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Possibilities of Making Forecasts For the Time of Settlement of Blue Mussel (*Mytilus edulis* L.) Larvae on the West Coast of Sweden

EVA MARIE RÖDSTRÖM and LARS-OVE LOO

Zoology Department, University of Gothenburg
Tjärnö Marine Biological Laboratory, P.O. Box 2781, S-452 00 Strömstad, Sweden

ABSTRACT

One of the main problems when cultivating blue mussel (*Mytilus edulis* L.) with long-line techniques, is to know when to put out the poly-propylene spat collectors.

A study was performed at Tjärnö Marine Biological Laboratory, from May to August 1983, to investigate factors that may be used as indicators of settlement time. We selected three sampling stations with different hydrographical conditions. The following factors were considered: (1) Maturation of gonads, (2) Size and numbers of planktonic larvae, (3) Number of newly settled juveniles, (4) Hydrography (temperature and salinity).

A general correlation time between spawning, planktonic stage, and settlement was found at all three sampling stations, although they differed in onset of spawning and span of planktonic life between places. It seems as if it is mainly the local adult mussel population that produces the new recruits of young mussels. This implies that the local conditions, probably mainly the temperature, are important in determining the time of development. Also, a correlation between the proportion of mature larvae, "eyed" larvae, in the plankton and settlement of larvae was found, with a fortnight between the peak of abundance of "eyed" larvae in the plankton and the peak of settlement. The results indicate that the presence and number of "eyed" larvae in the plankton could be used as a measure to predict settlement. The reliability of this is discussed.