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PRELIMINARY INVESTIGATION
ON THE *PINNA NOBILIS* L., 1758 POPULATIONS
IN 5 LIGURIAN COASTAL AREAS

*INDAGINE PRELIMINARE
SUI POPOLAMENTI DI PINNA NOBILIS L., 1758
IN 5 AREE COSTIERE LIGURI*

Abstract - The knowledge of the ecology and population dynamics of the fan shell *Pinna nobilis* in the Ligurian Sea is still fragmentary. An initial monitoring of *P. nobilis* was conducted - during the year 2015 - in 5 marine sites located throughout the Ligurian coast to provide preliminary informations on the distribution and abundance of this endemic and endangered giant mollusc.

Key-words: marine molluscs, endangered species, population density, *Pinna nobilis*, Ligurian Sea.

Introduction - *Pinna nobilis* L., 1758 is a lamellibranch mollusc endemic of the Mediterranean Sea, where it is registered since the end of the Miocene Period. The recreative collecting of shells, the damages caused by anchoring and fishing activities, but above all the decline of the posidonia meadows - the preferred habitat of the species - have contributed to the decrease in the populations of *P. nobilis* (Centoducati *et al.*, 2007). For this reason the species is listed in the Annex IV of the UE Habitat Directive, No. 43/92. Therefore, even if about twenty years ago some protection measure was adopted, is still uncertain the conservation status of *P. nobilis* in the whole Mediterranean basin (Addis *et al.*, 2009). In spite of the scientific community interest for the conservation of this species, ecology and population's dynamics knowledge is still scarce. The monitoring of *P. nobilis* in the Ligurian Sea was carried on to obtain preliminary informations on the distribution and abundance of this lamellibranch mollusc in five Ligurian costal areas.

Materials and methods - Data were collected through *in situ* observation by scuba techniques in five locations, characterised mainly by *Posidonia oceanica* meadow and with depth of 7 m (Bergeggi), 15 m (Levanto, Genoa - Boccadasse, Albisola superiore) and 25 m (Santo Stefano). Survey has been carried on by:

- tagging the fan shells, a not destructive method and thus excellent tool for the habitats and protected species analysis (Katsanevakis, 2007);
- applying the circular sampling techniques (Garcia-March and Vicente, 2006) within a radius of 10 m, with exception of Santo Stefano (11.5 m) and Genoa B. (16.9 m).

For any fan shell were taken into account the height of the shell out of the sediment (H), the minimum width at the base of the sediment (Lmin) and the maximum width as the greatest dorsoventral width (Lmax). A tape with the precision of 0.1 cm has been employed to take the measures. The total length of the valves (Htot) was calculated using the equation given by Tempesta *et al.* (2013). Furthermore, a label with a progressive numbering has been fixed to the base of the shell, bound with one or more plastic clamps.

Results - The study enabled the census of 34 specimens of *P. nobilis* and more precisely: nine in Levanto (0.03 n/m^2), three in Bergeggi (0.01 n/m^2), eight in Santo Stefano (0.02 n/m^2), eight in Genoa B. (0.01 n/m^2) and six in Albisola S. (0.02 n/m^2). The size (Htot) ranging from a minimum of 28.90 cm to a maximum of 70.93 cm; the average size of the 50% of the sample had sizes ranging between 40.0 and 50.0 cm. The smaller specimens (Htot<40 cm) were detected in Genoa B. (4) and Levanto (3), while the larger (Htot>70 cm) were detected in Santo Stefano (1) and in Albisola S. (1). The molluscs having the lowest average sizes were found in the eastern stations (41.48 ± 10.63 cm Genoa B. and 44.35 ± 6.19 cm Levanto), followed by those of Bergeggi (47.94 ± 3.81 cm) and Santo Stefano (48.47 ± 11.27), while the highest average size was recorded in Albisola S. (52.81 ± 9.18).

Conclusions - The collected data, although scarce, show that in the examined sample the larger specimens have been found in western Liguria (Albisola, Bergeggi and S. Stefano) despite different depths and hydrodynamic conditions. The density values of *P. nobilis* recorded in the investigated sites are quite low when compared with other areas in the Adriatic Sea (Tempesta *et al.*, 2013) and along the Sardinia coasts (Porcheddu *et al.*, 1997); but these results are in line with the data referring to the Malta Island (Garcia-March and Vicente, 2006) and referring to the French (Moreteau and Vicente, 1980) and Spanish (Hendriks *et al.*, 2012) marine protected areas.

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