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Short communication

Relationship between first sale price, body size and total catch of trammelnet target species in Majorca (NW Mediterranean)

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Abstract

Most resources landed in the NW Mediterranean by small-scale fisheries are sold directly in local markets. Fish length and overall catch composition of trammelnet target species were sampled at the Palma Fishing Wharf in Majorca. This showed that the two variables are essential for assigning a commercial category when selling the fish and have a major influence on the sale price obtained. There was a slight decrease in the sale price when catches were higher but the effect was masked due to the high variability around the average price found each month. This study highlights the importance of considering variables related to the first sale prices of the catch as market indicators in order to better understand small-scale fisheries.

Keywords: Majorca; Trammelnet fishery; Price; Body size; Cuttlefish; Striped red mullet; Scorpaena

1. Introduction

Traditionally in the NW Mediterranean there is local demand for regional, high-quality products obtained from the artisanal fishery which cannot be supplied by other fisheries. This local market demand and the temporal variation in the catch can be reflected in the first sale price (Sanchez et al., 2004). Thus, assessment could be improved by including an analysis based on economic indicators (Bonzon, 2000). First sale prices can therefore be an important market indicator, especially when most of the resources landed are sold directly in local markets.

Price descriptors vary greatly; however, they can be summarized into fish-offer dependent variables, which are usually obtained from sale bills and catch data, and fish size dependent variables, which are often difficult to obtain due to the lack of data available for fish size classes (Lleonart et al., 2003). Body length is an important biological parameter used in estimating fishery parameters (Stergiou et al., 2004) and determining the first sale price. Therefore, information about fish size–price relationships can help to reveal relationships between the biology, assessment and marketing of different species.

Artisanal fishery represents a major part of the entire Majorcan fishery with a significant part of the fleet dedicated to small-scale trammelnet fishery. The products from the artisanal boats are sold in an auction in the early morning in one main fishing wharf and are therefore all submitted to the same commercial rules. This study focuses on filling the current gap in information about the relationships between first sale price, size distribution and total abundance of the main target species of the trammelnet fishery, taking into account the market classification of the catch into commercial categories.

2. Materials and methods

During 2006, landings from randomly selected boats from the artisanal fishery were analyzed monthly in Palma Fishing Wharf in Majorca before the catch was sold. This was carried out to obtain the relationship between the length distribution, the commercial category and the price. We sampled the landing date, the total number of boxes landed per boat and the species composition in each box for each boat. Four target species were analyzed. When the target species were found, the length of all

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individuals was measured. A total of 2476 *S. officinalis* (Cuttlefish), 909 *M. surmuletus* (Striped red mullet), 1059 *S. porcus* (Black scorpion fish) and 424 *S. scrofa* (Red scorpion fish) were measured. The total fish length (TL) and ventral length (VL) to the nearest cm were measured for fish and cephalopods, respectively. The weight of each box in which a target species was identified was calculated using the length–weight relationships from Morey et al. (2003). This allowed length distributions to be transformed into weight. After the auction, for each boat sampled the Palma Fishing Wharf provided data on the total number of landed boxes, the weight of each box, the commercial category into which each box had been classified and the price (Euro/kg) obtained in the auction.

The corresponding relationship between the length distribution in each box and the price was determined for 717 boxes. In 420 of these boxes one or more of the target species had been previously identified. For some of the commercial categories it was difficult to establish the relationship between length composition of the target species and the price and therefore some of the boxes were not included in further analyses. The total catch of the target species at the fishing wharf was calculated from daily sales registers in 2006, which were provided by the regional fisheries directorate. We tested for differences in the price on different days of the week using a one-way ANOVA for each of the species.

3. Results

The four target species were sold in 10 different commercial categories: small cuttlefish, large cuttlefish, large striped red mullet, small, medium and large red scorpion fish, small and large black scorpion fish. When the catches included mixed species composition they were classified into a category called "variat" which included mostly "Sparidae" and "morralla" which included small fish of different species typical from coastal areas. The classification into commercial categories was dependent on the target species, the size distribution of the catch and the total number of different species included in each box (Fig. 1).

