The traditional "Bianchetto" and "Rossetto" fishery in the Gulf of Manfredonia (southern Adriatic Sea, GFCM Geographical Sub-area 18)

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Abstract

The traditional fishery targeting the transparent goby (*Aphia minuta mediterranea*, locally known as "Rossetto") and sardine (*Sardina pilchardus)* fry (locally known as "Bianchetto") has a long history and represents the most important small-scale activity in the Gulf of Manfredonia (southern west Adriatic Sea, GFCM GSA 18). Transparent goby and sardine fry fishery in the area is carried out by means of towed gears. It could be considered as a semi-selective fishing, and experimental data analysis shows the high vertical opening trawl net is more selective with respect to the traditional otter trawl. The fishery of "Bianchetto" and "Rossetto" partially interacts with offshore bottom trawling. In fact, some species are common to both the activities (European hake, red mullet, etc.) although their catches are very low in the traditional fishery. The small quantity of valuable resources in the catches other than "bianchetto" and "rossetto" could be related both to the authorised fishing period (winter time) and the exploited area, according to the bio-ecological characteristics of species such as the European hake (*Merluccius merluccius*) and the red mullet (*Mullus barbatus*). However, due to the fishing gear and the characteristics of the activity, this traditional fishery (when authorised) has to be carefully monitored on a scientific basis.

Keywords: artisanal fishing; coastal fisheries; fry, MED, Adriatic Sea, South.

1. Introduction

The fishery targeting the transparent goby (*Aphia minuta mediterranea*, locally known as "Rossetto") and sardine (*Sardina pilchardus)* fry (locally known as "Bianchetto") is classified as "Special fishery" by the European Commission, which has practically forbidden this kind of fishery in the EU waters since the 1st of January 1999, according to the EC Regulation 1626/94. In spite of this, the fishery has been so far carried out under the repeal allowed by the Italian Presidential decree 1639/68 (Cau, 2000) and it is quite an important activity in some Italian coastal areas (Auteri *et al*., 2000, Giovanardi *et al.*, 2000).

The traditional "bianchetto" and "rossetto" fishery has a long history and represents the most important small-scale activity in the Gulf of Manfredonia (Ungaro *et al*., 1994) and its social and economic relevance is very high at local level, involving 250-350 fishers and their families.

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2. The fishing activity

In the Gulf of Manfredonia, “bianchetto” and “rossetto” fishery is carried out by means of towed gears. Commercial landings consist mainly (more than 90%) of *A. minuta mediterranea* and *S. pilchardus* fry specimens although small quantities of other species are also captured (Ungaro *et al*., 1994).
Transparent goby and sardine fry fishery by means of towed gears exploits soft bottoms in the Gulf of Manfredonia (southern west Adriatic Sea, GFCM GSA 18) mostly from 8 m down to 15-20 m bottom depth (Figure 1).

Figure 1. Bottom area exploited by transparent goby and sardine fry fishery.

The fishing fleet is concentrated in the maritime district of Manfredonia. In recent years the approximate number of authorised vessels was 150 compared to 200-250 in the past (Ungaro *et al*., 1994). Most of the vessels are characterised by tonnage (GRT) of less than 10 tonnes and engine power below 150 kW (Ungaro *et al*., 1994). The fishery, when authorised, is carried out during wintertime (15 January-15 March as a rule) for a period of 60 days (Ungaro *et al.*, 1994; Casavola *et al*., 1999), but the actual number of effective fishing days is lower.

Two different towed gears are used. The first is the "Italian" type otter trawl; the second is a high vertical-opening otter trawl. Both the gears are equipped with a small mesh covered codend system. The codend mesh size is 36-40 mm (stretched) as required by current bottom trawling regulations, while the cover mesh size is 5 mm.

The target species (transparent goby and sardine fry) are mostly collected in the cover and by-catches are usually retained in the codend. The main features of the nets utilised (length, otter boards etc.) are generally the same as the gears used in the bottom trawl mixed fishery. Although both types of fishing net have been used until now, in the last ten years the shift from the traditional otter trawl net to the high vertical opening trawl has been recorded.

3. The fishery yield and catch composition

Transparent goby and sardine fry fishery in the Gulf of Manfredonia by means of towed gears could be considered as a semi-selective fishing activity. In fact, most of the catches consist of the target species (more than 50% in weight and 75% in number of individuals considering both the cover and cod-end retained species) although other species are also collected.
The rough estimation of landed catch provided values ranging from 25 to 50 kg/boat/day (Ungaro *et al*., 1994), and a high variability rate is reported for the past years.
Sardine fry represented more than 75% of the landed catches and the transparent goby almost all the remaining part (Ungaro *et al*., 1994).
The main by-catch species in the "bianchetto" and "rossetto" fishery are listed in Table 1 together with the rough estimate of their percentage occurrence.

Table 1. By-catch species percentage occurrence in transparent goby and sardine fry fishery catch (* < 0.5%, ** < 1-2%, *** < 5%.).

