# Growth of *Mytilus galloprovincialis* in Offshore Waters of the Ligurian Sea

Marco RELINI

Istituto di Zoologia, Laboratori di Biologia Marina ed Ecologia Animale, Università degli Studi di Genova (Italia)



In January 1987 the ODAS 1 buoy (Oceanographic Data Acquisition System of the E.C.) was positioned about 30 miles off Genoa (43° 50' 19" N, 09° 06' 24" E) and moored to the bottom at 1100 m. The buoy comprises a cylinder which is 42 m long and 80 cm in diameter, with a stabilizing disk at its end and three reinforcing rings with alveolar surfaces. Oceanographic data on these offshore waters are available (t°, salinity, nutrients, chlorophyll (INNAMORATI *et al.* 1983), primary production (MAGAZZU' 1989)). An outstanding characteristic of the station are strong surface currents. (STOCCHINO and TESTONI 1977).

The study of the fouling has been in progress since summer 1987 . Here is reported the settlement and growth of Mytilus galloprovincialis, which has a leading role in covering the artificial substratum, being present from 3 to 42 m, (limit for scuba observation and sampling), a depth unusual in this species for natural substrats. However on artificial substrata this species has been recorded up to 130 m (Arnaud 1978).

At the first inspection, in July 1987, the covering of fouling was very poor: bivalves were represented by Pectinidae and a small number 5 mm Mytilus settled in the upper alveolar ring. In July 1988, after 18 months exposure, four samples of fouling organisms were collected by scraping 20 x 20 cm surfaces at depths of 6, 12, 25 m along the vertical wall. Similar samplings were repeated in December 88 and August 89 with the exclusion on this latter occasion of the 6 m level, which had been spoiled by unknown people. All samples proved to be rich in Mytilus galloprovincialis, which on vertical surfaces appeared fairly homogeneous in terms of their size distributions. For the study of the growth samples of each date were pooled. Modal lengths (shell length) of mussels were 6.5 cm in July 1988 (Fig. 1), 7 - 8 cm in December 1988 (Fig. 2). The samples collected in August 1989, (31 months exposure) (Fig. 3), show the presence of two cohorts: 6 -7 cm long mussels, more recently settled and the oldest ones with lengths of up to 10.5 cm. The 1987 cohort appears stronger than the following one. During 1989 no mussel settlement was recorded, neither on the buoy nor on series of experimental panels exposed for 3, 6 and 12 months.

Length/frequency distribution of Mytilus galloprovincialis
22.7.88

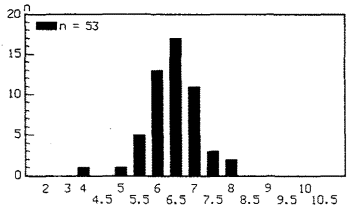


Fig. 1

9.12.88

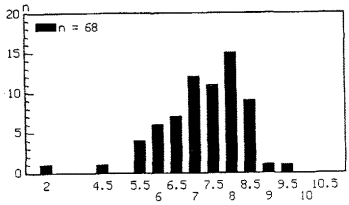


Fig. 2

6.8.89

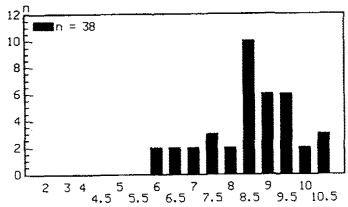


Fig. 3

On the basis of an algorhythm proposed for length-based fish stock assesment (SPARRE, 1984), the following Von Bertalanffy growth curve was established: $L_t = 12.5\ [1 - e^{-0.048\ (t+4.1)}]$ (Fig. 4).

Considering the fact that these are offshore waters, growth appears interesting. RELINI and RAVANO (1971) reported 6 cm growth in 10 months for mussels found in the eutrophic waters of the port of La Spezia (Ligurian Sea). Mussels from brackish environments, which are generally considered rich in food, had a lower growth (CECCHERELLI and ROSSI, 1984).

The favourable conditions of this offshore station are to be seen in its mild winter temperatures, the lack of extreme summer heat, and the strong currents (especially in summer), which support filtration.

Vonbertalanffy grouth curve.

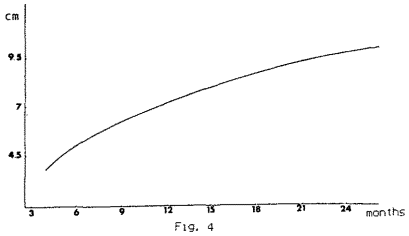


Fig. 4

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