

Interactions between commercial fishing and cetaceans in the French West Indies

Interacciones entre la pesca comercial y los cetáceos en las Antillas francesas

Interactions entre pêche professionnelle et cétacés dans les Antilles françaises

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EXTENDED ABSTRACT

The waters of the French West Indies are home to a third of all known cetacean species and form the Agoa Sanctuary, a marine protected area dedicated to the protection of marine mammals. As part of a study commissioned by Agoa, the interactions between fishing and marine mammals were recently characterised. The main objectives were to take an overview of fishing practices in the French West Indies, identify fishing techniques likely to generate negative interactions with marine mammals, find out how fishermen perceive marine mammals and identify the necessary management measures. Based on literature and interviews with technical and scientific experts and members of fishing industry, the study was supplemented by surveys of 70 fishermen, representing 6.5% of the French West Indies fleet (J. Herfaut, et al, unpublished data).

The fishermen surveyed are mainly captains, aged between 46 and 55, with an average of 23 years' experience and around 3 trips out to the sea a week. The results show a high degree of versatility in the fishing techniques used, but the most common is the anchored fish aggregating device (FAD), combined with other techniques like fishing traps and gillnets. 42% use 3 techniques or more. Trawling is banned and fishing practices are mainly artisanal. During their activities, 71% of surveyed professionals regularly see cetaceans: whales mostly during navigation and dolphins most of the time close to FAD's. When encountering cetaceans, fishermen report different behaviour patterns depending on the species: delphinids tend to move close to the boat, unlike whales. Fishermen are generally indifferent to cetaceans. However, 14% move away to avoid depredation and there seems to be a global fear of killer whales, leading them to move away and interrupt fishing activities when this species is present. That being said, 90% consider that cetacean have a role to play and that oceans need them. Finally, 44% of the surveyed fishermen agreed to cooperate with the Agoa Sanctuary.

Three types of interactions were identified between professional fishing and cetaceans. The first is depredation, which is the removal of fish from fishing gear by marine mammals. According to the surveys, depredation is mainly carried out by delphinids on FADs, vertical longlines and trolling lines. Feeding on fishing gear represents a gain in energy and/or the quality of the catch for the odontocete. The second is entanglement, an involuntary capture of cetacean by inactive fishing gear and the third is by-catch, an involuntary capture by active fishing gear of a vulnerable species not intended for consumption. The fishing gears involved in entanglements and by-catch are ghost gear (drifting or otherwise), anchored nets and FADs. These incidents mainly affect humpback and sperm whales, and more rarely killer whales and bottlenose dolphins.

During the surveys, 31 incidents were reported, 13 of which were fatal over an average of 23 years of experience. More than half of those surveyed had never seen an incident. Figure 1 shows the map of the reported incidents. In Martinique, depredation-related incidents are numerous where fishermen encounter dolphins on FADs. The most affected species would be pantropical spotted dolphin, Fraser's dolphin, humpback whale and Atlantic spotted dolphin. It should be noted that the majority of fishermen have doubts about identification of delphinid species. Figure 2 reveals that mortality rate varies according to the type of fishing practiced, the most involved gear in incidents is not systematically the most lethal. The majority of incidents relate to small delphinids caught on hooks, in which case the fisherman cuts the line, and the animals generally seems to survive. Other gears such as gillnets, driftnets and FAD ropes are more frequently fatal, as are collisions.

Although incidents appear to be occasional, their impact remains significant. For a marine mammal, an entanglement or accidental capture can cause more or less temporary discomfort, injuries, sometimes fatal infections and death. These events also have an impact on professional fishermen, causing loss of targeted fish, loss of equipment and sometimes a temporary loss of the fishing site, when cetaceans are present on FADs for example, leading professionals to move to another site.

The management prospects highlighted by these results include developing the sustainability of fish aggregating devices, the need for in-depth studies, collection of sea waste from fishing gears and cooperation with fishing professionals.

In conclusion, few incidents were reported, indicating that local fishing techniques pose relatively few risks, but the sample size is small (6.5% of the fleet surveyed). However, these events are a source of economic loss for fishermen and the impact may be not negligible for the already fragile sperm whale population and the humpback whales which accumulate pressures along their migration. Awareness-raising are being carried out to help fishermen identify cetacean species and to encourage the transmission of cetacean sightings as well as incidents. Information on how to act in the event of an animal in distress was also given. Following exchanges with fishermen, a project consisting of collecting data to assess the presence of marine mammals in fishing devices was born. A Soundtrap ST600 hydrophone has been ordered for this purpose.

