



**Common Name:** HALLOWEEN DARTER

**Scientific Name:** *Percina crypta* Freeman, Freeman, and Burkhead

**Other Commonly Used Names:** none

**Previously Used Scientific Names:** *Percina* sp. c.f. *P. palmaris*, *Percina* sp. c.f. *P. nigrofasciata*

**Family:** Percidae

**Rarity Ranks:** G2/S2

**State Legal Status:** Threatened

**Federal Legal Status:** none

**Description:** A large darter marked with 7 -13 dark lateral bars, 7 closely spaced rectangular dorsal saddles, and a broad bar under the eye. Adults are 100 - 130 mm (4 - 5 inches) total length. The sides and dorsum are tinged amber or gold between the saddles and bars; the venter is dusky in males, suffused with pink, and females have small blotches or scrawl marks between the ventral extensions of the lateral bars. The first dorsal fin in males is edged in black with an orange submarginal band and dusky base. Females also have a submarginal orange band in the first dorsal fin. All other fins are banded, or dusky in nuptial males, and often washed in yellow.

**Similar Species:** The Halloween darter can be separated most easily from the co-occurring blackbanded darter *Percina nigrofasciata* by examining the spacing between the dorsal saddles. The Halloween darter has the dorsal saddles placed close together, separated at most by the width of a saddle, and usually much closer together than one-saddle width, especially on the caudal peduncle. The dorsal saddles on the blackbanded darter are separated by more than one-saddle width, including on the caudal peduncle. Other characters that distinguish the Halloween darter from the blackbanded darter include possession of usually a single enlarged scale between the pelvic fin bases (versus two or more scales in the blackbanded darter) and pectoral fin rays

strongly banded (versus fins clear or pectoral rays lightly tessellated in the blackbanded darter). The Halloween darter may also be found with the Gulf Darter *Etheostoma swaini*, which is a smaller darter that lacks dark lateral bars and the orange fin coloration found on the Halloween darter.

**Habitat:** The Halloween darter inhabits riffles or shoals in the Flint and Chattahoochee River mainstems and larger tributaries to these rivers. This species almost exclusively occurs in shallow, swift-flowing habitats over cobble, gravel, and bedrock, and often in association with the aquatic plant, riverweed (*Podostemum ceratophyllum*). Adults and juveniles occupy similar habitats; nuptial individuals have also been observed in swiftly flowing riffle habitats, where spawning most likely occurs.

**Diet:** Aquatic insects, particularly mayfly (Ephemeroptera) nymphs, midge and blackfly (Diptera) larvae, and caddisfly (Trichoptera) larvae, form the major part of the Halloween darter diet.

**Life History:** The Halloween darter has been observed to spawn during April and May, based on gonad condition and occurrence of nuptial coloration, when mean monthly water temperatures are 18 to 20° C. Clutch sizes may vary between about 23 and 335 ova, with larger females having larger clutches. Ripe ova average about 1.5 mm in diameter. Juveniles less than 25 - 38 mm (1 - 1½ inches) in length occur in shoal habitats with adults beginning in June, and typically grow to over 50% of the maximum adult size by October. Individuals usually reach sexual maturity at age one; maximum observed age has been estimated at three years based on otolith examination. Nothing is known about dispersal or migratory movements of the Halloween darter.

**Survey Recommendations:** The Halloween darter is relatively easily sampled by using a seine and backpack electrofishing gear in wadeable shoal habitats. The species may also be detected by snorkeling in clear water. Sampling during summer and autumn months is ideal for avoiding disruption of spawning, and for detecting occurrence of young-of-year. State variables useful for monitoring species status could include frequency of occurrence in randomly selected shoal habitats in different portions of the species range (e.g., the Chestatee, upper Chattahoochee, and upper Flint River mainstems, or the Ichawaynochaway Creek system), or frequency of occurrence of adults and young-of-year in randomly-placed samples made within shoal systems. The latter approach might be particularly informative for detecting population changes in areas where the species occurs more commonly, such as shoals of the upper Flint River mainstem. Either approach should include either temporally or spatially replicated samples to allow estimation of detection probabilities.

