



Seasonal refugia, shoreward thermal amplification, and metapopulation dynamics of the ctenophore *Mnemiopsis leidyi* in Narragansett Bay, Rhode Island

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ABSTRACT: The lobate ctenophore *Mnemiopsis leidyi* occurs throughout Narragansett Bay, Rhode Island, during warm summer months but is often undetectable in the central portion of the bay during winter months. During 2 yr of weekly sampling, we found that *M. leidyi* populations in a shallow embayment, Greenwich Cove, either overwintered or were only briefly absent during winter. The Greenwich Cove population reproduced weeks earlier and reached higher average and peak population concentrations than open-bay populations. Shallow embayment populations such as that in Greenwich Cove probably serve as source populations that inoculate the main region of the bay by advective transport in the spring months. We propose that earlier occurrences of *M. leidyi* during recent years are due to amplification of pulsed spring warming events that permit early reproduction in the shallow embayments that serve as source regions for *M. leidyi* in Narragansett Bay. We further suggest that the source-sink perspective we describe is relevant not only to Narragansett Bay but other temperate regions of the world persistently occupied by *M. leidyi*.

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