D. Flescher

Alosa aestivalis (Mitchill 1814)

Common Name: blueback herring

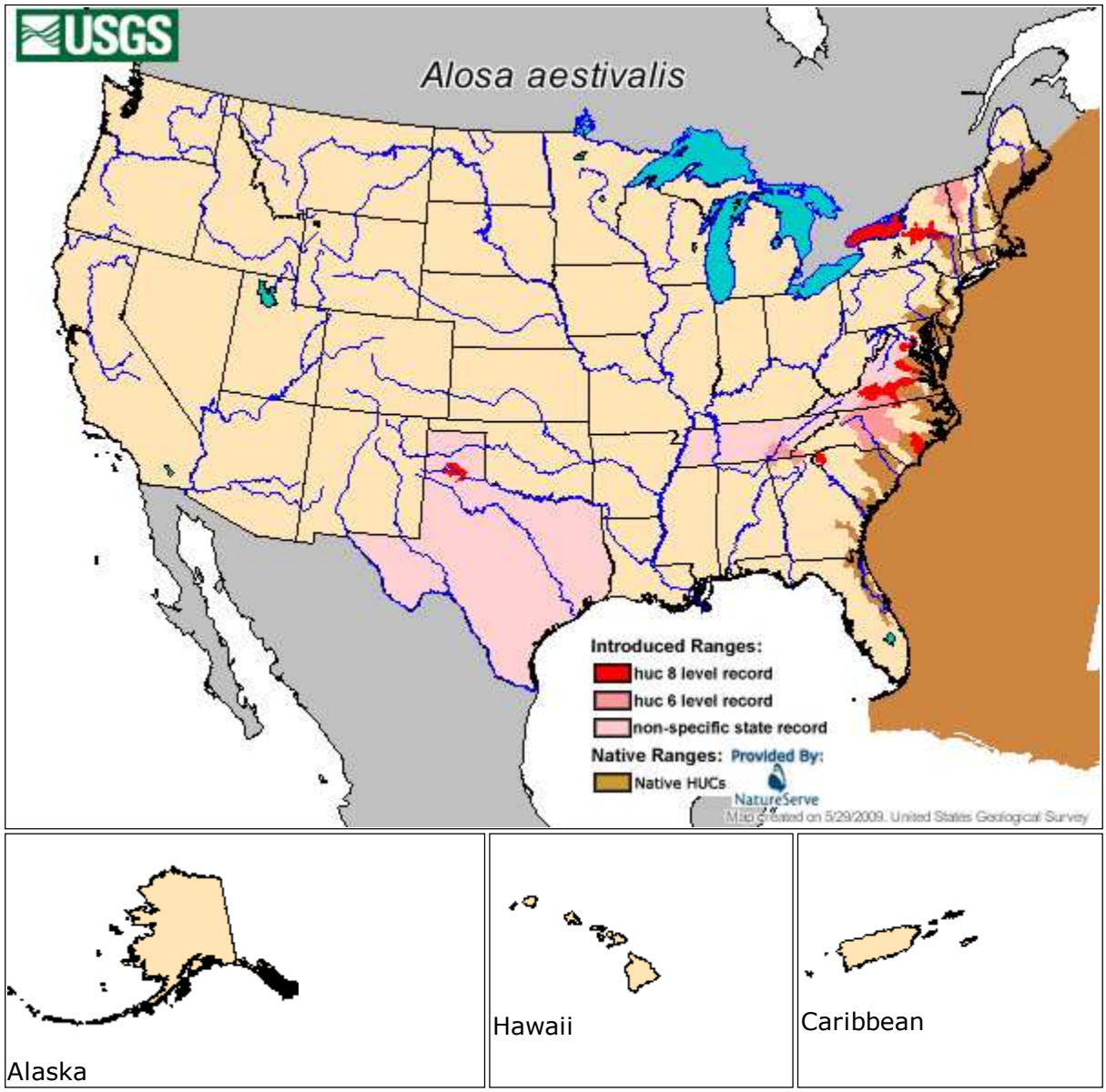
Synonyms and Other Names: blueback shad, river herring

Taxonomy: available through ITIS

Identification: These fish are silvery in color, have a series of scutes (modified scales that are spiny and keeled) along their belly, and are characterized by deep bluish green backs. The most distinguishing characteristic of this species is the black to dusky in color of its peritoneum (the lining of the abdominal cavity). Blueback herring and alewives are difficult to distinguish from one another and are often regarded collectively as river herring. Alewives have larger eyes, greater body depth, and pearly to white peritoneal linings. Smith (1985); Whitehead (1985); Page and Burr (1991); Jenkins and Burkhead (1994); Owens (1998).

