

The reproductive biology of *Dendrodoa grossularia* (Van Beneden) (Tunicata: Ascidiacea) at intertidal and subtidal locations on the West Coast of Ireland

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The reproductive biology of *Dendrodoa grossularia* (Van Beneden) was examined in the broader context of a study of succession and development in ascidian dominated communities, under the umbrella of the COST 647 Programme. Samples were collected from an intertidal location in the inner part of Galway Bay, and from a subtidal site at Ard Bay, on an approximately monthly basis over the period August, 1983 to June, 1985.

The intertidal site is prone to periodic depression in salinity (down to 5‰), under the influence of a major river in the area. Salinity at the subtidal site never fell below 32‰ and temperature at both

sites fluctuated seasonally between 3°C and 18.5°C. Fecundity was significantly higher at the subtidal site where there were two distinct peaks in the reproductive cycle annually, in Spring and Autumn, both of roughly equal intensity. At the intertidal site, on the other hand, although there were two peaks annually, the second in Autumn was greatly reduced. The differences between the two populations were attributed to a combination of factors, among the most important of which were suppressed salinity and tidal emersion at the intertidal site.

Ecophysiological studies of *Halidrys siliquosa* in relation to observed changes in natural populations

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An ecophysiological study of the brown algae *H. siliquosa* has been initiated in order to evaluate if changes in abiotic conditions could be responsible for a massive decrease in the populations of this algal species. Such a decrease occurred in several localities during the years 1979–81 along the Swedish west coast. The first purpose was to study factors determining the northern limit of the alga's distribution. *H. siliquosa*, with its main distribution to the south, has been compared to the closely related and morphologically similar *Ascophyllum nodosum*, f. *scorpioides*, which has a more northern distribution. This comparison revealed the following differences between the two algal species:

Irradiation in stagnant water resulted in much higher photooxidative damage on *H. siliquosa* (both reversible and irreversible). This alga is thus more sensitive to a combination of high irradiation, low temperature and low water motion.

H. siliquosa showed lower rates of bicarbonate uptake, especially at lower temperatures, and in stagnant water. In addition, *H. siliquosa* lacked a light buffering system which occurs in other members of Fucales growing on the Swedish west coast. Also, in the northern regions, the alga occurs only close to the surface. These last facts suggest that the conservation of light energy is the critical factor.