What moves European sea bass?

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Studying movement behaviour is imperative to understand how and why a species uses its habitat. In the North East Atlantic, the highly mobile European sea bass (*Dicentrarchus labrax*) is known to move from shallow, inshore feeding grounds in summer to deeper waters offshore in search of warmer temperatures in winter for spawning. Knowledge on these spatiotemporal changes in movement behaviour and distribution is critically limited for bass in the Southern North Sea. The species is currently being exploited at unsustainable levels, with previous management failures being largely attributed to data deficiency. The cutting-edge technology of the acoustic data storage tag (ADST) enables the observation of individual fish movements in the wild. The transmitted acoustic signal of ADSTs can be detected by receiving hydrophones, whenever the tagged fish roams within its detection range. Moreover, tag recovery allows to access the data-storage part and reconstruct individual depth and temperature records stored on the tag itself. In 2018 and 2019, 120 sea bass, caught by hand-line fishing in the Belgian Part of the North Sea and Western Scheldt, will be tagged with ADSTs, to fill the knowledge gap on spatiotemporal habitat use of the species. After tagging, the fish acoustic receiver network of the Belgian LifeWatch Observatory will be able to pick up the signals of the transmitter tags. This PhD research projects aims to describe and explain spatiotemporal patterns in distribution and movement behaviour of *D. labrax*. Firstly, this study will describe how these temporal shifts in habitat preference and use in the Southern North Sea are driven by temperature changes. Next, we will investigate whether the migrated distance is influenced by body length and sea temperature. As a final objective, recommendations will be made for an adaptive fisheries management, needed now more than ever, in the light of global change and the current overexploitation of European sea bass.

Keywords: European sea bass; telemetry; LifeWatch; movement behaviour; spatial ecology