SOCAN

Southeast Ocean and Coastal Acidification Network

"Effects of Elevated CO_2 on the Early Life-Stages of Marine Fishes and Potential Consequences of Ocean Acidification" | Tuesday April 21, 12pm EDT

Please join SOCAN for our next webinar **Tuesday April 21, 12pm EDT.** It is titled "Effects of Elevated CO_2 on the Early Life-Stages of Marine Fishes and Potential Consequences of Ocean Acidification" presented by R. Christopher Chambers, Research Fishery Biologist, NOAA Northeast Fisheries Science Center, Howard Marine Sciences Laboratory, Highlands, New Jersey.

R. Christopher Chambers, Research Fishery Biologist, NOAA Northeast Fisheries Science Center

Abstract

Elevated concentrations of carbon dioxide (CO_2) and the acidification of Earth's oceans are due largely to absorption by seawater of excess, atmospheric CO_2 from fossil-fuel combustion. Evidence available about CO_2 effects on fish suggests that effects differ across species and perhaps populations, and may interact with other stressors. Further, these differences may also be associated with life-history strategies, habitat use, and parental exposure. Today's webinar summarizes experimental work from the NOAA Howard Laboratory on the effects of high CO_2 on two species of flatfish from the Northwest Atlantic, winter flounder, *Pseudopleuronectes americanus*, and summer flounder, *Paralichthys dentatus*, that differ in life history and habitat. Overall, winter flounder displayed increased fertilization success and embryonic survival with increasing CO_2 and decreasing temperature. The responses of winter flounder varied with the source of adults (Mid-Atlantic Bight vs Gulf of Maine) with offspring of Gulf of Maine origin more tolerant to elevated CO_2 than those from the Mid-Atlantic Bight, but less tolerant to warmer water. Summer flounder exhibited reduced fertilization and embryonic survival with elevated CO_2 and colder temperature. Population and species differences in early life-stage responses to elevated CO_2 may influence the adaptation potential and persistence of these species at predicted levels of near-future climate change.

Brief Biography

Chris Chambers is a Fisheries Ecologist at the NOAA Fisheries' Howard Marine Sciences Laboratory in Sandy Hook, New Jersey, where he leads the Life History and Recruitment Group. He received his Ph.D. from Duke University (Zoology) where he worked on ecological interactions in two different temporary freshwater habitats (pond-breeding amphibians and treehole-breeding mosquitoes). His research on marine fisheries began with a post-doctoral position at McGill University where he spent summers in Newfoundland working with capelin, flounder, and cod, and continued while on staff at the Huntsman Marine Science Centre where he conducted modeling studies with colleagues at the Oak Ridge National Laboratory. Since joining NOAA in 1996, Chris has primarily used experimental approaches to investigate questions about the role of the environment and parentage in production, recruitment, and population dynamics of marine fishes important to the mid-Atlantic and New England regions of the USA. He is involved in multiple projects ranging from ecology to toxicology to modeling, and is currently the PI on a multi-year study on biological responses of finfish to ocean acidification funded by NOAA's Ocean Acidification Program. He has a strong commitment to education and outreach activities, and has served as a mentor to over 100 graduate, undergraduate, and high school students.

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