

# Blackmouth Shiner

## *Notropis melanostomus*



Photograph by D.G. Bass, FWC.

### Species Overview

**Status:** Listed as state Threatened on Florida's Endangered and Threatened Species List

#### Current Protections

- 68A-27.003(2)(a), F.A.C. No person shall take, possess, or sell any of the Endangered or Threatened species included in this subsection, or parts thereof or their nests or eggs except as allowed by specific federal or state permit or authorization.
- 68A-27.001(4), F.A.C. Take – to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. The term “harm” in the definition of take means an act which actually kills or injures fish or wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. The term “harass” in the definition of take means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.

### Biological Background

This section describes the biological background for this species and provides context for the following sections. It focuses on the habitats that support essential behaviors for the blackmouth shiner, threats faced by the species, and what constitutes significant disruption of essential behaviors. The blackmouth shiner is one of the smallest minnows (up to 38 mm, or nearly 1.5 in), recognizable by its sharply upturned mouth. Its large eyes have a diameter greater than the length of the snout. A dark midline stripe extends forward from the base of the tail to the snout. A lighter side band may border the upper edge of the dark midline band (Bass and Hoehn, 2010). While the life history and specific habitat requirements of the blackmouth shiner remain poorly understood, Bortone (1989, 1993) presents the most complete information on life history and habitat requirements. In general, the species inhabits quiet backwater areas and oxbow lakes off the main channels in Northwest Florida having no measurable flow and low pH (Suttkus and Bailey 1990, Gilbert 1992, Bortone 1993, O'Connell et al. 1998). Due to its specific habitat requirements, it may not have the ability to migrate within larger streams and river to recolonize areas within its range. Bortone (1993) found that most occurrences were close shore and associated with very specific species of emergent and submerged vegetation (see below). Most schools observed contained between 50 and 4,800 individuals, and were found at depths between 0.1 m and 0.8 m (0.3 and 2.6 ft, Bortone 1993). Spawning may occur in two pulses: May through June and again in late summer.

#### Habitat features that support essential behavioral patterns

The blackmouth shiner inhabits quiet backwater areas and oxbow lakes off the main channel of rivers having no measurable flow and low pH (Suttkus and Bailey 1990, Gilbert 1992, Bortone 1993, O'Connell et al. 1998). Bortone (1993) indicates that most occurrences are within 5.5 m (18 ft) of shore and associated with pond cypress (*Taxodium ascendens*), Atlantic white cedar (*Chamaecyparis thuyoides*), various pine species (*Pinus* spp.), and sweet gum (*Liquidambar styraciflua*). Aquatic vegetation in inhabited areas typically

(1993) also indicates that abundance is not well correlated with water depth or most water quality parameters of the study.

[A Species Action Plan for the Blackmouth Shiner](#) identifies 3 sub-watersheds as high priority for maintaining currently present populations. The city of Milton is within the Blackwater River/Pond Creek priority sub-watershed. The Blackwater River State Forest and State Park encompass nearly all priority Blackwater River sub-watersheds. Approximately 22.5% of the total acreage within these 3 priority sub-watersheds is currently under public or conservation ownership. While the major conservation lands are within the Blackwater River State Forest and State Park, important areas near the city of Milton are part of the Blackwater River Water Management Areas. Blackwater River Water Management Areas (155.8 ha [381 ac]) are adjacent to a primary population center for the blackmouth shiner. Approximately 72.8 ha (180 ac) on the southside of Pond Creek are under a Florida Department of Environmental Protection (DEP) conservation easement.

### **Threats**

Primary threats to the blackmouth shiner include changes in water quality parameters such as dissolved oxygen, pH, as well as habitat alternations such as river impoundments for water supply, channel dredging, encroachment of urbanization, and point source and non-point source pollution. Additionally, forest encroachment that results in significant reduction in sunlight necessary to maintain healthy submerged aquatic vegetation.

### **Potential to Significantly Impair Essential Behavioral Patterns**

Activities likely to cause take include any activity that would negatively impact water quality and quantity. Changes in river stage management can result in the inability of the blackmouth shiner to utilize floodwaters to allow recolonization of other isolated backwaters (O'Connell et al 1998). Activities that threaten aquatic vegetation, such as dredging and use of herbicides, as well as increased turbidity and shading (from urbanization or forest encroachment) can also negatively impact the habitats occupied by this species. Proactive partnerships with public and private landowners and land managers will be critical to ensure that the few sensitive areas known to harbor blackmouth shiners remain suitable and as undisturbed as possible.