Cuttlefish was always separated from the other species and placed alone in the boxes. It was sold in two main commercial categories related to body size: "small cuttlefish" for body lengths below 15 cm on average and "large cuttlefish" for body lengths above 15 cm. Striped red mullet was either classified as "large striped red mullet" or "other" commercial categories, mainly morralla or variat. For body lengths below 20 cm, most of the striped red mullet was classified as "other". For lengths above 20 cm, around 50% of the catches corresponded to the specified commercial categories. For red scorpion fish there was a predominance of large fish that were classified in the "large and/or medium red scorpion fish" category, whereas for fish below 30 cm the catch was classified either as "other" or as "small sized red scorpion fish". Black scorpion fish was either sold in the "large" or "other" category. Assigning the commercial category was also dependent on the companion species. The category "large striped red mullet" was completely composed of striped red mullet, whereas when sold in the other commercial categories striped red mullet was only a companion species. The largest sizes of red scorpion fish were mostly placed alone in the boxes even if the whole catch was reduced to one single individual. However, smaller individuals of red and black scorpion fish were only placed alone when catches were high or else

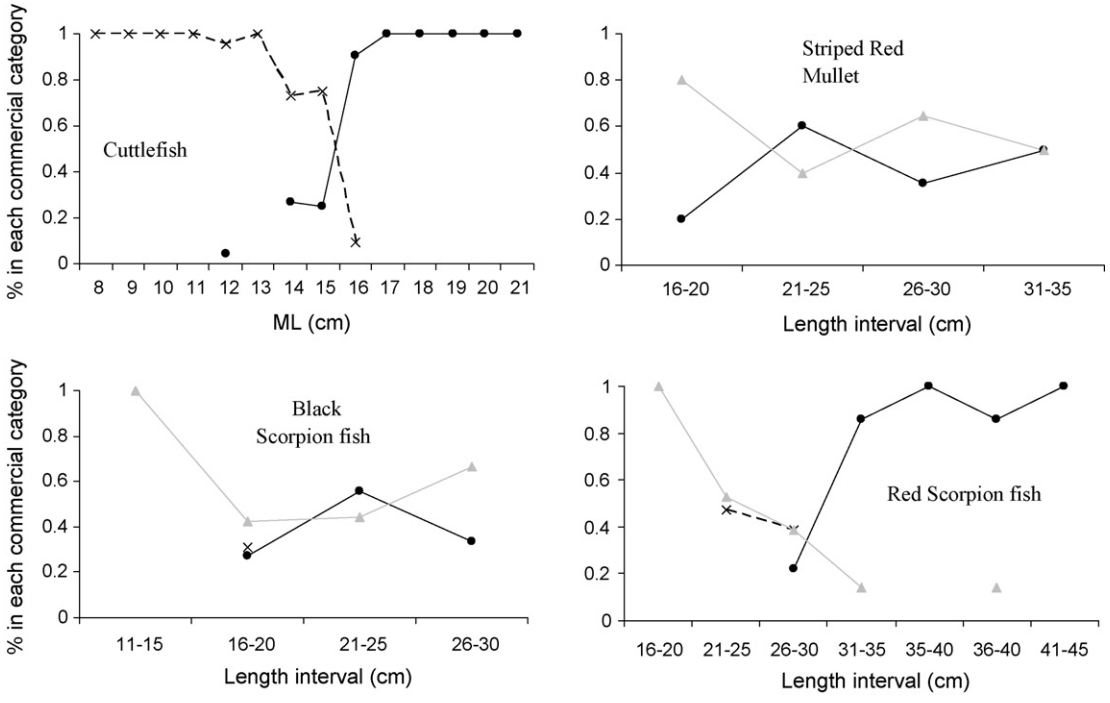

Fig. 1. Percentage of boxes in each commercial category in relation to the average length of the catch for the four target species. Black circles: large and medium sizes, crosses: small size, grey triangles: other commercial categories.