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Title: On Mobile Littoral Environments

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ON MOBILE LITTORAL ENVIRONMENTS

An example of the littoral habitat which is perhaps insufficiently considered by marine ecologists is that to be found on ships hulls, the primary concern with which would seem to be its removal. In fact such a habitat answers many of the needs (and criticisms) of biologists with regard to the "rocky" littoral. For example, the effective uniformity of the hull-substrate solves problems of quantitative sampling with regard to sample areas, while the very mobility of this environment allows a degree of remote sampling with the minimum of effort on the part of the biologist. At the same time, the effects of tidal activity are non-existent other than the artificial "incursion" caused by the loading of the vessel.

It must, however, be accepted that the community structure will be relatively artificial with regard to the limitation of pelagic settlement and rapid development between defouling operations, and the variation in physical conditions of the surrounding water as the ship moves from port to port.

Investigations of such communities are rewarding with regard to community structure, quantitative biology, and records of species (bearing in mind the obvious problems with regard to type/record localities): one would thus hope to see liaison between museums marine research institutions and shipyards where defouling operations make this environment available to the biologist. Such a liaison is developing at the Dove Marine Laboratory with regard to the Tyne yards.

In December, 1974, two dustbinfulls of material were obtained from Redhead's shipyard on the Tyne as they were defouling the M.V. Arctic Shore. The vessel had been cleared in April, 1974, and had spent the intervening months on the Gold Coast of Africa. In this time it had developed a fouling community, based on Balanus tintinnabulum, of an average thickness of 10cm., which was causing a decrease of some thirty per cent in ship's speed. Unfortunately the sample area was not recorded, and no quantitative analyses of community structure have been performed.

No plants were observed in the sample. The dominant animal was B. tintinnabulum, ranging in size from 5 to 85mm. (height), and this species formed a secondary substrate for the remainder of the community, of which the most dominant species were Mytilus perra, a common West African mussel, and a hydrozoan as yet unidentified, forming a dense cover over the most of the barnacles. These three species were by far the most dominant, and in the case of the latter two surprisingly exclusive, since no other hydroids or bivalves were found in the sample. Young specimens of other barnacles, e.g. Lepas, Conchoderma, were present, probably having settled on the return voyage.

Within this sessile growth were many polychaetes (most unidentified, but including Nereis sp.) and amphipod crustacea, though the latter were familiar species which may again be assumed to have settled in transit or in the Tyne. Ten specimens of an unidentified tanaid were retrieved, as were twenty-three specimens of a pycnogonid of a hitherto undescribed species: the latter has since been named Endeis pictan. sp. (Bamber, in press), and type specimens are at the British Museum (including the holotype) and South Shields museum. It is possible that the hydroid and tanaid are also new to science.

This example demonstrates the value of fouling communities with regard to obtaining examples of non-local fauna, of unusual community structure and, in this case at least, of unusual species. The identification work already performed on fouling organisms by researchers concerned with de-and anti-fouling means that the appearance of new species is unlikely to be frequent. However the structure and inter-relationships of the fouling population as convenient examples of "young" littoral communities warrants further investigation.

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