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Abstract

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A REPORT ON THE ESCATAWPA RIVER SYSTEM OF ALABAMA AND MISSISSIPPI[1]

by

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The unique beauty of the Escatawpa River and the relatively undisturbed area through which it flows prompted Mobile District Congressman Jack Edwards to introduce into the House of Representatives Bill 9157 on 31 July, 1975. This Bill would amend the Wild and Scenic Rivers Act to include the portion of the Escatawpa River "upstream from a point approximately one mile downstream from the confluence of the Escatawpa River and Jackson Creek, including Goodes Mill Lake, to a point where the Escatawpa River is joined by the Yellowhouse Branch in Washington County, Alabama, near the town of Deer Park, Alabama." The amendment was introduced in the senate (S 2357) on 17 September, 1975 by Senators John Sparkman and James Allen of Alabama.[2] The Bill has been referred to the Interior Committee but has not been acted upon.

The Escatawpa River (Figure 1), a major tributary to the Pascagoula River, is located along the southern portion of the Alabama-Mississippi state line. It is approximately 130 km long and empties into the Pascagoula River at Moss Point, Jackson County, Mississippi, about eight kilometers north of the Gulf of Mexico. The Escatawpa drains an area of approximately 2650 km^2 in Washington and Mobile counties in Alabama and Greene, George, and Jackson counties in Mississippi. The elevation range of the watershed is from 76 meters to near sea level. The flow index, measured in the river proper at the state line, varied from 103 cfs to 4060 cfs (Pierce and Rogers, 1966) with an average discharge of 1003 cfs (Pierce 1967).

Figure 1. View of the Escatawpa River at Moss Point, MS.

The largest tributary to the Escatawpa River is Big Creek (Figure 2) and it has the drainage's only impoundment, Big Creek Lake. The impoundment was constructed during 1950 and 1951 and put into operation in December 1951. The lake is at an elevation of 34 meters and has a surface area of about 15 km^2. Big Creek Lake, having a safe-yield of 100 million gallons per day, serves two local paper mills and the city of Mobile.

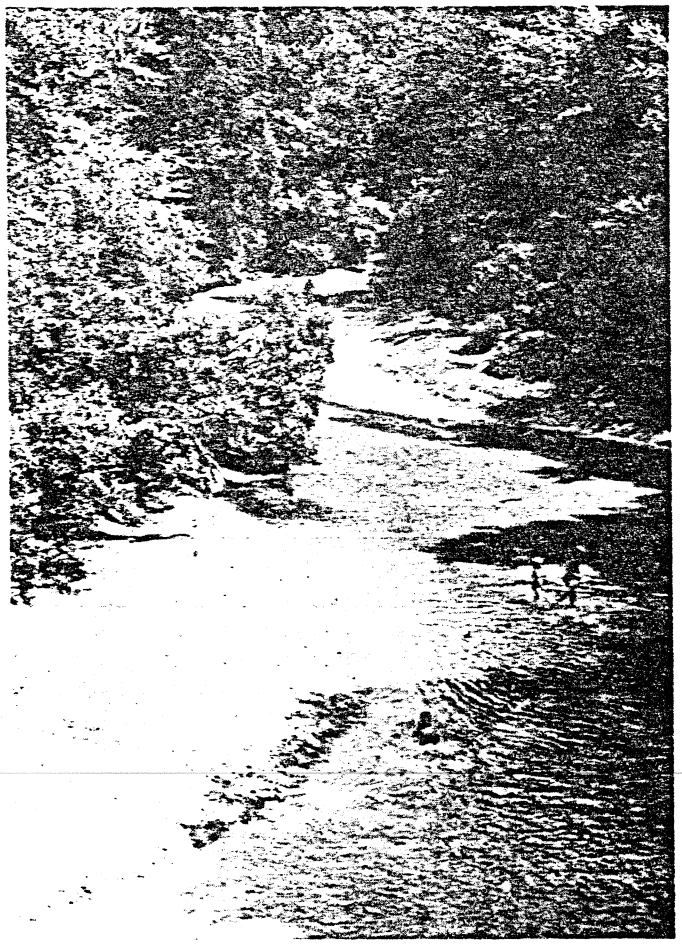

Figure 2. View of Big Creek at County Road 56, Mobile Co., AL.

[1]Contribution Number 15, Tulane University, Museum of Natural History.

[2]The Bill was re-introduced to the new Congress in April, 1977.

The majority of the Escatawpa River and its larger tributaries are characterized by white, shifting sand bottoms with brown-stained water. There is no upstream industrial pollution of any sort, the only industrial sites being located near the mouth at Moss Point.

