



**Adapting Fisheries Management to a Changing Ecosystem**  
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### Case Study 3

#### **Poor recruitment of reef fishes in the southeast United States Atlantic: preliminary findings and implications for management**

Brendan J. Runde, Kyle W. Shertzer, J. Kevin Craig, Taylor A. Shropshire, Kaitlynn Wade, Erik H. Williams, and Nathan M. Bachelier

#### ABSTRACT

Multiple species of Atlantic demersal reef fishes have experienced notable declines in recruitment in recent years. We investigated several hypotheses for these concurrent declines, including recruitment overfishing, predation of juveniles by invasive lionfish, and environmental drivers. Recruitment overfishing does not appear the likely cause, given that not all of these species are heavily exploited, and for those that are, declines in recruitment precede increases in fishing mortality. Similarly, predation of juvenile reef fishes by invasive lionfish is unlikely to have caused recruitment declines as lionfish are generalists and abundance of lionfish has decreased in recent years. Our leading hypothesis is that oceanographic conditions have become increasingly unfavorable for these species during their winter spawning season. Anomalies in sea surface temperature, as well as surface chlorophyll levels, have become more frequent and generally more severe over time. This situation implies non-stationarity in the marine ecosystem and presents challenges for both stock assessment and for resource management.