*Allotheutis media***	Midsize squid
*Arnoglossus spp.**	Scaldfish spp.
*Boops boops***	Bogue
*Deltentosteus quadrimaculatus***	Four-spotted goby
*Diplodus annularis**	Annular seabream
*Engraulis encrasicolus***	European anchovy
*Gobius niger jozo***	Black goby
*Lesuerigobius suerii***	Lesueur's goby
*Liza spp.**	Mullet spp.
*Merluccius merluccius**	European hake
*Mullus barbatus**	Red mullet
*Pomatoschistus sp.****	Sand gobies
*Sepiola sp.***	Bobtail squids
*Spicara spp.***	Picarels
*Squilla mantis**	Spottail mantis squillid
*Trigla lucerna *	Tub gurnard

The species composition of the catch has also been evaluated by means of experimental sampling on board during fishing activity. The catches from the "high vertical opening trawl net" and "Italian otter trawl net" have been compared (Figures 2 and 3), and the first gear appears to be more selective.

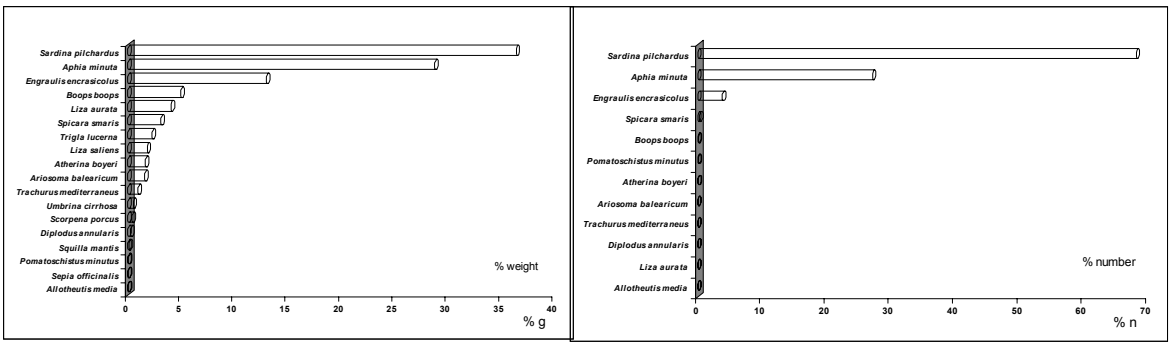

Figure 2. Species percentage in weight and number in the catch of high vertical opening trawl net (covered codend) (Ungaro, unpubl.).

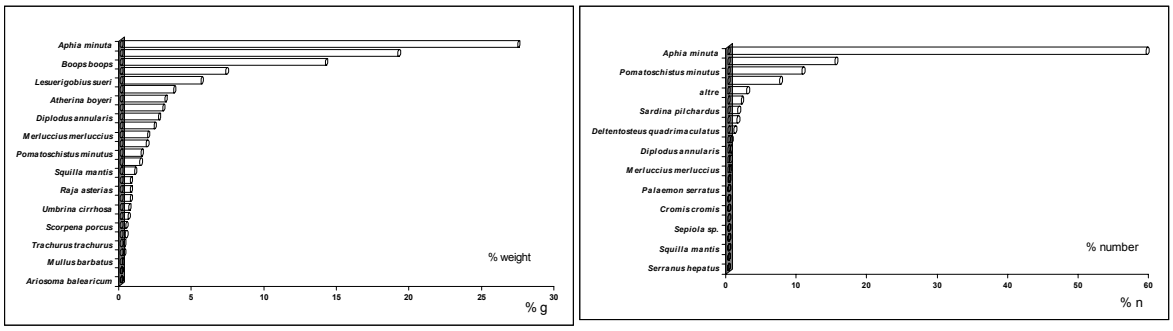

Figure 3. Species percentage in weight and number in the catch of Italian otter trawl net (covered codend) (Ungaro, unpubl.).

4. Discussion and conclusions

The fishery of "Bianchetto" and "Rossetto" in the Gulf of Manfredonia has to be considered as traditional fishing activity due to the long history and the high social impact.
Transparent goby and sardine fry fishery by means of towed gears could be considered as a semi-selective technique (Ungaro *et al*., 1994; Casavola *et al*., 1999), and experimental data show the high vertical opening trawl net as being more selective with respect to the traditional otter trawl. Nevertheless, the use of more selective gears such as the surrounding net without purse line has to be recommended (Auteri *et al*., 2000).
There is no scientific evidence of overexploitation of the target species due, for example, to the catch of sardine fry (Romanelli and Giovanardi, 2000; Romanelli *et al*., 2002). Sardine is present in substantial quantities in the Adriatic (Marano, 2000) and transparent goby is characterised by the short life-span and the small size (maximum length < 6 cm TL; Froglia and Gramitto, 1989).
The fishery of "bianchetto" and "rossetto" partially interacts with offshore trawling. In fact, some species are common to both the activities (European hake, red mullet, etc.) but their catch quantities in the sardine fry and transparent goby fishery are very low (insignificant). The low quantity of other valuable resources in the catch could be related both to the authorised fishing period (winter time) and the fishing area, according to the bio-ecological characteristics of species such as the European hake (*Merluccius merluccius*) and red mullet (*Mullus barbatus*) (Relini *et al*., 1999). However, due to the fishing gear and characteristics of the activity, this fishery (when authorised) has to be carefully monitored on a scientific basis.

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