The feasibility study necessary to determine the Escatawpa's possible inclusion in the Wild and Scenic Rivers Act would require much additional information on water quality and the biota of the system than is presently known. My study of 1973 is currently the only one encompassing the entire Escatawpa River System. Previous published studies on fishes in the Escatawpa were generally accounts of species throughout their ranges in which specimens from the Escatawpa were examined by the authors. The description of *Notropis signipinnis* (Bailey and Suttkus, 1952) represents the first published record of a species of fish from the Escatawpa River. Since that time published reports citing specimens from the Escatawpa have appeared on *Percina nigrofasciata* (Crawford, 1956), *Esox americanus* (Crossman, 1966), *Noturus* spp. (Taylor, 1969), *Notropis roseipinnis* (Snelson, 1972), and *Ammocrypta* spp. (Williams, 1975). Various dissertations have also included Escatawpa River specimens (Howell, 1957; Hemphill, 1960; Jenkins, 1970; Swift, 1970). Cook (1959) published a report on the fishes of Mississippi, indicating collecting sites in the Escatawpa drainage, but failed to mention any species collected there. Smith-Vaniz (1968) reported on the fishes of Alabama, including records of fishes from the Escatawpa River in his distribution table. In his table thirty-eight species of fishes were listed as occurring in the Escatawpa; however, five of these species do not occur in the system and they were included in the table erroneously. The five species are *Anguilla rostrata, Notropis hypselopterus, Semotilus atromaculatus, Etheostoma chlorosomum,* and *Etheostoma edwini.* A complete list of the species of fishes currently known to occur in the Escatawpa River accompanies this article.

Of the published reports mentioned above the description of *Notropis signipinnis* is of particular significance in that the type locality of the flagfin shiner is in the Escatawpa River system. Bailey and Suttkus (1952) indicated the type locality as "Malett's Spring Branch, tributary to Rocky Creek, tributary to Escatawpa River (Pascagoula R. drainage), 6.6 mi. SE Lucedale, George Co., Mississippi;" which is, more precisely, 9.7 km (6.0 mi) ESE jct. Hwys 98 and 26, on U.S. Hwy 98. The type locality was visited recently and a thriving population of *N. signipinnis* was found in the shallower stream section upstream from the pool beneath the Hwy 98 bridge. The only other species associated with this upstream portion of Malett's Spring Branch was a single black madtom, *Noturus funebris.* The pool species assemblage was *Erimyzon sucetta, Erimyzon tenuis, Gambusia affinis, Chaenobryttus gulosus, Lepomis macrochirus, Lepomis marginatus, Lepomis punctatus,* and *Micropterus salmoides.* The site itself is basically undisturbed. Malett's Spring Branch is occasionally subject to great fluctuations in water levels. The banks overflow during heavy rains, and little water is present during dry periods; however, these factors have not seemed to hinder the fish populations in any noticeable way.

In October, 1976 I resumed field work in the Escatawpa system. During the 1973 study, and during the past few months, specimens of the southern subspecies of the banded darter, *Etheostoma zonale lynceum* (Jordan) were collected. This subspecies occurs below the Fall Line in the eastern tributaries of the Mississippi River in western Tennessee and Mississippi, and in the Gulf Coastal drainages in the Florida parishes of Louisiana, Mississippi, and southwestern Alabama. The presence of this darter in the Escatawpa drainage (two specimens collected from Rocky Creek at Shipman, George County, MS; and one specimen from Bushy Creek 15 km E Lucedale, George County, MS; and three specimens from Big Creek at Mobile County rd 56 in AL) represents an eastward range extension from that previously reported by Tsai (1966) and Tsai and Raney (1974) for this subspecies, and is the first record of this subspecies in the state of Alabama.

The Northern banded darter, *Etheostoma zonale zonale* (Cope), occurs in north Alabama in the Tennessee River system and has recently been placed on the list of endangered and threatened plants and animals in Alabama as a species of special concern (Ramsey, 1976). The Southern banded darter *E. zonale lynceum,* is herein proposed to be added to that list as a species of special concern due to its extremely limited distribution within the state of Alabama and in view of various proposed uses of the drainage. Included is a plan to impound the Escatawpa for a source of drinking and irrigation water; these uses could severely reduce the flow in the Escatawpa and hamper dispersal of fishes within the system.

