

RETENTION AND DISCARDS BY SOLE GILLNET FISHERY IN THE ADRIATIC SEA

Fabio Grati*, Gianna Fabi and Giuseppe Scarcella

CNR - Istituto di Scienze Marine, Sezione Pesca Marittima, Ancona, Italy - * f.grati@ismar.cnr.it

Abstract

Observations onboard of vessels using gillnets for common sole (*Solea vulgaris*) in three mooring places of northern Adriatic were carried out for two years for analysing the quali-quantitative composition of retention and discarding. Catch data showed that the retained part was greater than the discarded one. Discard of high valuable species was practically nil independently from size; a size-dependent discard was observed only for *Trigla lucerna*. Discards of non-commercial species were made up of few dominant species, such as the crabs *Liocarcinus vernalis*, *Goneplax rhomboides* and *Corystes cassivelaunus*.

Key-words: discard, gillnet, *Solea vulgaris*, Adriatic Sea

Introduction

Gillnets for common sole is the set nets mainly used by northern Adriatic artisanal fishers. It is employed all year round on the coastal soft bottoms inside 3 nm offshore, following a seasonal pattern with the highest values in summer and the lowest ones in winter. This gillnet is characterised by low height (1.6-2.5 m) and buoyancy of floatings allowing the gear to partially lay down on the seabed thus favouring the capture of benthic fishes. The most common mesh sizes used are the 64 and 68 mm (stretched) ones.

In 1999-2000 a research was carried out on three small-scale vessels (Senigallia, Ancona, Portonovo) to increase the knowledge on this fishery.

Materials and Methods

Data on the quali-quantitative catch composition (for retained and discarded fractions) were collected onboard of randomly chosen professional vessels. A total of 24 observations were carried out from spring to fall, when fishing activity is most intense, without any interference with fisher's modus operandi. The catch was subdivided in target species (*Solea vulgaris*), kept by-catch (retained fraction except common sole), discard of commercial species (discard C; damaged specimens or smaller than legal size) and discard of non-commercial species (discard NC; species without any commercial value). All specimens in catches were identified, measured and weighed. Seasonal catch per effort (CPUE) was computed pooling together data recorded per season of the two sampling years and standardized as kg caught per 5,000 m of gillnet in one hour at sea.

Results

Fifty-nine taxa (37 fishes, 13 crustaceans, 7 molluscs, 2 echinoderms) were recorded. Discard C included the highest number of taxa, followed by retained fraction and discard NC.

Seasonal CPUE ranged from 5.0 ± 1.9 to 8.1 ± 3.7 kg/5,000m/h. The retained fraction far exceeded the discard one, increasing gradually from spring to fall (Fig. 1); *S. vulgaris* represented from 18 to 33% of the total, while *Squilla mantis*, *Trigla lucerna* and *Solea impar* dominated the kept by-catch.

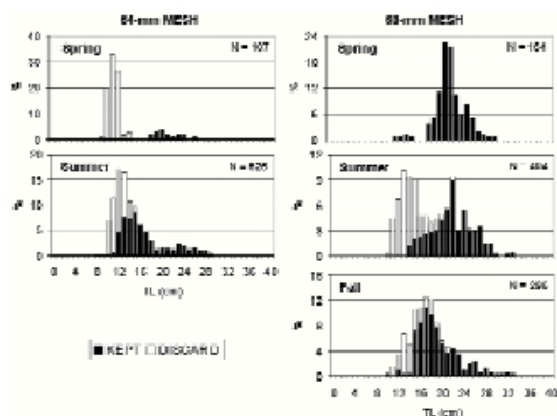


Fig. 1. Length-frequency distribution of *T. lucerna* gillnet catches.

Percentage contribution of discard NC on the total catch noticeably decreased from spring to fall, while discard C was constant among

seasons (Table 1). The species composition of discard C greatly changed with season: *Aporrhais pespelecanid* dominated in spring, *T. lucerna* and *S. mantis* in summer, and *S. mantis* and *Ostrea edulis* in fall. Although *A. pespelecanis* commercially important for artisanal trawling, in the set net fishery it is commonly discarded because of its low abundance. *S. mantis* and other fish species were generally represented by few individuals damaged by scavenger gastropods and crustaceans, while discards of *T. lucerna* mainly included specimens smaller than the size at first maturity in the area (24.0 cm TL; Fig. 1; 1). For the 64-mm mesh 84% of total catch of this species was discarded in spring and 45% in summer; for the 68-mm mesh discarding of tub gumard was nil in spring, but amounted to 46 and 28% in summer and fall respectively. *Alosa fallax*, *Liocarcinus vernalis*, *Goneplax rhomboides* and *Corystes cassivelaunus* dominated discard NC, although their percentage contribution to this fraction noticeably changed among seasons.

Table 1. Composition of seasonal catches by weight and percentage importance of different categories.

		Spring	Summer	Fall
<i>Solea vulgaris</i>	Total Weight	0.88	1.79	2.66
	% on total catch	18	27	33
Kept by-catch	Total Weight	2.50	3.54	4.78
	% on total catch	51	53	50
Discard C	<i>Aporrhais pespelecanis</i>	0.23		
	<i>Polistes flaviventris</i>		0.09	
	<i>Parus parus</i>	0.01		
	<i>Chiron exilis</i>			0.11
	<i>Squilla mantis</i>		0.15	0.15
	<i>Trachinus mediterraneus</i>			0.07
	<i>Trigla lucerna</i>	0.04	0.14	
	Others	0.02	0.02	0.01
	Total Weight	0.32	0.40	0.34
	% on total catch	6	6	4
	Discard NC	<i>Alosa fallax</i>	0.05	0.02
<i>Corystes cassivelaunus</i>		0.19		
<i>Goneplax rhomboides</i>			0.22	0.16
<i>Liocarcinus vernalis</i>		0.99	0.06	0.01
<i>Oriza</i>		0.01	0.01	0.01
Total Weight		1.24	0.91	0.21
% on total catch	25	14	3	

Conclusions

The sole gillnet is more species-selective than other set nets (2). Discarding for this fishery was low, although all individuals were dead when rejected. Among the commercial species, a size-dependent discarding occurred only for *T. lucerna*, whose juveniles concentrate from spring to fall in the coastal area (1) where easily enmesh in set nets independently from mesh size because of their particular body shape (3). Discard NC consisted of few dominant decapod species, some of which play an important role in the diet of several highly valuable fishes (i.e. scienids; 4).

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