



## Mechanisms maintaining sympatric distributions of two ladyfish (Elopidae: Elops) morphs in the Gulf of Mexico and western North Atlantic Ocean

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**ABSTRACT:** Two morphs of ladyfish exist in the western North Atlantic and adjacent waters: *Elops saurus*, a high-count morph (79-87 myomeres or vertebrae) in the north, and *Elops* sp., a low-count morph (73-78 myomeres or vertebrae) in the south. It has been proposed that these morphs are two allopatric species, but significant questions about their ecology remain. We examined 4,597 specimens and found that *E. saurus* was distributed principally in the western North Atlantic and Gulf of Mexico, whereas *Elops* sp. was distributed principally in the Caribbean Sea. Mixing of both morphs occurred along the east coast of the United States and the gulf coast of Mexico. Our results are consistent with the hypothesis that these meristic differences arise from latitudinal differences in temperature between spawning areas (i.e., Jordan's rule). Dispersal via the Gulf Stream System and associated mesoscale features appear sufficient to explain all areas of sympatric distribution. *Elops* larvae were found nearly year-round in Florida estuaries, but *E. saurus* larvae were dominant in winter and spring collections, and *Elops* sp. larvae were dominant in summer and autumn. Thus, juvenile *Elops* sp. experience a shorter growing season and a different suite of estuarine conditions than juvenile *E. saurus*. The low initial abundance and high mortality of *Elops* sp. reduce the potential for interbreeding with *E. saurus* where they are sympatric. Such ecological data uphold the postulation that the two morphs are different species and support the existence of macroscale biotic connectivity between the Caribbean region and North America.

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