One other species of fish, the scaly sand darter, *Ammocrypta vivax* Hay, reaches its eastern limit in the Escatawpa system. This species was reported from Cedar Creek, Jackson County, MS by Williams (1975). The three specimens from this site are the only specimens known from the system. Two other species were collected prior to my survey, but not during it. They are the clear chub, *Hybopsis winchelli* and the tadpole madtom, *Noturus gyrinus.*

The list of species accompanying this report is based on 110 collections at 54 localities (see Figure 3) throughout the Escatawpa River drainage. It is based only on species for which

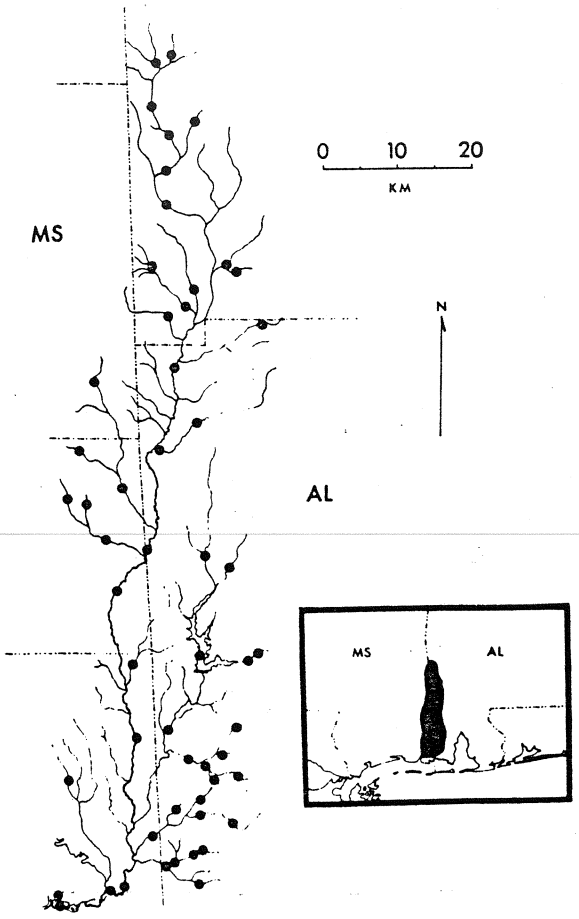

Figure 3. Map of the Escatawpa River system showing distribution of collecting stations.

specimens are available for identification. Fisherman's reports were not included even though there may be little doubt that their identifications were correct. These reports include white crappie (*Pomoxis annularis*), "speckled trout" (*Cynoscion nebulosus*), and the "spoonbill cat" (*Polyodon spathula*). The list includes 66 species of fishes, 51 of which are considered primary division fishes while the remaining fifteen are marine invaders or euryhaline forms. The marine species were collected at the four lower stations on the river proper. Further collecting in the lower section of the river will probably produce additional records of some riverine freshwater species plus marine transients.

The primary division fish species composition of the Escatawpa is about half the total of the Pascagoula River system. The lack of diversity could be attributed to various factors. The Escatawpa is a relatively small system draining a lower area with little physiographic diversity and emptying into the Pascagoula near the Gulf, providing a barrier for dispersal of most freshwater species. During Pleistocene sea level fluctuation and flooding it was probably almost entirely inundated and re-population could have been scanty as waters subsided. When compared to the Pascagoula proper the upper three quarters of the Escatawpa River tends to be more like a large creek than a river in its faunal assemblages and number of species. Because of its small size many of the riverine species may have avoided this part of the Pascagoula River drainage. Examination of a map of the lower Escatawpa shows that it flows basically North-South to a point a few kilometers from its mouth where it abruptly flows west into the Pascagoula. It previously could have flowed c ectly into the Gulf of Mexico and only recently made the swing westward. The apparent absence of freshwater mussels from the system, the relatively coarse sand, and the absence of gravel in the river suggests that substrate differences may also be a contributing factor. No freshwater mussels were collected or observed in the Escatawpa although they are relatively common in Pascagoula, which appears to have less coarse sand and in which gravel is more prevalent. These factors singly or in combination, may have excluded many of the species that are relatively common in the remainder of the Pascagoula system.

This report has attempted to present the current status of the Escatawpa River and its fishes. Total support is given the effort to secure and preserve the Escatawpa as a scenic river, not only because of its inherent beauty, but also for its biological significance.

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List of fish species known to occur in the Escatawpa River system.

