

MULLUS SURMULETUS (L. 1758) : DECAPODA SELECTIVE PREDATION

GUILLÉN J.E. & MARTÍNEZ HERNANDEZ M.

Institut d'Ecologia Litoral. C/ Benimagrell 5. El Campello. Alicante, Spain

In the Southeastern of Spain, the Red Mullet (*Mullus surmuletus*) is a basic species for artisan fisheries. The fisheries are made with trammel nets. The fishing period ranges from the end of May to December. The study was made sampling with the commercial fisheries methods. The maximum of catches (expressed in kg per net piece -50 a 55 m) was obtained in July, and was equal to 0,6 kg/net. Another maximum value was obtained after the summer season, viz., in October (0,9 kg/net), time in which young specimens are by far the most predominant in captures (MARTINEZ HERNANDEZ, 1993).

The zone of red mullet fisheries in the research area is limited to the deep limit of the *Posidonia oceanica* meadow, namely from 21 to 23 meter depth. It forms an ecotone between the meadow and the muddy sand biocoenosis, and has been degraded due to illegal trawling. After the installation of an extensive antitrawling artificial reef in 1992, trawls were eliminated (RAMOS *et al.*, 1993). Nets are placed by fishermen at night time (4 GMT in Summer, and 6 GMT in Autumn), and they are retrieved at about one hour after dawn. Since then, Red Mullet captures are very low.

79 specimens of Red Mullet were analysed, their size class (HOLDEN & RAITT, 1975) were : 13-14.9 (3 specimens), 15-16.9 (28), 19-20.9 (15), 21-22.9 (6), 23-25 mm (4), and no significative differences were observed between size classes and stomach contents.

The result of the study of Red Mullet's stomach is shown in figure 1a. Crustacea constitute the main part of the total preys of *M. surmuletus* (81,45%), the remaining part is composed mainly by polichaeta, nematoda, sipunculida, and mollusca, in wich the presence of *Seppiola* sp. must be pointed out. Decapoda stand for the great majority of Crustacea (fig. 1b). In this group, *Processa* sp., and *Sycionia carinata* (22,03 %, and 18,64 % of the total of Decapoda, respectively), can be considered as the main species.

In the study area, *Processa modica* var. *carolii* is the most abundant species of the genus. Although we also have also sampled one specimen of *P. macrophtalma.*, *P. modica carolii* is a very common species in the meadow and makes massive movements to other near biocoenosis, like fine sandy bottoms (GUILLEN & PEREZ-RUZAF, 1993).

S. carinata is not a common species in the study area. As it has burial habits, its sampling is quite complex. The high percentage of this species in the preys of *M. surmuletus* can suggests that there is a selective predation for this decapod.

Apart from that, we have researched activity patterns along the day for this Decapoda species. The results obtained show the existence of a night activity for both species, with a midnight highest activity; after this period, the percentage of captures decrease, and practically disappear at midday. At that time, *S. carinata* is buried in sandy bottoms and *P. modica carolii* is hidden in the rizoma and leaves of the meadow. The change of light at daybreak makes the Red Mullet be at its greatest activity, looking for preys. Due to this fact, it is more easily captured with nets. Then, we can suggest the selective predation for these decapoda species as one of the most important facts for artisan fishing.

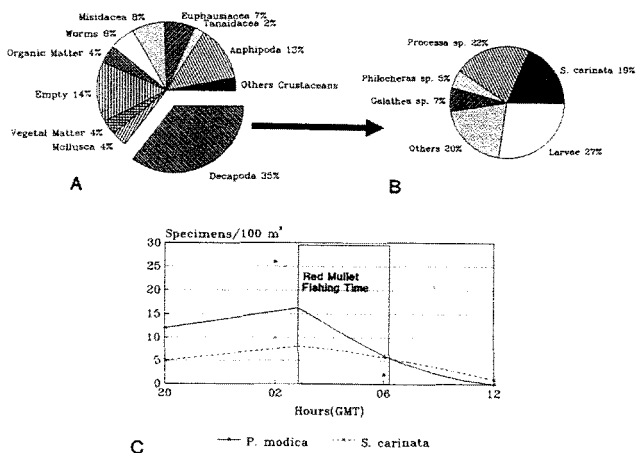


Figure 1. A: Preys composition in *M. surmuletus*. B: Decapod's composition. C: Day activity for *P. modica carolii* and *S. carinata*.

REFERENCES

- GUILLEN, J.E. & PEREZ-RUZAF, 1993. Composición, estructura y dinámica de poblamientos de crustáceos decápodos asociados a las comunidades arenosas del SE ibérico. *Publ. Espec. Inst. Esp. Oceanogr.* 11 : 175-183.
- HOLDEN, M.J. & RAITT, D.F.S. 1975. Manual de ciencia pesquera. Parte 2 - Métodos para investigar los recursos y su aplicación. Doc. Téc. FAO. Pesca (115) Rev. 1. 211 pp.
- MARTINEZ HERNANDEZ, M. 1993. Datos preliminares sobre la pesquería artesanal de El Campello (Alicante) en relación a las especies demersales. *Publ. Espec. Inst. Esp. Oceanogr.* 11 : 375-381.
- RAMOS ESPLA, A.A., MARTINEZ PEREZ, L., ARANDA, A., GUILLEN, J.E., SANCHEZ JEREZ, P. & SANCHEZ LIZASO, J.L. 1993. protección de la pradera de *Posidonia oceanica* (L.) Delile mediante arrecifes artificiales disuasorios frente a la pesca de arrastre ilegal; el caso de El Campello (SE ibérico). *Publ. Espec. Inst. Esp. Oceanogr.* 11 : 431-183.