

INFLUENCE OF DOMESTIC WASTES ON ENERGETIC PATHWAYS IN ROCKY INTERTIDAL COMMUNITIES

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1. The calorific contents of eighteen macroinvertebrates and thirty-six macrophytes were determined in an unpolluted rocky intertidal habitat and in a nearby polluted.
2. Much of the variation in the calorific values of macrophytes was related to life span. The algae that characterized the unpolluted community usually contained comparatively fewer calories per unit weight. These forms had relatively more structural tissues and hence allocated relatively less energy to rapid growth and production. In the polluted habitat, fugitive or opportunistic algal species were more prevalent; these had thallus constituents with lower calorific values, suggesting that these algae may have evolved reduced palatability.
3. The major taxonomic groups of algae yielded the following sequence of mean calorific values: Chlorophyta, 4.78 kcal g⁻¹ ash-free dry weight; Rhodophyta, 4.39; Cyanophyta, 4.38; Phaeophyta, 4.22.
4. In nearly every case, macroinvertebrate populations exposed to domestic sewage had higher energy contents than did corresponding populations from the unpolluted habitat.
5. Macroinvertebrates in the polluted habitat grazed greater proportions of blue-green algae and bacteria. Omnivores and suspension feeders in the polluted habitat appeared to utilize energy-rich compounds in the sewage effluent; this may explain the greater standing stocks of omnivores and suspension feeders in the peripheral regions of the outfall plume.