ICES/PICES 6ZPS 2016/S2

Zooplankton community variability and resilience on the northwest Atlantic shelves

Catherine Johnson[1], Pierre Pepin[2], Stéphane Plourde[3]

[1]Fisheries and Oceans Canada, Bedford Institute of Oceanography, PO Box 1006, Dartmouth, NS B2Y 4A2, Canada
[2]Fisheries and Oceans Canada, Northwest Atlantic Fisheries Centre, PO Box 5667, St. John's, NL A1C 5X1, Canada
[3]Fisheries and Oceans Canada, Institut Maurice-Lamontagne, PO Box 1000, Mont Joli, QC G5H 3Z4, Canada

The pelagic habitat of sub-polar continental shelf zooplankton is characterized by environmental variability with strong annual periodicity, high dispersal, and a spatial mosaic of habitat types formed through interactions of circulation and variable bathymetry. Sub-polar zooplankton communities exhibit relatively recurrent seasonal and large scale spatial patterns underlying interannual variability. Time series observations provide an opportunity to understand the processes driving both these recurrent seasonal and spatial patterns of zooplankton community assembly and their responses to interannual environmental changes, including community response to and recovery from extreme conditions. Here, observations made by the Atlantic Zone Monitoring Program on the Labrador and Newfoundland shelves, in the Gulf of St. Lawrence, and on the Scotian Shelf from 1999 to 2014 were used to characterize zooplankton communities at the seasonal (spring and autumn) and interannual scales using various community metrics, and to identify relationships between these community metrics and physical-driven bottom-up processes regulating the spring bloom dynamics and summer-fall environmental conditions in the region. Parallel analysis of time series in the three regions will provide insight into the level of community resilience to changes in the annual forcing of the physical environment.

Keywords: copepod, community, interannual variability, resilience

Contact author: Catherine Johnson, Fisheries and Oceans Canada, Bedford Institute of Oceanography, Email: Catherine.Johnson@dfo-mpo.gc.ca