

Rocky Intertidal Benthos in Iniskin/Iliamna Bay – a 28-Year Baseline and Hints of Climate Change?

Littoral habitats in lower Cook Inlet represent important areas of diversity and productivity that support numerous species of ecological and economic importance. In addition, some species present appear to be relict arctic biota and have further importance in a biogeographical context. This study describes benthic marine flora and fauna in Iniskin and Iliamna bays based on work conducted by the authors over the last 28 years. Two stations sampled in recent (2004-2006) work were identical in location to those sampled under other programs during the late 1970s and in 1996, thus providing a substantial historical perspective. A stratified random approach was used to characterize biota at each of three elevations (upper, middle, lower) at seven rocky stations. The area experiences winter icing that severely impacts at least upper and middle intertidal rocky assemblages. Data from 1978 and 1996 showed a high degree of stability in upper and middle intertidal rocky assemblages. Upper zones were dominated by seasonal growths of barnacles with longer-lived species such as rockweed relegated to sheltered crevices. The middle elevation was strongly dominated by red algae that regenerate from holdfasts each spring. However, in 2004 there was a remarkable increase in rockweed, a perennial poorly suited to withstand icing. This suggested a reduced ice stress that allowed greater development of rockweed. In 2005, the red algae regained dominance at one site while rockweed remained co-dominant at the other. Implications of this and other patterns are discussed in the context of regional climate patterns.

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