

Gulf and Caribbean Research

Volume 16 | Issue 1

January 2004

First Record of Bonefish, *Albula vulpes*, from Mississippi Coastal Waters

K.J. Cuevas

Mississippi Department of Marine Resources

James S. Franks

Gulf Coast Research Laboratory, jim.franks@usm.edu

M.V. Buchanan

Mississippi Department of Marine Resources

Follow this and additional works at: <https://aquila.usm.edu/gcr>



Part of the [Marine Biology Commons](#)

Recommended Citation

Cuevas, K., J. S. Franks and M. Buchanan. 2004. First Record of Bonefish, *Albula vulpes*, from Mississippi Coastal Waters. *Gulf and Caribbean Research* 16 (1): 71-72.

Retrieved from <https://aquila.usm.edu/gcr/vol16/iss1/10>

DOI: <https://doi.org/10.18785/gcr.1601.10>

This Short Communication is brought to you for free and open access by The Aquila Digital Community. It has been accepted for inclusion in *Gulf and Caribbean Research* by an authorized editor of The Aquila Digital Community. For more information, please contact Joshua.Cromwell@usm.edu.

SHORT COMMUNICATION**FIRST RECORD OF BONEFISH, *ALBULA VULPES*, FROM MISSISSIPPI COASTAL WATERS****K.J. Cuevas¹, J.S. Franks², and M.V. Buchanan¹**

¹Mississippi Department of Marine Resources, Finfish Division, 1141 Bayview Avenue, Suite 101, Biloxi, Mississippi 39530, USA, Phone 228-374-5000, Fax 228-374-5220, E-mails kerwin.cuevas@dmr.state.ms.us; buck.buchanan@dmr.state.ms.us

²The University of Southern Mississippi, Center for Fisheries Research and Development, Gulf Coast Research Laboratory, 703 East Beach Drive, Ocean Springs, Mississippi 39564, USA, Phone 228-872-4202, Fax 228-872-4204, E-mail jim.franks@usm.edu

INTRODUCTION

Bonefish (*Albula* spp.), Family Albulidae, occur worldwide in coastal waters of tropical and warm temperate seas (Crabtree et al. 1997), and 2 species, *A. vulpes* and *A. nemoptera*, are recognized from the western Atlantic Ocean (Rivas and Warlen 1967). The normal range of *A. vulpes* in the western Atlantic extends from Bermuda to Brazil, including the Bahamas, Cuba, Mexico, Central America and the Antilles (Hildebrand 1963), but in US waters, *A. vulpes* typically occurs off south Florida (Crabtree et al. 1997). In contrast, *A. nemoptera* has been reported from Panama, Colombia, Venezuela, Jamaica and Hispaniola (Uyeno et al. 1983).

Published accounts of *A. vulpes* from the northcentral Gulf of Mexico (hereafter GOM) are rare. Ogren and Brusher (1977) collected a single specimen of *A. vulpes* from St. Andrew Bay, Florida but did not report its size. Thompson and Deegan (1982) reported the collection of 3 *A. vulpes* leptocephali (range: 34.8–53.5 mm standard length (SL)) from Louisiana coastal waters, and Boschung (1992) reported a single *A. vulpes* juvenile (37 mm SL) collected from Grand Bay, Alabama. We report the first record of *A. vulpes* from Mississippi.

MATERIALS AND METHODS

On 4 November 1999, a single specimen of *A. vulpes* was caught off the eastern tip of Petit Bois Island (30°12'N, 88°25'W) in Mississippi Sound by an angler using hook-and-line. The specimen was caught during day time from shallow water (0.5 m) over a sandy bottom.

Species identification followed Hildebrand (1963), and SL and total length (TL) were measured to the nearest millimeter (mm). Wet weight was recorded to the nearest 1.0 g. The gonads were removed, preserved in 10% buffered formalin and processed for histological assessment following standard procedures. The stomach contents were also examined. The specimen resides in the Mississippi Department of Marine Resources fish collection.