PETROMYZONTIDAE

Ichthyomyzon gagei Hubbs and Trautman. Southern Brook Lamprey

LEPISOSTEIDAE

Lepisosteus oculatus (Winchell). Spotted gar
Lepisosteus osseus (Linneaus). Longnose gar
Lepisosteus spatula Lacépède. Alligator gar

AMIIDAE

Amia calva Linneaus. Bowfin

ELOPIDAE

Megalops atlantica Valenciennes. Tarpon

CLUPEIDAE

Dorosoma petenense (Günther). Threadfin shad

ENGRAULIDAE

Anchoa mitchilli (Valenciennes). Bay anchovy

CATOSTOMIDAE

Erimyzon oblongus (Mitchill). Creek chubsucker
Erimyzon sucetta (Lacépède). Lake chubsucker
Erimyzon tenuis (Agassiz). Sharpfin chubsucker
Minytrema melanops (Rafinesque). Spotted sucker
Moxostoma poecilurum (Jordan). Blacktail redhorse

CYPRINIDAE

Hybopsis winchelli Girard. Clear chub
Notemigonus crysoleucas (Mitchill). Golden shiner
Notropis chalybaeus (Cope). Ironcolor shiner
Notropis longirostris (Hay). Longnose shiner
Notropis roseipinnis Hay. Cherryfin shiner
Notropis signipinnis Bailey and Suttkus. Flagfin shiner
Notropis texanus (Girard). Weed shiner
Notropis venustus (Girard). Blacktail shiner
Opsopoeodus emiliae Hay. Pugnose minnow

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ICTALURIDAE
- *Ictalurus furcatus* (Lesueur). Blue catfish
- *Ictalurus melas* (Rafinesque). Black bullhead
- *Ictalurus natalis* (Lesueur). Yellow bullhead
- *Ictalurus punctatus* (Rafinesque). Channel catfish
- *Noturus funebris* Gilbert and Swain. Black madtom
- *Noturus gyrinus* (Mitchill). Tadpole madtom
- *Noturus leptacanthus* Jordan. Speckled madtom
- *Pylodictis olivaris* (Rafinesque). Flathead catfish

BELONIDAE
- *Strongylura marina* (Walbaum). Atlantic needlefish

SYNGNATHIDAE
- *Syngnathus scovelli* (Evermann and Kendall). Gulf pipefish

CYPRINODONTIDAE
- *Adinia xenica* (Jordan and Gilbert). Diamond killifish
- *Cyprinodon variegatus* Lacépède. Sheepshead minnow
- *Fundulus confluentus* Goode and Bean. Marsh killifish
- *Fundulus grandis* Baird and Girard. Gulf killifish
- *Fundulus notti* (Agassiz). Starhead topminnow
- *Fundulus olivaceus* (Storer). Blackspotted topminnow
- *Lucania parva* (Baird). Rainwater killifish

POECILIIDAE
- *Gambusia affinis* (Baird and Girard). Mosquitofish
- *Poecilia latipinna* (Lesueur). Sailfin molly

APHREDODERIDAE
- *Aphredoderus sayanus* (Gilliams). Pirate perch

MUGILIDAE
- *Mugil cephalus* Linneaus. Striped mullet

ATHERINIDAE
- *Labidesthes sicculus* (Cope). Brook silverside
- *Menidia beryllina* (Cope). Tidewater silverside

CENTRARCHIDAE
- *Ambloplites ariommus* Viosca. Southern rock bass
- *Chaenobryttus gulosus* (Cuvier). Warmouth
- *Elassoma zonatum* Jordan. Banded pygmy sunfish
- *Lepomis cyanellus* Rafinesque. Green sunfish
- *Lepomis macrochirus* Rafinesque. Bluegill
- *Lepomis marginatus* (Holbrook). Dollar sunfish
- *Lepomis megalotis* (Rafinesque). Longear sunfish
- *Lepomis microlophus* (Günther). Redear sunfish
- *Lepomis punctatus* (Valenciennes). Spotted sunfish
- *Micropterus punctulatus* (Rafinesque) Spotted bass
- *Micropterus salmoides* (Lacépède). Largemouth bass

PERCIDAE
- *Ammocrypta beani* Jordan. Naked sand darter
- *Ammocrypta vivax* Hay. Scaly sand darter
- *Etheostoma fusiforme* (Girard). Swamp darter
- *Etheostoma stigmaeum* (Jordan). Speckled darter
- *Etheostoma swaini* (Jordan). Gulf darter
- *Etheostoma zonale* (Cope). Banded darter
- *Percina nigrofasciata* (Agassiz). Blackbanded darter

CARANGIDAE
- *Oligoplites saurus* (Bloch and Schneider). Leatherjacket

SCIAENIDAE
- *Leiostomus xanthurus* Lacépède. Spot

GOBIIDAE
- *Gobionellus boleosoma* (Jordan and Gilbert). Darter goby

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