



Abstract

# Feeding Habits of the Invasive Weakfish (*Cynoscion regalis*) in the Gulf of Cadiz †

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**Abstract:** Weakfish (*Cynoscion regalis*) has been present in Iberian waters since at least 2011, when it was first recorded in the Guadalquivir estuary. Little is known about the preferences and feeding strategies of weakfish outside of its native range; therefore, in this work, we carried out a comprehensive study between March 2021 and September 2021 to elucidate these matters. In total, the stomach contents of 300 fish were examined. The fish were collected in spring and summer in the Gulf of Cadiz (Spain), with individuals caught ranging from 185 to 590 mm in total length. Due to the sampling period and size range of individuals, ontogenetic and seasonal (spring–summer) variations in the diet were also explored. Overall, fish and crustaceans were the dominant groups consumed by weakfish. The European anchovy (*Engraulis encrasicolus*) and caramote prawn (*Penaeus kerathurus*) were the most abundant prey in each group. While no differences were found in the percentage of occurrence of fish in the non-empty stomachs analyzed in spring and summer (83%), a small increase was found in the percentage of occurrence of crustaceans from spring (20%) to summer (29%). In addition, the analysis of the results also suggested that weakfish of smaller sizes feed more on crustaceans, while bigger individuals feed mainly on fish. Our findings indicate that weakfish is a fully carnivorous species with a preference for fish. All this is in line with the diet and strategy that weakfish exhibits in its native area and with the first assessment made with the existing population in the Sado Estuary (Portugal). In recent years, due to the appearance of non-native species, there is increasing concern among local fishermen and the local authorities about the reduction in captures of certain species such as *Penaeus kerathurus*; therefore, this study could help researchers to understand the role of weakfish concerning this matter. The present study contributes to the ecological knowledge about this species in the Iberian Peninsula and the Gulf of Cadiz, helping the local authorities to establish, if needed, an appropriate management program to cope with this recently introduced species.

**Keywords:** weakfish; stomach content analysis; fish feeding; Iberian Peninsula; non-native species



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