Common Name: BLUEFIN KILLIFISH

Scientific Name: *Lucania goodei* Jordan

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Fundulidae

Rarity Ranks: G5/S1

State Legal Status: Rare

Federal Legal Status: Not Listed

Description: There at least 16 species of topminnows and killifishes in Georgia. These are mostly freshwater but also include brackish and saltwater species. Bluefin killifish are small, reaching up to 50 mm total length (2 in), with a slender, compressed body and a terminal, upturned mouth. This species has a dusky brown to olive back marked with darkly edged scales. A wide black stripe extends from the tip of the nose to the black spot at the base of the caudal fin. Adult males have brightly colored dorsal, caudal, anal and pelvic fins. Several color patterns (i.e., morphs) have been described and the pattern exhibited depends upon genetics and lighting environment. The dorsal fin has basal and marginal bands of black pigment and at least some blue in between these bands. The remainder of the dorsal fin may be blue, red, or yellow. The anal fin also has basal and marginal bands of black pigment, but the remainder of the fin may be red, yellow, blue, orange, or a combination of colors. The pelvic fins and the base of the caudal fin may be red or yellow. Nuptial males may also develop golden yellow coloration on the abdomen. In contrast to males, females have clear fins and do not exhibit bright breeding coloration

(see photo below).

Similar Species: The bluefin killifish is often collected with the least killifish (*Heterandria formosa*) and the mosquitofish (*Gambusia spp.).* The mosquitofish lacks the distinctive black lateral stripe that is present in both sexes of the bluefin killifish. The least killifish does have a lateral stripe, but in contrast to the bluefin killifish, it is crossed by numerous vertical bars in both males and females. Female bluefin killifish could be confused with female pygmy killifish (*Leptolucania ommata*) and these species potentially co-occur in Georgia. Females of both species have black lateral stripes, but a prominent round spot is present within the middle and at the end of the stripe on the female pygmy killifish.

Habitat: The bluefin killifish is strongly associated with aquatic vegetation in slowly-flowing to non-flowing waters. They can occur in drainage ditches, ponds, sloughs, lakes, pools and backwaters of streams, springs, and spring runs. The bluefin killifish is also tolerant of brackish water.

Diet: Plants and small invertebrates.

Life History: The bluefin killifish may reach sexual maturity at an age of 2 months and at a size less than 20 mm standard length. Males aggressively defend territories associated with dense aquatic vegetation on which spawning occurs. Male courtship behavior includes circling the female, head flicking and fin spreading. Eggs may be deposited singly, with up to 20 being released in a day. Spawning is protracted and occurs over a period of weeks. There is no evidence of post-hatching parental care. The bluefin killifish has been reported to breed throughout the spring to summer in South Carolina, and possibly throughout the year in Florida. Life span is approximately 2 years.

Survey Recommendations: Sampling should target densely vegetated areas. Dipnets, small seines, and minnow traps are effective sampling methods.

Range: The bluefin killifish ranges from the Choctawhatchee River drainage in Florida (except panhandle) to north-central South Carolina and eastern North Carolina. A small population has been reported from extreme southeastern Alabama from the Chipola River system. Populations in South and North Carolina may be introduced, as they are close to large human population centers. The bluefin killifish has also been introduced into other areas clearly outside of its native range (e.g., Texas and California). In Georgia, this fish has been found in the lower Flint River system near Lake Seminole, ponds on Sapelo and Blackbeard Islands, and within a spring-run tributary to the Ogeechee River. Check the Fishes of Georgia Webpage for a watershed-level distribution map.

Threats: Threats to the bluefin killifish are habitat loss resulting from reduced water levels in small marshes and wetlands; flow reduction in tributaries and seasonally wetted channels (e.g., because of water withdrawal for irrigation); and vegetation removal from marshes, wetlands and stream margins.

Georgia Conservation Status: To the best of our knowledge, the Sapelo Island population is currently restricted to a small pond, which was sampled annually between 2006 and 2009. The bluefin killifish was detected every year, but qualitative abundance rankings have varied between rare and common. Other sites from Sapelo Island and Blackbeard Island are from the 1950s and the status of these populations is unknown. The Ogeechee River tributary population was discovered in Spring 2009. At the time of discovery, the bluefin killifish was extremely abundant and extended for several hundred meters along the spring run. The bluefin killifish is apparently very abundant in the lower Flint River system near Lake Seminole (Jim Williams, personal communication).

Conservation and Management Recommendations: The bluefin killifish appears to be a hardy species. The two populations in the Carolinas are presumed to be introduced and have become well established. Additional surveys need to be conducted in extreme southern Georgia and Atlantic Coastal Plain streams to determine if other populations exist. Known populations should be routinely monitored. The development of habitat management plans that include maintenance of water level, water quality, and aquatic vegetation will ensure longevity for currently known populations of the bluefin killifish.

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Date Compiled or Updated:
B. Freeman, 1999: original account
K. Owers, Jan 2009: Added picture, updated status and ranks, added fish atlas link, converted to new format, minor edits to text
B. Albanese, July 2009: Added female picture, similar species, conservation status, and citations. General update of entire account.
Z. Abouhamdan, April 2016: updated link