
Struggling despite anthropogenic subsids: Northern gannets in the English Channel

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Abstract

Fisheries modify ecosystem balance, fishing through marine food webs, and producing large amount of discards subsidizing scavengers. Among them, seabirds are the most conspicuous and have been benefiting from anthropogenic food sources generated by fisheries. Yet this alternative feeding behaviour also exposes seabirds to new threats, such as accidental bycatch on fishing gear. Seabird-fishery interactions have been the focus of numerous studies, with a recent emphasis on seabird behavioural responses to fishing vessels. However, little is known about multi-annual dynamics in seabird-fishery interactions. To explore this facet, we performed GPS-tracking and stable isotopic analyses in Northern gannets (*Morus bassanus*) across a decade, during which they coexisted with fisheries in the English Channel. This allowed us to demonstrate that gannets favored fishery wastes when their natural prey (pelagic fish) became scarce, but that this dietary shift induced enhanced seabird foraging effort and reduced body condition. These changes were concomitant with reduced gannet

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reproductive success, and reduced growth rate of their breeding colony. Our work provides essential, novel understanding of scavengers-fisheries interactions, and confirms the detrimental effect of anthropogenic subsidies on seabirds. The ongoing discards reform of the European Union aiming at strongly reducing at-sea dumping of fishery waste will modify the foraging environment of marine scavengers. It seems essential to combine this discard ban with efficient rebuilding of pelagic fish stocks, which are a pivotal element of marine trophic networks and an irreplaceable food source for vulnerable seabird populations such as Northern Gannets in the English Channel.