## Distribution and Survey Methodology

The range map (right) represents the principle geographic range of the blackmouth shiner, including intervening areas of unoccupied habitat. This map is for informational purposes only and not for regulatory use.

**Counties:** Santa Rosa, Okaloosa, and Walton.

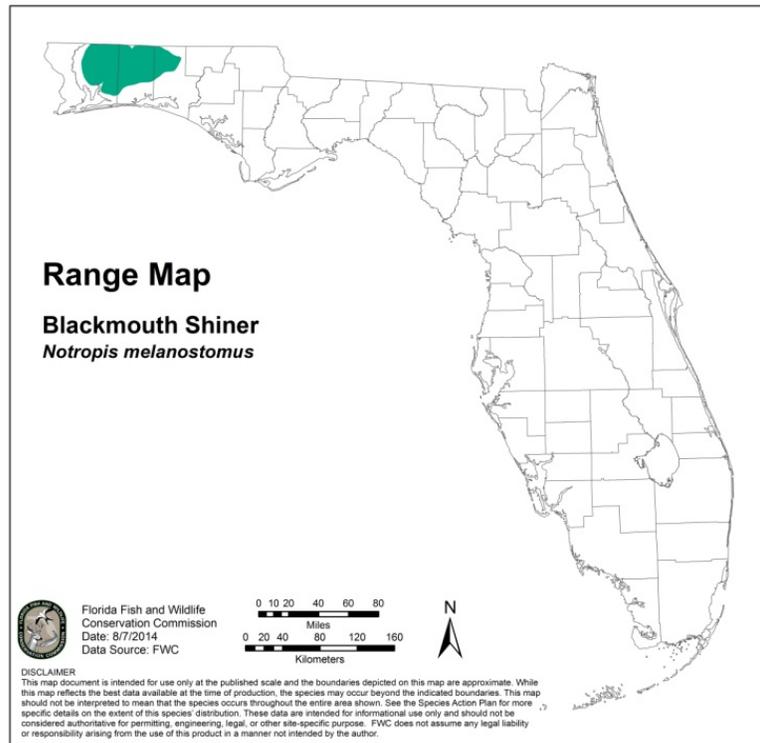
### Recommended Survey Methodology

Surveys can be used to determine if blackmouth shiners are present in an area. Surveys are not required, but are recommended during project planning.

- Blackmouth shiners can be effectively detected using both visual surveys and commercial minnow traps.

Visual surveys should be conducted by first identifying and defining the survey area. The survey area should constitute all water extending 20 m (65 ft) from shore within the potential impact area. If submerged aquatic vegetation occurs further than 20 m (65 ft) from shore, the survey area should be enlarged to include all areas that contain submerged aquatic vegetation. Surveys should be conducted by a crew of at least two observers wearing polarized sunglasses. At least one member of the survey crew should have received instruction from FWC staff on proper identification and handling procedures. Surveys should only be conducted on sunny days with light or no wind. One observer should slowly maneuver the boat across the survey area, while the other observer scans the water for schooling minnows. Once a school of minnows is located, the observer should use a dip net to collect a few individuals so that identification can be confirmed. Observers should survey for at least 10 minutes for every 1000 m<sup>2</sup> (0.25 acres) of survey area. Surveys should cover all submerged aquatic vegetation within the survey area.

- Alternatively, gee minnow traps can be used to detect blackmouth shiners. Traps should be made of mesh no greater than 3 mm (1/8 in) thick. Traps should be baited using waterproof flashlights. Commercially available glow sticks are not a suitable light bait. Traps should be suspended 0.3-0.6 m (1-2 ft) deep from a float and anchored in place to prevent drift. Traps are best placed among submerged aquatic vegetation or at the edge of submerged vegetation and open water. Traps should be set in the afternoon and retrieved at or shortly after sunrise the following day. Minimum recommended sampling effort is 4 trap\* nights/1000 m<sup>2</sup> (0.25 acres). When possible, effort should be made to survey the area over multiple days. If this survey method is used, a scientific collecting permit would be required.
- Electroshocking is not an acceptable method due to the risk of very high mortality for the blackmouth shiner.
- Surveys should occur within 300 m (984 ft) upstream and downstream from potential impact area.



- If blackmouth shiners are detected during surveys, FWC coordination may be needed.

## Recommended Conservation Practices

Recommendations are general measures that could benefit the species but are not required. No FWC permit is required to conduct these activities.