RESULTS AND DISCUSSION

The specimen (Figure 1) measured 200 mm SL (241 mm TL), weighed 112 g, had an empty stomach, and histological analysis indicated it was an immature female. Age-length data from south Florida (Crabtree et al. 1996) suggest the specimen was < 1 year old.

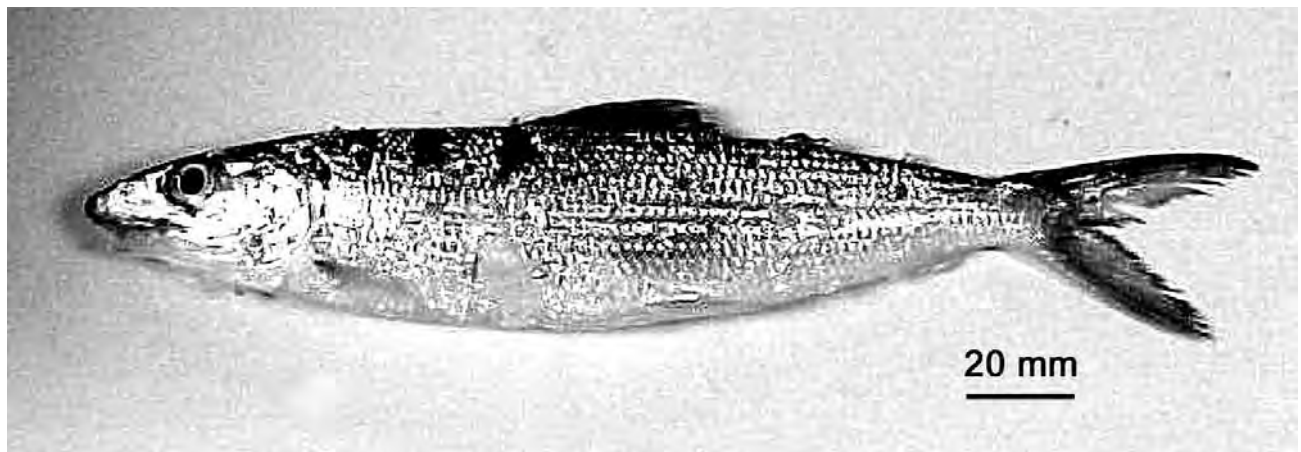


Figure 1. Photograph of a 200 mm SL *Albula vulpes* collected from Mississippi coastal waters.

The fact that a juvenile *A. vulpes* was caught from Mississippi waters, far from its normal range, warrants special interest. Historically, *A. vulpes* has not been encountered during routine fisheries independent monitoring and assessment activities conducted in Mississippi coastal waters from 1967 to 2003 (IJFMAP-M, Gulf Coast Research Laboratory), nor has the species been reported from Mississippi's marine recreational fishery from 1979 to 2003 (MRFSS, <http://www.noaa.gov/ess.fish-habit.html>). The specimen reported here represents the first record of *A. vulpes* from Mississippi and the second record of a juvenile from the northcentral GOM.

Oceanic circulation processes such as Loop Current intrusion into the northern GOM may transport and disperse GOM and Caribbean fauna into the northern GOM (Schroeder 1992, Perry et al. 1998, Johnson and Perry 1999, Johnson et al. 2001). Thompson and Deegan (1982) suggested a Loop Current spin-off eddy to explain the presence of *A. vulpes* leptocephali off Louisiana. Furthermore, larval transport on ocean surface currents was considered the likely mechanism responsible for the unprecedented occurrence of bonefish leptocephali in Long Island Sound, New York (Alperin and Schaefer 1964).

