

AN EXCEPTIONALLY LARGE ATLANTIC
MENHADEN, *Brevoortia tyrannus*,
FROM CHESAPEAKE BAY, VIRGINIA

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Atlantic menhaden, *Brevoortia tyrannus*, are moderate-sized members of the herring family (*Clupeidae*), that range in coastal waters of the United States from central Florida to the Gulf of Maine (Ahrenholz, 1991). During spring through late fall Atlantic menhaden form surface schools in nearshore waters, and are the targets of a large purse-seine reduction fishery for fish meal and fish oil (Smith, 1991). During summer, the largest and oldest fish tend to concentrate in the northern half of their range (Nicholson, 1972). In recent years, 1991–1995, landings of Atlantic menhaden for reduction have averaged 319,800 metric tons, and have composed 38% of the total annual fisheries landings on the East Coast of the U.S. (USDOC, 1992–1996). Currently, the fishery for Atlantic menhaden is centered in the Virginia portion of Chesapeake Bay, where up to 20 purse-seine vessels operate from the port of Reedville. Although a majority of their fishing effort is expended in Virginia waters, these vessels occasionally range in coastal waters north to Rhode Island and south to North Carolina. Annual landings of Atlantic menhaden at Reedville may exceed 80% of the U.S. East Coast landings for the species (NMFS Beaufort Laboratory, unpublished data).

Since the 1950s, the Beaufort Laboratory of the National Marine Fisheries Service (formerly the Bureau of Commercial Fisheries [BCF]) has monitored the Atlantic menhaden fishery for catch, fishing effort, and biostatistical data. Port agents intercept vessels at dockside and obtain a representative sample of fish (Smith, 1991), measure fork length (mm FL), weigh (in grams), and obtain a scale patch for ageing (June and Roithmayr, 1960). Over 4000 fish are annually processed by samplers at the ports of Beaufort, North Carolina, Reedville, Virginia, and the Gulf of Maine. Herein, we report on an exceptionally large Atlantic menhaden from Chesapeake Bay acquired at Reedville.

Deck logbook information revealed that on 29 August 1996 at 1410 hrs EDT the *F/V John S. Dempster, Jr* (51 m long) of the Zapata Protein fleet made a purse-seine set on a school of Atlantic menhaden in Chesapeake Bay, approximately 2.8 km east of Smith Point, Virginia, near the mouth of the Potomac River. Surface water temperature was approximately 25°C, and air temperature was 30°C. The school contained 98 metric tons of Atlantic menhaden. The captain noted that individual fish in the set were unusually large, most being 16 to 17 inches long (ca. 400–430 mm). An exceptionally large specimen was retrieved from the