- Avoid causing changes that could degrade aquatic habitats inhabited by blackmouth shiners. Specifically, avoid creating artificial impoundments, dredging channels in rivers and streams, and creating dredge spoils within rivers, streams, and oxbow lakes.
- Avoid activities that could degrade or alter riparian zones adjacent to areas inhabited by blackmouth shiners. Specifically, avoid removing shrubs, disturbing soil and ground cover, and operating off-road vehicles in riparian zones. Maintaining a minimum riparian buffer of 50 m (164 ft) between a stream and upland activities can prevent impact to the species; a buffer of 100–200 m (328–656 ft) would likely prevent impacts to most other listed species that occur in inhabited waterways (Steen et al. 2012, U.S. Fish and Wildlife Service [USFWS] 2001).
- Maintain submerged aquatic vegetation such as bogmoss, pondweed, and bladderwort.
- Minimize sedimentation.
- Provide adequate buffers between septic systems and streams.
- Locate stormwater management systems to provide the maximum treatment for any potential input into occupied habitat.

## Measures to Avoid Take

### Avoidance Measures that Eliminate the Need for FWC Take Permitting

This section describes all measures that would avoid the need for an applicant to apply for a FWC take permit.

- Bridge or culvert work that follows [standard road construction best management practices](#) and does not have a major instream impact.
- Upland activities that have no connection to waterbodies and do not cause runoff, or riparian conversion.
- Avoid activities that degrade riparian zones. A 61 m (200 ft) buffer on both sides of Outstanding Florida Waters is sufficient to avoid degradation (Department of Agricultural and Consumer Services 2008, DEP 2011).

### Examples of Activities Not Expected to Cause Take

This list is not an exhaustive list of exempt actions. Please [contact the FWC](#) if you are concerned that you could potentially cause take.

- Activities that occur on impacted land not adjacent to blackmouth shiner habitat.
- Silvicultural activities that follow the Agricultural and Silvicultural Best Management Practices (BMP's) for streamside management zones.

### Florida Forestry Wildlife BMP's and Florida Agricultural Wildlife BMP's

- Agriculture, as defined in Section 570.02, F.S., conducted in accordance with Chapter 5I-8, F.A.C., and the wildlife best management practices (BMPs) adopted in Rule 5I-8.001 and 5M-18.001, F.A.C., by the Department of Agriculture and Consumer Service pursuant to Section 570.94, F.S., is authorized and does not require a permit authorizing incidental take despite any other provision of Rule 68A-27.007 or 68A-27.005, F.A.C.
- Participation in the [Florida Forestry Wildlife BMP's and Florida Agricultural Wildlife BMP's](#) program

and implementation of these BMP's provides a presumption of compliance for incidental take of blackmouth shiners.

- Florida Department of Agriculture Consumer Services Florida Forestry Wildlife Best Management Practices apply to this species through the application of Streamside Management Zones.

#### **Other authorizations for Take**

- As described in Rule 68A-27.007(2)(c), F.A.C., land management activities (e.g., wetland restoration, prescribed fire, mechanical removal of invasive species; and herbicide application) that benefit wildlife and are not inconsistent with FWC Management Plans are authorized and do not require a permit authorizing incidental take.
- In cases where there is an immediate danger to the public's health and/or safety, including imminent or existing power outages that threaten public safety, or in direct response to an official declaration of a state of emergency by the Governor of Florida or a local governmental entity, power restoration activities and non-routine removal or trimming of vegetation within linear right of way in accordance with vegetation management plan that meets applicable federal and state standards does not require an incidental take permit from FWC.
- Emergency water management activities for human health and safety, such as flood control.

## **Coordination with Other State and Federal Agencies**

The FWC participates in other state and federal regulatory programs as a review agency. During review, FWC identifies and recommends measures to address fish and wildlife resources to be incorporated into other agencies' regulatory processes. FWC provides recommendations for addressing potential impacts to state listed species in permits issued by other agencies. If permits issued by other agencies adequately address all of the requirements for issuing a State-Threatened species take permit, the FWC will consider these regulatory processes to fulfill the requirements of Chapter 68A-27, F.A.C., with a minimal application process. This may be accomplished by issuing a concurrent take permit from the FWC, by a memorandum of understanding with the cooperating agency, or by a programmatic permit issued to another agency. These permits would be issued based on the understanding that implementation of project commitments will satisfy the requirements of Rule 68A-27.007, F.A.C.

