North Atlantic Oscillation affects dolphinfish catch and bycatch in the Western Mediterranean Sea

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Dolphinfish is targeted by small-scale fisheries and is part of the bycatch of drifting surface longline targeting tuna and swordfish in the Mediterranean Sea. The main aim of the present study is to understand the effect of the North Atlantic Oscillation (NAO) on the dolphinfish bycatch of the Spanish longline fisheries in the Western Mediterranean Sea and, likewise on the catch of small-scale fisheries targeting dolphinfish associated to anchored fish aggregating devices (aFADs) in waters of the Balearic Islands. Understanding the impact of climatic effects is crucial to improve the assessment and management of the Mediterranean dolphinfish. In longline fisheries, the negative phases of the NAO with a short time lag increase the dolphinfish bycatch probability, with a CPUE higher than the mean of the study period. However, with a long time lag, the positive phases increase the dolphinfish bycatch probability, with a CPUE higher than the mean of the study period. On the other hand, when examining the Mallorca aFADs fisheries, the negative phases of the NAO with a long time lag increased the probability of catching fish with higher landings than the observed mean of the study period. The results suggest strong connections between the prevailing climate conditions in March and April and dolphinfish catches during the fishing season of this species in September and October.

Bycatch

Coryphaena hippurus

Longline fisheries

Mallorca landing

Western mediterranean