

## Ecological determinants of intertidal recruitment and metacommunity structure on the Atlantic coast of Nova Scotia

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Rocky-intertidal species are often distributed as metacommunities along marine shores, as rocky habitats are patchy. Nearshore pelagic conditions often explain variation among the local communities, but most studies have been done on eastern ocean boundary coasts. We investigated potential drivers of intertidal metacommunity structure on the Atlantic coast of Nova Scotia. We studied the high intertidal zone of nine wave-exposed bedrock locations spanning 415 km of coastline. At each location in the spring, we measured the recruitment of barnacles and mussels, the two predominant sessile invertebrates. Satellite data on coastal phytoplankton abundance and particulate organic carbon (food supply for intertidal filter-feeders) and in-situ data on coastal seawater temperature explained to varying degrees the geographic structure of recruitment. In turn, the summer abundance of both filter-feeders was positively related to their spring recruitment. Ultimately, predator (dogwhelk) abundance increased with the recruitment and abundance of barnacles and mussels (the main prey of dogwhelks), suggesting that bottom-up forcing influences metacommunity structure on this coast. Sea ice constituted an overlapping source of variation. Drift ice leaving the Gulf of St. Lawrence in late winter disturbed intertidal communities in the northern locations, limiting local biodiversity compared with central and southern locations.