#### **Review of Land and Water Conversion projects with State-Listed Species Conditions for Avoidance, Minimization and Mitigation of Take**

- FWC staff, in coordination with other state agencies, provide comments to federal agencies (e.g., the Army Corps of Engineers) on federal actions, such as projects initiated by a federal agency or permits being approved by a federal agency.
- FWC staff works with landowners, local jurisdictions, and state agencies such as the Department of Economic Opportunity on large-scale land use decisions, including long-term planning projects like sector plans, projects in Areas of Critical State Concern, and large-scale comprehensive plan amendments.
- FWC staff coordinates with state agencies such as the Department of Environmental Protection and the five Water Management Districts on the Environmental Resource Permitting (ERP) program, which regulates activities such as dredging and filling in wetlands, flood protection, stormwater management, site grading, building dams and reservoirs, waste facilities, power plant development, power and natural gas transmission projects, oil and natural gas drilling projects, port facility expansion projects, some navigational dredging projects, some docking facilities, and single-family developments such as for homes, boat ramps, and artificial reefs.
- Sector plans, developments of regional impacts, and county comprehensive plans are all reviewed

currently and FWC provides conditions that would be beneficial to blackmouth shiners.

- All streams or river systems inhabited by the blackmouth shiner are designated as Outstanding Florida Waters, specifically the Blackwater River and Pond Creek. For Outstanding Florida Waters, the riparian buffer is 61 m (200 ft) on either side of the stream.
- In areas with federally listed species, following the USFWS requirements is sufficient to protect blackmouth shiners. In sector planning, a percentage of property must be set aside as conservation – focusing on riparian habitat will benefit the blackmouth shiner.

## FWC Permitting: Incidental Take

As defined in Rule 68A-27.001, F.A.C., incidental take is take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Activities that result in impacts to blackmouth shiners can require an Incidental Take Permit from the FWC (see above for actions that do not require a permit). Permits may be issued when there is a scientific or conservation benefit to the species and only upon showing by the applicant that that the permitted activity will not have a negative impact on the survival potential of the species. Scientific benefit, conservation benefit, and negative impacts are evaluated by considering the factors listed in Rule 68A-27.007(2)(b), F.A.C. These conditions are usually accomplished through a combination of avoiding take when practicable, minimizing take that will occur, and mitigating for the permitted take. This section describes the minimization measures and mitigation options available as part of the Incidental Take Permit process for take of this species. This list is not an exhaustive list of options.

### Minimization Measure Options

The options below are intended to address the evaluation factors required for consideration when issuing an incidental take permit. These options can lessen the impact of activities, and ultimately may reduce what is needed to achieve a conservation or scientific benefit.

#### Seasonal, Temporal, and Buffer Measures

- Upland activities that have the potential to disturb riparian zones should follow Outstanding Florida Waters recommendations and minimize activities within 61-91 m (200-300 ft) of the waterway, 15.2 m (50 ft) minimum in all other areas (DEP 2011, Wegner 1999).

#### Design Modification

- If possible, avoid activities in priority sub-watersheds
- Avoid activities that would impact/remove submerged aquatic vegetation.
- Site roads further from streams
- Site stormwater requirements outside of the buffer zone, but situated so that any potential stormwater input is treated by the stormwater management system.
- Increase riparian buffers
- Use of bridge class culverts with open bottoms
- Avoid underground storage tanks near the riparian buffer.

#### Method Modification

- Use sediment screens, bales, or other methods to limit sedimentation from upland site activity
- Use turbidity screens instream to limit sedimentation within the river or waterbody
- When creating waterway crossings, top down bridge construction can minimize impacts to blackmouth shiners and other aquatic species. Specific project guidance can be obtained by [contacting the Florida Department of Transportation](#).

### Mitigation Options

Mitigation is scalable depending on the impact, with mitigation options for significant impairment or

disruption of essential behavioral patterns constituting take. Potential options for mitigation are described below.

#### **Scientific Benefit**

This section describes research and monitoring activities that provide scientific benefit, per Rule 68A-27.007, F.A.C. Conducting or funding these activities can be the sole form of mitigation for a project.

- Sharing sightings data (live and dead observations) with FWC, including latitude and longitude and photographs when available.
- Following established survey methods, projects to fill data gaps related to information on species.
- Scientific studies can help address life history questions. These projects should be conducted with input from FWC.

#### **Habitat**

Habitat acquisition may be a mitigation option.

- Many riparian buffers are under Water Management District ownership in northwest Florida, so acquisition efforts should target Pond Creek and other priority sub-watersheds.
- Targeting in-holdings would be beneficial.

