By-catch composition of the striped soldier shrimp Plesionika edwardsii (Crustacea: Decapoda: Pandalidae) experimental fishery in the Cape Verde Islands

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Abstract

This work focuses on the by-catch composition of Plesionika edwardsii experimental fishery in the Cape Verde Islands. Obtaining information on abundance, composition and lifecycle of species involved in this potential fishery is useful, in order to ensure its sustainable development under an ecosystem approach. The first step towards this goal is the description of catches.

Four 15-day research surveys were conducted on board the R/V Prof. Ignacio Lozano: April 2010 (São Vicente and Santa Luzia islands), November 2011 (Santiago island), March 2012 (Boa Vista island,) and July 2012 (Sal and São Nicolau islands). The working depths were between 66 and 458 m depth. A standardized innovative fishing gear was used, so-called multiple semi-floating shrimp traps. Each fishing line was composed by 40-65 traps operating around 2.4 m above the seafloor, using *Decapterus macarellus* (*Carangidae*) as unique bait of the traps.

Multiple semi-floating shrimp traps is a passive fishing system that allows catch and release sea significant part of the unwanted catches, as in the case of *Chondrichthyes* or *Anguilliformes*, reducing the fishing impact on non-target species.

The main by-catch was composed of 53 species belonging to three groups including *Chondrichthyes* (three families and three species), *Crustacea* (11 families and 19 species) and *Osteichthyes* (15 families and 29 species). *Plesionika edwardsii*, the target species of this fishery, represented 97.8% of the catch in terms of abundance and 40.1% in biomass. By-catch represented 59.9% of total catch in terms of biomass. *Osteichthyes* (87.5%) were the dominant group and was represented by the following main families; *Sparidae* (33.9%), *Moridae* (32.5%), *Muraenidae* (32.5%), *Scorpaenidae* (9.9%) and *Tetraodontidae* (9.8%). *Chondrichthyes* (11.6%) were composed by *Centrophoridae* (65.3%) and *Triakidae* (34.1%). Finally, *Crustacea* (1.9%) were chiefly composed by *Pandalidae* (79.1%). However, different families represented by specific species were found to be dominant around each island. *Sparidae* were the dominant family represented by *Pagellus acarne* (46.2% of total by-catch) at São Vicente, and by *Dentex macrophthalmus* (42.6%) at Boa Vista. *Tetraodontidae* with *Sphoeroides pachygaster* (25.9%) and *Sparidae* with *P. acarne* (25.1%) were the co-dominant families in the by-catch around Santa Luzia. *Muraenidae* were the dominant family represented by *Gymnothorax polygonius* (69.4%) at Sal, and by *Muraena helena* (63.4%) at São Nicolau. Finally, *Scorpaenidae* with *Pontinus kuhlii* (22.3%) and *Moridae* with *Physiculus cyanostrophus* (22.1%) were the co-dominant families of the by-catch around Santiago.

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