

PROPOSTA DE TREBALL FINAL DE MÀSTER

curs 2021–2022

Grup de recerca (si escau): Functioning and Vulnerability of Marine Ecosystems

Institució: Institut de Ciències del Mar (ICM-CSIC)

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Títol del projecte: Spatial trophic dynamics of a large pelagic predator along contrasting oceanic environments

Tasques a desenvolupar: - Estudi de constinguts estomacals (treball laboratori) - Estudi d'isòtops estables (treball laboratori) - Anàlisi estadístic - Redacció publicació científica

Lloc de treball: Institut de Ciències del Mar (ICM-CSIC)

Requisits formatius de l'estudiant: Nocions bàsiques d'estadística. Es valora positivament experiència prèvia en estudis estomacals i d'isòtops estables però no és indispensable.

Resum del projecte:

Swordfish (*Xiphias gladius*) is a large solitary pelagic predator with a highly commercial importance. In the Atlantic Ocean, two stocks are known: a northern and a southern stock, in addition to the Mediterranean one. Aside from genetic differences, life history parameters, such as growth and sexual maturity differ between the Mediterranean and Atlantic Ocean stocks. Nowadays, this species is considered as a near threatened species in the Mediterranean and European waters by the IUCN Red List, where their populations are decreasing mainly due to overfishing.

This species is an opportunistic predator with a wide trophic spectrum mainly feeding on fin-fish and cephalopods, with spatial and ontogenetic differences in the relative importance of these prey groups. Swordfish typically forages in deep waters during the day and stay in mixed layers at night. Although trophic habits have been identified through its range, a proper spatio-temporal comparison between the Mediterranean and Atlantic basins is lacking. This inter-basin comparison would help to understand the ecological role of swordfish within the pelagic community, as well as to monitor changes of the food web. This information is of special interest for the management of the different stocks of swordfish.

In the present master thesis, the student will examine the feeding ecology of swordfish along a latitudinal gradient (Mediterranean Sea and Atlantic Ocean) between 2017 and 2020 using a combined approach of stomach contents and stable isotopes analyses in muscle tissues. This

study will provide interesting new insights into the ecological role of this species at risk. The master student will acquire identification skills of stomach content analysis, analytical skills regarding stable isotope analysis, as well as statistical skills to analyse the data. The student will be integrated in the Functioning and Vulnerability of Marine Ecosystems group and will interact with several researchers devoted to numerous topics regarding marine conservation and ecosystem functioning.

Observacions: Necesari desplaçar-se a l'ICM per realitzar les tasques de laboratori. Es podria fer durant dos anys.