**Range:** The Halloween darter is endemic to the Apalachicola River drainage in Georgia and Alabama. Populations are known to occur in four widely separated portions of the drainage: the upper Chattahoochee River system, upstream of Lake Lanier; the upper Flint River system, upstream of Lake Blackshear; the lower Flint River system, between Lake Blackshear and Lake Seminole; and, in Alabama, the Uchee Creek system, which flows into the Chattahoochee River upstream of Lake Eufaula. Check the [Fishes of Georgia Webpage](#) for a watershed-level distribution map.

**Threats:** The Halloween darter has a relatively broad geographic range within the Flint and Chattahoochee River systems; the four areas where the species occurs, however, are mutually isolated by reservoirs that would prevent natural population refounding in case of extirpation from any of these four portions of the drainage. In addition, within the upper Chattahoochee system, Lake Lanier separates populations in the Chestatee and Chattahoochee mainstems. In the lower Flint system, Albany dam and impoundment separates populations in the Ichawaynochaway Creek system and the Flint River below Lake Blackshear. Residential and urban development in the north Georgia mountains around Helen, Georgia, and in the rapidly growing area surrounding the headwaters of the Flint River, on the south side of the Atlanta metropolitan area, likely threaten the survival of the Halloween darter. The upper Flint and upper Chattahoochee River systems contain the apparently strongest populations of the species, and both of these areas are increasingly affected by urban and suburban growth. Point and nonpoint pollution, and stormwater runoff, are major causes of stream degradation and species loss in urbanizing areas. Increasing development is also increasing water supply demands. Because the species is nearly restricted to shallow, swiftly-flowing riffle or shoal habitats, withdrawals or reservoirs that decrease the level of base flows in the mainstem of the upper Flint River or in the upper Chattahoochee and Chestatee Rivers could decrease available habitat for the Halloween darter. Additional reservoirs and withdrawals are planned, with the potential to alter downstream flow conditions and habitat suitability for the Halloween darter. Construction of dams on the shoals section of the mainstem upper Flint River would eliminate habitat for the Halloween darter in that portion of the species range where it appears most abundant.

**Georgia Conservation Status:** The Halloween darter's range occurs almost entirely within Georgia and has been reduced by mainstem impoundments that inundate river shoal habitat. For example, river shoal habitat in the Chattahoochee River has been substantially reduced by 14 mainstem impoundments, and the Halloween darter populations in Uchee Creek and the upper Chattahoochee system almost certainly represent remnants of a formerly broader and more continuous distribution. Currently, the Halloween darter appears most abundant in shoals of the upper Flint River mainstem, where it is the most commonly encountered darter species. Collections in the Uchee Creek system in Alabama, in particular, have usually been restricted to few individuals, and the status of the Uchee Creek population is uncertain. The Halloween darter also appears less common in shoals of the lower Flint River system than in the upper Flint. Some protection to the species is afforded by occurrence in the portion of Ichawaynochaway Creek that flows through the J.W. Jones Ecological Research Center. Jelks et al. (2008) recommended vulnerable status for the Halloween darter across its range.

**Conservation and Management Recommendations:** Protecting shoal habitats in the mainstems of the upper Flint River and upper Chattahoochee and Chestatee rivers are essential to conserving the Halloween darter. Water supply planning efforts should attempt to minimize impacts to the Halloween darter and other aquatic species by encouraging water conservation practices. New water withdrawals and reservoirs, when absolutely necessary, should be designed and located to minimize fragmentation of existing fish populations and impacts to downstream communities. General watershed conservation practices will also benefit the Halloween darter, especially in urbanizing portions of the upper Chattahoochee and Flint River systems. These practices include elimination of sediment runoff from land-disturbing activities, maintenance of

forested buffers along stream banks, minimizing paved and other impervious surfaces, and efforts to reduce runoff of fertilizers, pesticides, and other contaminants.

### **Selected References:**

Freeman, B. J., M. C. Freeman and C. Straight. 2002. Status survey of the undescribed Halloween darter, *Percina* sp., in the Apalachicola River drainage in Alabama and Georgia. Unpublished report to U.S. Fish and Wildlife Service.

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Hill, P. L. 1996. Habitat use and life history of the Halloween darter, *Percina* sp., in the upper Flint River system, Georgia. M.S. thesis, Auburn University, Auburn, Alabama.

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