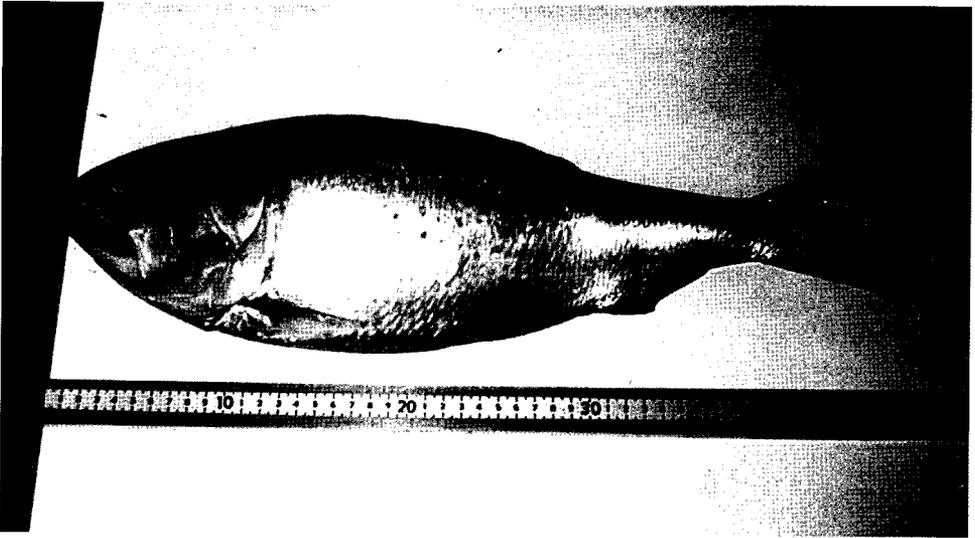


FIG. 1. An exceptionally large Atlantic menhaden, *Brevoortia tyrannus*, from Smith Point, Chesapeake Bay, Virginia. Specimen measured 492 mm TL, 433 mm FL, and weighed 1551 grams.

fish hold and presented to one of us (WBO) in Reedville. The fish (Fig. 1) measured 492 mm total length (TL), 433 mm fork length (FL), and weighed 1551 g. The specimen's sex was not determined, but a scale sample revealed that it was age seven. Personnel from the menhaden company later reclaimed the fish and sent it to a taxidermist for mounting. For comparison, Atlantic menhaden routinely sampled during summer 1996 at Reedville ($n = 2043$) ranged from ages one to five. Mean lengths for these respective age classes were 209, 240, 281, 295, and 301 mm FL, and mean weights were 165, 253, 407, 463, and 500 g, respectively.

Although a few longer and heavier specimens have been noted in the scientific literature, the Atlantic menhaden reported herein is probably a "modern" record (*in sensu* post-1960s) for the species. Goode (1879) reported that at that time the largest specimen on record was "represented by a plaster cast in the National Museum, which is 20 inches [500 mm] in length." Hildebrand (1963) cited a personal communication from Dr. H. F. Prytherch (former director of the BCF Beaufort Laboratory) that recounted a 20-inch (ca. 508 mm) specimen from Beaufort weighing 3.5 lbs (1587 g). Reintjes (1969) acknowledged that Cooper's (1965) fish from Rhode Island (470 mm TL, 418 mm FL, and age seven) weighing 1674 g was the heaviest specimen on record. Cooper (1965) claimed that his specimen was also the "longest authenticated specimen to date." Prior to 1969, the longest Atlantic menhaden measured by Beaufort Laboratory personnel, during routine biostatistical sampling, measured 374 mm FL, and the heaviest weighed 1184 g (Reintjes, 1969). The longest and heaviest Atlantic menhaden routinely sampled from purse-seine catches by Beaufort personnel in recent years (since 1989) measured 318 mm FL and weighed 680 g (NMFS Beaufort Laboratory, unpublished data).

Ahrenholz et al. (1987) chronicled historical condition trends for the Atlantic menhaden stock, in terms of several temporal stanzas. The 1950s were years of stock expansion, numerous dominant year classes, and broad age structure. During

the 1960s the stock contracted, recruitment declined as there were few dominant year classes, and the age structure became truncated. Since the 1970s, the stock has rebuilt, and through several strong year classes the age structure has once again broadened. Vaughan's¹ claim supports this rebuilding theme that the Atlantic menhaden standing stock biomass (amount of sexually mature females estimated to be in the stock) for 1993–1995 (3 yr running average = 56,600 metric t) is the highest in 30 yr. Admittedly, this “modern” record for an Atlantic menhaden (492 mm TL and 1551 g) is but a single fish. Nevertheless, it was caught from a school of Atlantic menhaden (ca. 100 metric t), where the average size of individual fish was greater than the largest fish sampled by port agents in recent years. The existence of this large, age seven Atlantic menhaden, and the school from whence it came, supports the observations of Ahrenholz et al. (1987) that through the 1980s the Atlantic menhaden stock has been rebuilding.

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¹ Vaughan, D. S. 1996. Trigger variables for Atlantic menhaden. Unpublished manuscript. NMFS Beaufort Laboratory, 101 Pivers Island Road, Beaufort, NC 28516-9722.