- **Modelling**

Estimating bycatch at regional scale in the MFSD context: Adapting carcass drift modelling to common dolphins in the Iberian Peninsula

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Strandings of common dolphins (*Delphinus delphis*) with bycatch evidence have been increasing in recent years along southern Atlantic European coasts. From these strandings, it is possible to infer likely mortality areas of bycaught common dolphins by using a drift modelling approach. The drift prediction model (MOTHY) requires several physical parameters (atmospheric predictions or currents) and biological variables (e.g. drift duration and buoyancy). First, this method allows the likely at-sea origin of the stranded carcasses to be predicted. They are then weighted by the probability that dead cetaceans dying in specific area reach the coast, named stranding probability. Finally, the last correction remains the proportion of floating dolphins, estimated at 24% (IC95% [17% - 32%]) in the Bay of Biscay, and allows to infer bycatch estimates. Used as a national indicator for French Good Environmental Status evaluation under the Marine Strategy Framework Directive (MSFD), this method has been adapted to the west coast of the Iberian Peninsula in the framework of the CETAMBICION project. Bycaught dead dolphins tagged on fishing vessels, released at sea and recovered along the Galician coasts allowed to select the model with the most realistic trajectory prediction, and appropriate physical parameters. Stranded bycaught dolphins originated mostly from the continental shelf, especially between Northern Portugal and Southern Galicia (50% of stranding). In winter, the origin of stranded dolphins expanded up to 240 km beyond the continental shelf whereas they remained very coastal during summer months. The stranding probability was maximum (up to 80%) in the north of Portugal and Galicia, and the lowest in southern Portuguese waters (close to 10%). These probabilities could explain the highest number of stranding originated from this area. These steps will allow the evaluation of total bycatch mortalities that could be compared to the sustainable threshold for the population under the MSFD.