ABUNDANCE OF INVASIVE ALIEN SPECIES (IAS) CAUGHT BY SMALL-SCALE FISHERIES OF LIPSI ISLAND, GREECE.

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Abstract
Recorded landings from artisanal fishermen of the Lipsi island complex, Greece, were analysed for abundance of IAS ichthyofauna. *Seriola fasciata, Siganus rivulatus, Siganus luridus, Sargocentron rubrum* and *Etrumeus teres* were landed. *Siganidae* sp. comprised 18% of the total catch biomass.The current study confirmed the presence of these IAS at a local scale.

Keywords: Invasive species, Aegean Sea, Fisheries, Alien species

The Aegean Sea, which poses many different anthropogenic influences, provides an opportunity to survey the presence of IAS. Landings from the local, small-scale fisheries gave precise data on IAS presence and abundance, on a local scale. This study was carried out in collaboration with Lipsi Island complex fishermen in order to map IAS distribution and calculate abundance. This is a baseline study to increase the understanding of the local distribution of IAS.

The study took place between April and October 2014 alongside small-scale Lipsi island fishermen. Of fishermen catch, species were identified and the length of each individual was measured and recorded on a daily basis. Gear characteristics, fishing techniques and the substrate type was also recorded. Data analysis was based on 144 landing surveys using long-line, trammel and gill nets. Using the formula $W = aL^b$, length was converted to weight (kg) and biomass per individual (kg) was estimated.

Throughout the sampling period, the majority of the IAS were landed in June and July 2014 whereas the lowest landings were recorded in September and October 2014 (Figure 1). Additionally, shallow waters that are less than 30 m depth had the highest landing rate of IAS.

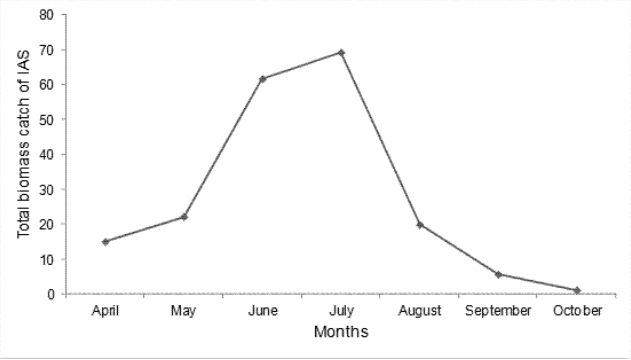

Fig. 1. Figure 1 Total biomass catch of monthly IAS landings in Lipsi island complex, 2014

70 species were identified during the landings, including 5 IAS with a total of 135 individuals: *Siganus luridus* (107), *Siganus rivulatus* (17), *Sargocentron rubrum* (6), *Seriola fasciata* (4) and *Etrumeus teres* (1). *S. luridus* had the second largest biomass caught in the total biomass of species landed in 2014 (Figure 2); this species contributed to 97.6 % of the IAS total biomass. The large presence of Siganidae sp. can be interpreted that the IAS could be dominant over many native biota of Lipsi. These IAS species have previously been recorded in Greek territorial waters, but not as far north as Lipsi island [1, 2].

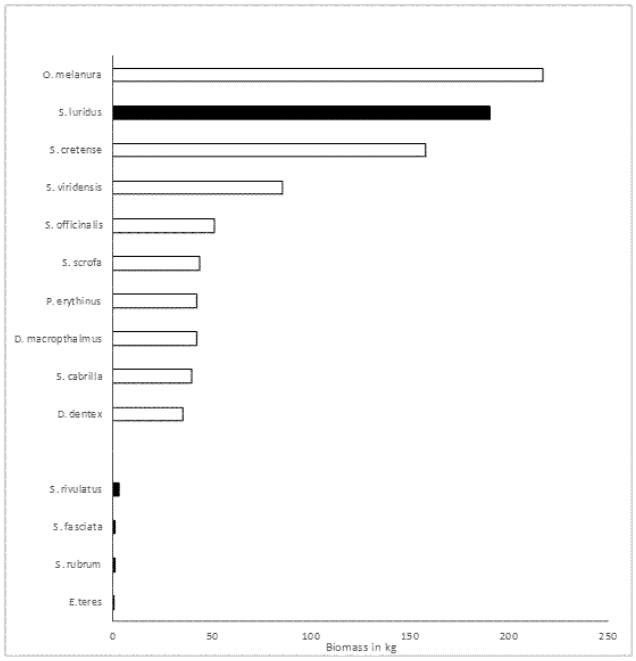

Fig. 2. Figure 2 – Total biomass of 14 caught species landed during the 2014 season – IAS in black, native species in white.

Close co-operation with artisanal fishermen is of great importance, allowing an efficient method to gather data on IAS abundance. However, only information on catchable species would be presented. Siganidae sp. contributed to a high proportion of the biomass caught of IAS whereas only four other IAS were reported, each with a low catch number. It is important to note that most of the IAS were caught in shallow waters; this could be linked to the species habitat preference or higher anthropogenic influences in these areas.

References
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