KEYWORDS: Fisheries, marine mammals, interactions, French West Indies, Marine protected area management

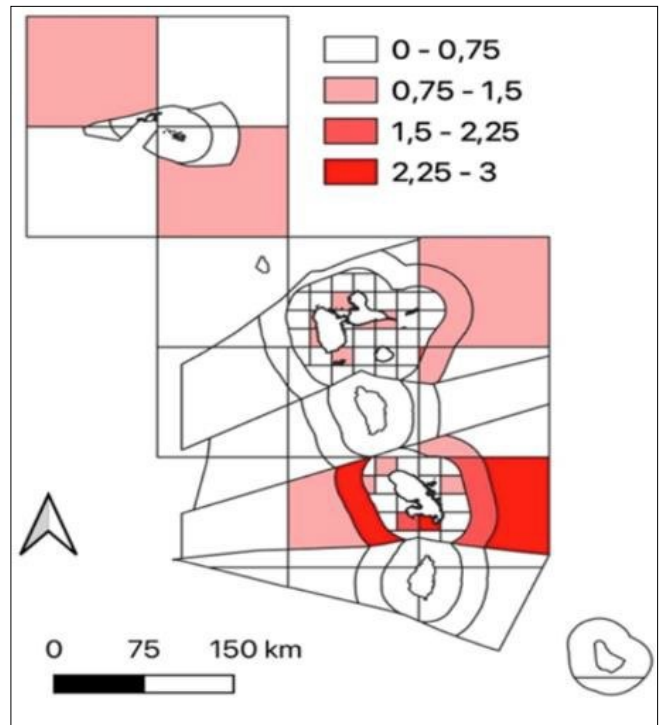


Figure 1. Map of incidents reported during surveys (number per statistical square from Ifremer's Halieutic Information System)

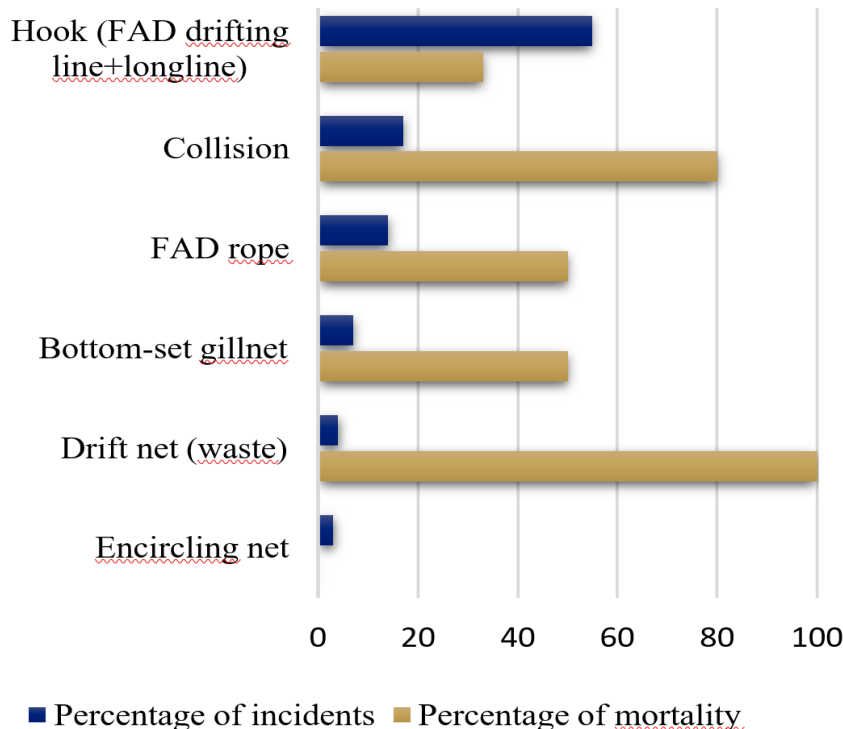


Figure 2. Incidents and mortality rate per fishing gear