Size: 40 cm.

Native Range: Atlantic Coast from Cape Breton, Nova Scotia, to the St. Johns River, Florida. Ascends coastal rivers during spawning season (Page and Burr 1991).



Interactive maps: Continental US, Alaska, Hawaii, Caribbean

Nonindigenous Occurrences: Blueback herring have been collected from the Tennessee River in **Georgia and Tennessee** (Rassmussen 1998); Oneida Lake, the Oswego River in Minetto, Lake Champlain, and Lake Ontario, **New York** (D. MacNeill and R. Owens, personal communication). In **North Carolina**, blueback herring were introduced into the Savannah, Broad, and Yadkin drainages, and into nonnative areas of the Cape Fear and Roanoke drainages (Menhinick 1991; Jenkins and Burkhead 1994). It has been introduced to an unspecified location in the Chesapeake Bay basin in **Pennsylvania** (Christmas et al. 2000). Stock obtained from the Cooper River, South Carolina was released in **Texas** by the Texas Parks and Wildlife Department in Lake Theo, Briscoe County, and at an unidentified research site in north Texas in 1982 (Guest 1983; Howells 1992a)and in the upper Red River drainage (Rassmussen 1998). Blueback herring have been collected from Lake Champlain, **Vermont** (S. Good, personal communication). Blueback herring have been stocked in several inland reservoirs in **Virginia**, including Smith Mountain Lake, Occoquan Reservoir, Kerr Reservoir, and lakes Anna, Brittle, and Chesdin (Jenkins and Burkhead 1994).

Ecology: Anadromous; living in marine systems and spawning in deep, swift freshwater with a hard substrate. Migrate to spawning grounds in the spring. In Connecticut, blueback herring spawn in 14-7^{o}C temperatures. Usually spawns later in the spring than the alewife, when water temperatures are a bit warmer. During spawning, many eggs are deposited over the stream bottom where they stick to gravel, stones, logs, or other objects. Juveniles spend 3-7 months in freshwater, then migrate to the ocean

(Yako et al.2002). Blueback herring are a planktivorous forage species (Winkelman et al. 2002).

Means of Introduction: In areas other than New York, these fish were intentionally stocked for forage. In New York these fish are expanding their range using canals. Blueback herrings were first recorded in the Mohawk River in 1978 by NYDEC personnel. They were reported from Lake Champlain on the New York side in the late 1970s, and from the Vermont side in 1997. Juveniles were apparently present in Oneida Lake by 1981 or 1982. Adults were first documented in 1994 by Cornell researchers based at Shackleton Point. Several thousand immature fish were also documented in 1994 at a power plant in Minetto on the Oswego River. Two immature fish were caught in Lake Ontario near Oswego in October 1995 by U.S. Geological Survey personnel conducting fish surveys (Owens, personal communication).

Status: Established in Texas, New York, North Carolina, Vermont, and Virginia.

Impact of Introduction: Unknown, very likely to find suitable habitat throughout the Great Lakes system. If blueback herring became established in Lake Ontario, they could spread to other Great Lakes and impede recovery of depressed populations of indigenous fishes such as cisco and lake trout (Owens et al. 1998).

The introduction of blueback herring into Theo Reservoir in Briscoe County, Texas resulted in the elimination of large-bodied zooplankton such as *Leptora, Epischura, Mesocyclops,* and *Daphnia*, while small-bodied zooplankton such as *Cerio-daphnia, Tropocyclops* and *Bosmina* increased. There appeared to be little change in lengths of the zooplankton in the reservoir after herring introduction, but the community shifted from cladoceran to copepod dominance.

Remarks: One of the most common fish species in the Hudson River estuary (Hurst et al. 2004). Detection of a small population of blueback herring in Lake Ontario would be difficult because of the size of the Lake relative to the area routinely sampled and the herring's superficial similarity with alewife, a fish sampled in large enough numbers that only a fraction of the adults are examined closely enough to distinguish between the two species (Owens et al. 1998). Owens et al. (1998) also asserted that colonizing a lake with resident population of alewife, a fish that would be in direct competition with blueback herring for space and resources, and a surfeit of piscivores, both stocked and unstocked, may prove too difficult for *A. aestivalis*.

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Other Resources:

Alosa spp. (ANS Clearinghouse Bibliography)

Virginia Institute of Marine Science

Great Lakes Water Life
FishBase Fact Sheet

Author: Pam Fuller and Greg Jacobs

Contributing Agencies:

NOAA - GLERL

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