

Climate-related shifts in ichthyoplankton phenology of Beaufort Inlet, North Carolina, USA

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Global warming has shifted the timing of seasons in numerous ecosystems worldwide. Many organisms rely on seasonal cues for the timing of events such as reproduction, migration, or metamorphosis, which makes them exceptionally vulnerable to the negative effects of climate change. Furthermore, if the seasonal timings, also known as phenologies, of two or more historically-linked events change at different rates in response to climate change, entire communities could potentially break down. It is therefore critical for science to develop an understanding of climate change's effects on the phenologies of organisms across ecosystems. The purpose of this study is to determine if there have been shifts in the reproductive phenology of winter-spawning estuarine-dependent fish species that spawn offshore of Beaufort Inlet, NC. To do this, we are investigating the phenology of larval fish ingress through the inlet from 1987-present. Data from the Bridgenet long-term ichthyoplankton sampling program conducted by the U.S. National Marine Fisheries Service are being used to assess changes in the beginning, peak, and end of ingress for species in the inlet. To determine if climate changes could be driving potential phenology changes, we are also attempting to correlate any observed phenology changes with environmental variables such as temperature, windspeed, and offshore current activity.

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