Bonefish have a prolonged November–June spawning season off south Florida (Crabtree et al. 1997) and most likely in the northwestern Caribbean Sea as well. During Spring 1999, satellite imagery (NOAA-AVHRR) of sea surface temperature (SST) revealed the Loop Current as a strong intrusion of warm Caribbean water onto the northern GOM shelf (D. Johnson, pers. comm., GCRL, Ocean Springs, MS), suggesting a possible mechanism for the transport of the specimen, as a leptocephalus larva, into the northern GOM. Furthermore, hydrologic conditions in the southernmost region of eastern Mississippi Sound during spring–fall of 1999 (17.0–30.5 °C, 24.0–34.0 psu) were likely conducive to survival and growth, based on known temperature (Alperin and Schaefer 1964) and salinity (Pfeiler 1981) requirements for young bonefish.

ACKNOWLEDGMENTS

Appreciation is extended to S. Floyd, Pascagoula, Mississippi, for providing the specimen reported on here. We are extremely grateful to D. Johnson for instructive comments on ocean circulation patterns and Loop Current dynamics in the GOM and K. Larsen who assisted with photography of the specimen. We thank N.J. Brown-Peterson for histological assessments of the specimen's gonads and for critically reviewing the manuscript.

LITERATURE CITED

- Alperin, I.M. and R.H. Schaefer. 1964. Juvenile bonefish (*Albula vulpes*) in Great South Bay, New York. *New York Fish and Game Journal* 11:1–12
- Boschung, H.T. 1992. Catalogue of freshwater and marine fishes of Alabama. *Bulletin of the Alabama Museum of Natural History*, 14. The University of Alabama, Tuscaloosa, AL, USA, 266 p.
- Crabtree, R.E., C.W. Harnden, D. Snodgrass, and C. Stevens. 1996. Age, growth and mortality of bonefish, *Albula vulpes*, from the waters of the Florida Keys. *Fishery Bulletin*, US 94:442–451.
- Crabtree, R.E., D. Snodgrass, and C.W. Harnden. 1997. Maturation and reproductive seasonality in bonefish, *Albula vulpes*, from the waters of the Florida Keys. *Fishery Bulletin*, US 95:456–465.
- Hildebrand, S.F. 1963. Family Albulidae. In: *Fishes of the Western North Atlantic*, 1. Peabody Museum of Natural History, Yale University, New Haven, CT, USA, p. 132–147.
- Johnson, D.R. and H.M. Perry. 1999. Blue crab larval dispersion and retention in the Mississippi Bight. *Bulletin of Marine Science* 65:129–149
- Johnson, D.R., H.M. Perry, and W.D. Burke. 2001. Developing jellyfish strategy hypotheses using circulation models. *Hydrobiologia* 452:213–221.
- Ogren, L.H. and H.A. Brusher. 1977. The distribution and abundance of fishes caught with a trawl in the St. Andrew Bay System, Florida. *Northeast Gulf Science* 1:83–105.
- Perry, H.M., D. Johnson, C. Trigg, C. Eleuterius, and J. Warren. 1998. Applications of remote sensing to settlement of *Callinectes sapidus* megalopae in the Mississippi Bight. *Journal of Shellfish Research* 17:1439–1442.
- Pfeiler, E. 1981. Salinity tolerance of leptocephalus larvae and juveniles of the bonefish (Albulidae: *Albula*) from the Gulf of California. *Journal of Experimental Marine Biology and Ecology* 52:37–45.
- Rivas, L.R. and S.M. Warlen. 1967. Systematics and biology of the bonefish, *Albula vulpes* (Fowler). *Fishery Bulletin*, US 66:251–258.
- Schroeder, W.W. 1992. Geography, geology, and oceanography of the Alabama region: Mississippi River delta to Cape San Blas. In: H.T. Boschung, Catalogue of freshwater and marine fishes of Alabama, 14, Alabama Museum of Natural History, The University of Alabama, Tuscaloosa, AL, USA.
- Thompson, B.A. and L.A. Deegan. 1982. Distribution of ladyfish (*Elops saurus*) and bonefish (*Albula vulpes*) leptocephali in Louisiana. *Bulletin of Marine Science* 32:936–939.
- Uyeno, T., K. Matsuura, and E. Fujii. 1983. Fishes trawled off Suriname and French Guiana. *Japan Marine Fishery Resource Research Center*, 519 p.