Experimental and mensurative data on the abundance of primary producers and consumers from intertidal habitats in Canada

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Abstract. Our data set describes the abundance of seaweeds and invertebrates found in rocky intertidal habitats on the Atlantic coast of Nova Scotia, Canada. One subset of data resulted from a manipulative experiment that tested the effects of macroalgal ecosystem engineers (\textit{Ascophyllum nodosum} and \textit{Fucus} spp.) on the richness, diversity, and composition of understory communities along the environmental stress gradient that occurs across elevations because of tides. Abundance data for all understory taxa are provided for 120 quadrats that characterized two macroalgal canopy treatments (canopy vs. no canopy) and three elevation zones (high, middle, and low). Another subset of data resulted from a mensurative study done regionally based on four locations spanning 350 km of coastline. Data from that study describe the abundance of seaweeds (including the canopy-forming species mentioned above) and invertebrates found at three elevation zones (high, middle, and low) for a total of 1170 quadrats. Both the manipulative experiment and the mensurative study revealed that intertidal macroalgal canopies affect the structure of benthic communities at high and middle elevations (where the canopies ameliorate the otherwise harsh conditions during low tides) but have no effects at low elevations (where conditions remain mild during low tides due to short aerial exposures). Because of its taxonomic amplitude and coverage of a wide environmental stress gradient, our data set is potentially useful to address in novel or infrequent ways other broad ecological issues, such as abundance–occupancy relationships, species co-occurrence, species abundance distributions, dominance and rarity, spatial scales of population and community variability, and distribution of phylogenetic diversity.

Key words: abundance; alga; canopy; ecosystem engineer; environmental stress gradient; intertidal; invertebrate; rocky shore; seaweed; species distribution.

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in \textit{Ecological Archives} at http://esapubs.org/archive (the accession number for each Data Paper is given directly beneath the title).

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