should be a standardized fill-in form in a .pdf or similar format. The project reviewer must fill in the form for each bridge or culvert project that has a biological conclusion of MA-LAA arrived at through the Programmatic Methodology (see Section 2.7 and Appendices B1 and B2). Project Submittal Forms are not required for projects that receive automatic concurrence with a MA-NLAA biological conclusion that are consistent with the protocols defined in Section 2.7 and graphically depicted as flowcharts in Appendices B1-B3; however, documentation of MA-NLAA biological conclusions will be included in permit application files to the USACE. The completed Project Submittal Form will be emailed to the Service at the Raleigh Field Office. The NCDOT must designate staff in the Environmental Analysis Unit (or equivalent if organizational changes occur) that will submit the Project Submittal Forms and track all projects covered by this PBO. The expectation is that both Division level and Central Office managed projects will be submitted and tracked by the Environmental Analysis Unit to ensure consistency. If more than 330 bridge and culvert projects with a biological conclusion of MA-LAA are implemented between May 2018 and May 2028, then incidental take has been exceeded and reinitiation of formal consultation is required.

M&R 2. Report Number of Automatic Concurrences. Although Project Submittal Forms are not required for MA-NLAA conclusions, NCDOT must annually, via email, provide a total number of projects (cumulatively) with such conclusions that utilize the automatic advance concurrence for one or more of the species addressed in this BO/CO as described in Section 3.

M&R 3. Erosion Control Measures Failure. In the event of any visible sediment loss from any individual project site, a review of turbidity levels will be made upstream and downstream 400 meters (0.25 mile) to determine if sedimentation effects are occurring beyond 400 meters downstream. If visual observation of turbidity levels downstream appear to be elevated beyond upstream observations, the project inspector will contact the Division Environmental Officer. If determined that project-related sedimentation is occurring beyond 400 meters, the Service must be contacted immediately to discuss potential remediation.