

HABITS OF THE INLAND SILVERSIDES, *MENIDIA BERYLLINA*, IN A NEW JERSEY SALT MARSH¹

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ABSTRACT. *The inland silverside, (Menidia beryllina) an atherinid fish, constituted approximately 9.0% of the 10,251 fish collected at Cattus Island (a marsh altered by open marsh water management techniques) from October 1978 through September 1980. Seasonal variation in abundance indicated that they migrate out of the marsh during late fall and winter and re-enter during spring and summer.*

The inland silversides is an annual species with spawning adults and young of the year occurring together in samples in the early summer. The variation in the female mean monthly gonosomatic index, the frequency distribution of ova diameters and the occurrence of eggs, larvae and young of the year indicated that spawning occurred from May through July. The inland silversides is an omnivore. The diet was dominated by copepods but other important prey items were rotifers, insects, algae and detritus.

Most aspects of the life history in this New Jersey marsh were similar to other areas except that it attained a smaller maximum size and females matured at a smaller size. These differences could simply be accounted for by the shorter growing season near the northern limit of its range because monthly growth rates were similar to other populations reported from further south.

INTRODUCTION

The inland silverside, *Menidia beryllina* (Cope), is an atherinid fish that commonly inhabits brackish and freshwaters from Cape Cod, Massachusetts to Vera Cruz, Mexico (Gosline, 1948; Johnson, 1974). It typically occurs in thickly vegetated, marshy estuarine habitats (Franks, 1970; Odum and Heald, 1972; Weinstein et al., 1980) as well as shallow open waters of bays (Marcellus, 1972).

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Most of what is known of inland silverside life history and ecology has been reported from populations in Florida and the Gulf of Mexico (Reid, 1954; Darnell, 1958; Odum and Heald, 1972; Carr and Adams, 1973; Stickney and McGeachin, 1979) where *M. beryllina* is an important prey item for red drum, *Sciaenops ocellata*, and other important game and commercial fishes of the Gulf coast (Pearson, 1929; Bayliff, 1950; Simmons and Breuer, 1962). Similar studies have been made in the Delaware (Wang and Kernahan, 1979) and Potomac (Wang, 1974) estuaries and in North Carolina (Hildebrand, 1922). Other studies have concentrated on an introduced population in Lake Texoma, Oklahoma (Hubbs, 1976; Hubbs and Bailey, 1977; Hubbs and Bean, 1979; Hubbs, 1982).

In view of the paucity of information on inland silversides from the northeastern U.S.A., we present information on the distribution, abundance, life history and food habits of *M. beryllina* in a New Jersey salt marsh. This is part of an ongoing study of the life history of resident fishes in New Jersey salt marshes.

STUDY SITE

Cattus Island is a salt marsh bordering the northern shore of upper Barnegat Bay, New Jersey at approximately 40° north latitude. During the sampling period, salinities (0-20‰) and temperatures (1.9-30.0°C) varied considerably. This marsh was altered by open marsh management (Ferrigno and Jobbins 1968; Shisler, 1978) in