#### **Funding**

- No funding option has been identified at this time. However, funding options as part of mitigation will be considered on a case by case basis.

#### **Information**

- All data (negative and positive) from surveys should be provided by [contacting FWC](#) as specified in an incidental or intentional take permit and can provide a benefit in addition to minimization options.

#### **Programmatic Options**

- No programmatic options are available for this species.

#### **Multispecies Options**

- Other species with overlap include federally listed mussels, Gulf sturgeon, Barbour's map turtle, alligator snapping turtle, and bluenose shiner. Activities that benefit these species are likely to also benefit the blackmouth shiner.

## **FWC Permitting: Intentional Take**

Intentional take is not incidental to otherwise lawful activities. Per Rule 68A-27, F.A.C., intentional take is prohibited and requires a permit. For state-Threatened species, intentional take permits may only be considered for scientific or conservation purposes (defined as activities that further the conservation or survival of the species taken). Permits are issued for state-Threatened species following guidance in Rule 68A-27.007(2)(a), F.A.C.

#### **Intentional take for human safety**

- There are no circumstances for which blackmouth shiners may be taken for human safety.
- Permits will be issued only under limited and specific circumstances, in cases where there is an immediate danger to the public's health and/or safety, including imminent or existing power outages that threaten public safety, or in direct response to an official declaration of a state of emergency by the Governor of Florida or a local governmental entity. Applications submitted for this permit must include all information that is required from any other applicant seeking a

permit, along with a copy of the official declaration of a state of emergency, if any. An intentional take permit may be issued for such purposes.

#### **Aversive Conditioning**

- Not applicable for the blackmouth shiner.

#### **Permits Issued for Harassment**

- Not applicable for the blackmouth shiner.

#### **Scientific Collecting and Conservation Permits**

- Scientific collecting permits may be issued for the blackmouth shiner using guidance found in Rule 68A-27.007(2)(a), F.A.C. Activities requiring a permit include any research that involves capturing, handling, or marking wildlife; conducting biological sampling; or other research that may cause take. A scientific collecting permit should be obtained to use Blackmouth Shiners for education and outreach.

#### **Considerations for Issuing a Scientific Collecting Permit**

- 1) Is the purpose adequate to justify removing the species (if the project requires this)?
  - Permits will be issued if the identified project is consistent with the goal of the Species Action Plan (i.e., improvement in status that leads to removal from Florida's Endangered and Threatened Species List), or addresses an identified data gap important for the conservation of the species.
- 2) Is there a direct or indirect effect of issuing the permit on the wild population?
- 3) Will the permit conflict with program intended to enhance survival of species?
- 4) Will purpose of permit reduce likelihood of extinction?
  - Projects consistent with the goal of the Species Action Plan or that fill identified data gaps in species life history or management may reduce the likelihood of extinction. Applications should clearly explain how the proposed research will provide a scientific or conservation purpose for the species.
- 5) Have the opinions or views of other scientists or other persons or organizations having expertise concerning the species been sought?
- 6) Is applicant expertise sufficient?
  - Applicants must have prior documented experience with this or similar species; applicants should have met all conditions of previously issued permits; and applicants should have a letter of reference that supports their ability to handle the species.

#### **Relevant to all Scientific Collecting for Blackmouth Shiners**

- No more than 5 whole specimens must be provided to FWC's Fish and Wildlife Research Institute, 3 for genetic analysis and the remainder to be provided to the Florida Museum of Natural History located in Gainesville, Florida.
- The [Species Action Plan for the Blackmouth Shiner](#) outlines the appropriate format of data to be provided as part of permit. Spreadsheet and electronic submission is allowed. As a minimum, GPS coordinates (DD), habitat, date, time of day, aquatic vegetation present, number collected, and disposition of specimens.
- Any mortality should be [reported immediately to the FWC](#). The FWC will provide guidance on proper disposition of specimens.
- Geographical or visual data gathered must be provided to FWC in the specified format.
- A final report should be provided to the FWC in the format specified in the permit conditions

## Additional information

Information on Economic Assessment of these guidelines can be found at <http://myfwc.com/wildlifehabitats/imperiled/management-plans/>

## Contact

For more species-specific information or related permitting questions, contact the FWC at (850) 921-5990 or [WildlifePermits@myfwc.com](mailto:WildlifePermits@myfwc.com). For regional information, visit <http://myfwc.com/contact/fwc-staff/regional-offices>.

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