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Species Composition and Seasonality of New England Seaweeds Along an Open Coastal-estuarine Gradient

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Abstract

The species composition and seasonal occurrence of seaweed populations at twelve sites in southern Maine and New Hampshire, U. S. A., ranging from offshore open coastal to inner estuarine habitats, were evaluated based upon extensive seasonal collections. Approximately 70% of the species (i. e. 141 of 202 taxa) exhibited cosmopolitan patterns of varying degrees; 67 species were restricted to the open coast and 21 to the Great Bay Estuary System. Only three species, *Cladophora sericea*, *Enteromorpha prolifera* and *Ulva lactuca*, occurred at all twelve sites. A diminution of the number of total species and perennial taxa and the ultimate dominance of green algae were noted in upstream habitats with fluctuating hydrographic conditions and limited rocky substrata. The open coastal sites were dominated by cold temperate species, while warm temperate or 'mixed floras' were more conspicuous within the Estuary. Varying phenological and longevity patterns were evident depending upon hydrographic and physical parameters.

Introduction

Until recently few detailed phenological accounts of New England seaweeds have been conducted (cf. Coleman and Mathieson 1975; Lamb and Zimmerman 1964; Mathieson, Hehre and Reynolds 1981, Sears and Wilce 1975) because of the area's extreme winter conditions. Currently there is a paucity of information regarding the winter/early spring vegetation in this area, particularly within the subtidal zone. Since the mid 1960's, a variety of floristic and ecological investigations of New Hampshire seaweeds have been conducted in order to interpret the macroalgal diversity, distribution, abundance and seasonality (cf. Mathieson and Hehre 1986). In the present account we summarize the species composition, floristic affinities and seasonal occurrence of seaweed populations at twelve sites in southern Maine and New Hampshire, U. S. A., which range from offshore open coastal to inner estuarine (riverine) locations (Fig. 1 and Table I).

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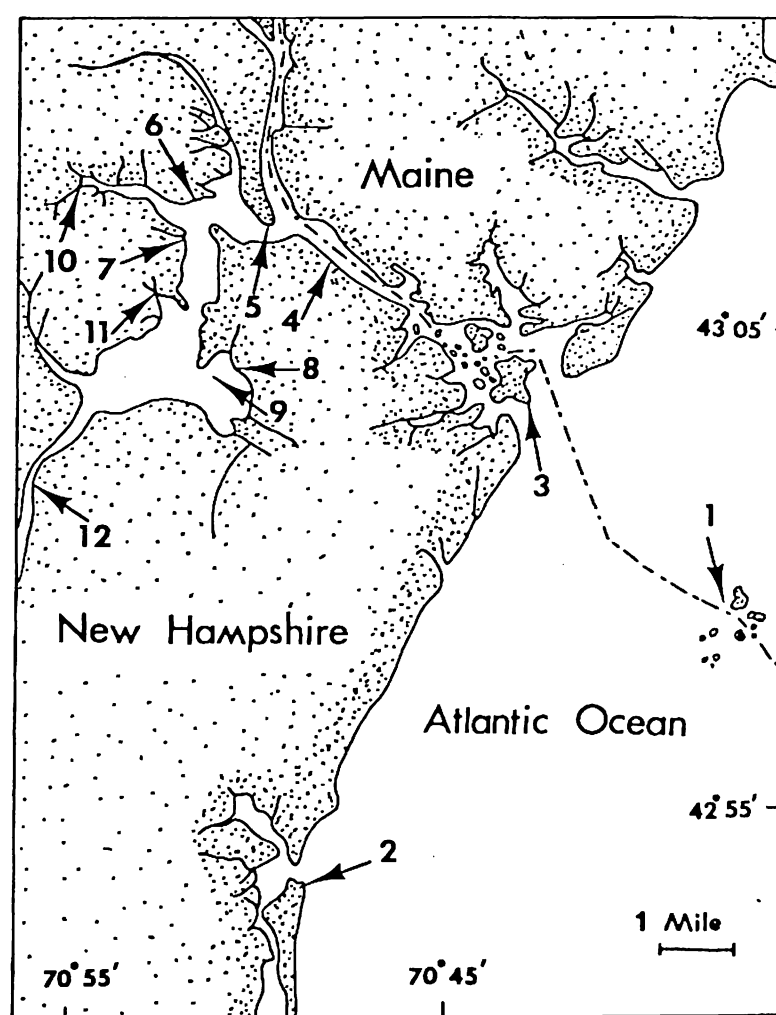


Fig. 1. Twelve study sites in southern Maine and New Hampshire, U. S. A., ranging from offshore open coastal islands to inner estuarine (riverine) locations.