New Insights into Sea Urchin Recruitment in the Gulf of Maine

Rebecca L Toppin*
Larry G. Harris
Department of Zoology
University of New Hampshire
46 College Rd.
Durham, NH 03824
*Becca.toppin@unh.edu

Abstract

Commercial harvesting of sea urchins has become a major industry in the Gulf of Maine following a population explosion of. *Strongylocentrotus droebachiensis* in the late 1970s. Recruitment studies begun in 1983 have continues through 2002. Recruitment of the green sea urchin, *S. droebachiensis* in the Gulf of Maine has decreased dramatically in recent years. New observations show that recruitment in the northern Gulf of Maine has remained low but predictable, while the decline in recruitment observed in the late 1990s at southern sites appears to have stabilized. Recently it has been noted that recruitment and survival are possible in the absence of adult *S. droebachiensis*. There have been observations of heavy recruitment of juvenile urchins into an algal dominated site with no adult urchins present. These findings are contrary to most previous studies that suggest the disturbance and spine canopy provided by adult urchins facilitates successful juvenile recruitment.

Growth studies in benthic and suspended cages showed differences in growth and mortality. Growth studies done with juvenile, hatchery-reared urchins showed large amounts of recruitment. Protection from potential predators was due to mesh size and suspension of the spat bags in the water column. Temperature may also play a role in sea urchin recruitment, growth and survival.