area (blue-green algae, *Ulva californica, Pseudolithoderma nigra* and a brown, filamentous assemblage including *Ectocarpus confervoides* var. *parvus* and epiphytic diatoms) dominated the early successional stages of experimental plots. Sewage-affected surfaces had essentially recovered after six weeks, while community development was still proceeding towards equilibrium in the "unpolluted" area after one year.

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LITTLER, MARK M. and STEVEN N. MURRAY. University of California, Irvine and California State University Fullerton. - Seasonal Variations in Primary Productivity of Seaweeds with Different Morphological Forms

Seasonal production rates were determined in the field by the oxygen electrode technique for the dominant producers on leeward San Clemente Island, Southern California. The forms with highest thallus surface area/volume ratios were more productive than other forms. Community productivity varied over the year as a result of specific populational fluctuations. There was no correlation between the productivity rates and the divisional status of the algal species measured in this study.

36

JOSSELYN, MICHAEL N. University of New Hampshire, Durham. - Field studies on the ecology of Laurencia poitei (Ceramiales) in a subtropical lagoon.

Seasonal changes in standing crop and growth rates were studied for Laurencia poitei, a filamentous alga which forms large unattached mats in coastal lagoons. During a year long study at twelve field stations established in Card Sound, Florida, quarterly surveys of the standing crop were made in conjunction with biweekly growth rate measurements of plants placed within enclosures. The algal standing crop increased gradually from late September through March and then declined during the summer months. The abundance of Laurencia was largely dependent upon seasonal changes in water circulation within the Sound. At stations with a depth greater than 3 m, growth rates during the late fall and spring months averaged 2 to 5 % increase in dry weight per day and during other seasons showed a 0 to 2 % growth rate. The periods of optimal growth corresponded with temperatures between 23 and 26 °C and subsurface light intensities of 275 to 325 langleys per day. At water temperatures above 30 °C, little or no growth was observed. Fragmentation, the only means of reproduction found, was greatest during periods of unfavorable growth conditions, but losses did not exceed 0.5 % of the total plant weight per day. Some fragments form secondary holdfasts and become attached to Thalassia blades or other exposed surfaces. A comparison is made with seasonal patterns in growth rates for other sublittoral macrophytes in Card Sound.

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HANISAK, M. D. University of Rhode Island, Kingston. Field Studies of Codium fragile in Rhode Island Coastal Waters.

Since Codium fragile subsp. tomentosoides was first reported from Rhode Island in 1962, it has rapidly colonized local coastal waters and has become a dominant subtidal seaweed. As part of a combined laboratory-field study on the physiological ecology of this organism, three stations were established to observe natural populations of Codium. Growth began in late spring and increased to a maximum during late summer. Little, if any, growth occurred from late fall to late spring. Production of zoospores and C:N ratios show similar seasonal patterns. Temperature, light intensity, salinity, phosphate and various nitrogen sources were examined to determine their correlation with growth. Productivity was calculated by harvesting meter-square quadrats. The maximum net productivity was 1.77 g dry weight/m^2/day.

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MATHIESON, ARTHUR C., ELEANOR TVETER, MAUREEN DALY, and JOHN HOWARD. Jackson Estuarine Laboratory, University of New Hampshire. - Marine algal ecology in a New Hampshire tidal rapid.

The species composition and abundance of the benthic organisms at the Piscataqua River tidal rapid show pronounced spatial variations, depending upon the current regimes and substrate. Few benthic plants and animals are present on vertical promontories that are exposed to strong tidal currents (40 - 80 cm/sec) and pronounced shearing effects, while adjacent "back-eddy" areas with sloping substrate show a more diverse flora and fauna. A comparison of the zonation and differential tolerances to water motion of the major intertidal organisms is summarized. Ascophyllum nodosum was the most sensitive species to strong tidal current; it showed a conspicuous suppression of its lower distributional limits and a reduced stature in exposed habitats. In contrast, the fucoid alga Fucus vesiculosus var. spiralis, the gigartinalean red algae Chondrus crispus and Gigartina stellata and the barnacle Balanus balanoides were more tolerant to tidal currents. The algal flora at the study site is "open coastal" in character, particularly within the subtidal zone. A mixture of organisms occurs within the Piscataqua River tidal rapid. That is, organisms in the upper shore, such as A. nodosum, are more typical of sheltered conditions, while those on the lower shore are robust "open coastal" species such as Laminaria digitata.

39

PFIESTER, LOIS A. University of Oklahoma, Norman. - Sexual reproduction of Peridinium gatunense Nygaard.

Peridinium gatunense, isolated from a small farm pond in Norman, Oklahoma has been cultured under 4,000 lux in Carefoot's medium (1968) on a 12 hr light-12 hr dark cycle at 20C. Sexual reproduction was induced by inoculating exponentially growing cells into nitrogen-deficient medium. Under these conditions small, thecate cells, similar in appearance to vegetative cells, act as gametes fusing during the dark phase of the cycle. Zygotes resulting from the

Littler,M.M. & Murray,S.N. 1976.
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