

Killer whale depredation on longline catches in Brazilian waters

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The pelagic longline fishery in Brazil was begun by Japanese vessels which operated between 1957 and 1965 off the northeast region. In 1969, the Brazilian longline fleet started fishing off the southern and southeastern regions of the country. This fishery experienced several interruptions and technological modifications over the years, including the change in the longline from the traditional cotton-cable to monofilament from 1994. The national pelagic longline fleet operates from three ports: Santos (7 vessels in 2006), Itajaí (34 - 2002) and Rio Grande (10 - 2006). Their target fish are swordfish (*Xiphias gladius*), tuna (*Thunnus* spp.) and sharks.

Killer whale depredation on this fishery's swordfish catches has been known to occur at least since 1981, while depredation on tuna, *Thunnus* spp., has been documented since the mid 90s. Secchi and Vasque Jr (1998) conducted the first study characterizing killer whale depredation off southern Brazil from onboard observations between 1987 and 1991. The following study (Dalla Rosa and Secchi, 2007) made an evaluation of killer whale depredation off southern and southeastern Brazil in comparison with shark depredation using data collected between 1993 and 1995. Killer whale interactions were reported mainly between June and October, while shark interactions occurred year round. This study concluded that: (1) the mean loss of fish due to killer whales, both per set and per trip that experienced depredation, was higher than the loss caused by sharks; however, (2) the frequency of longline sets and trips with shark interactions was higher than the frequency of sets and trips with killer whale interactions; (3) depredation by killer whales occurred predominantly on swordfish, while depredation by sharks was mostly on tuna; and (4) cetacean by-catch is experienced by longline fisheries in Brazilian waters. In sets with killer whale depredation, a mean of 45.28% (SD = 17.34) of the target fish were damaged. Since data was not systematically collected, an assessment of overall losses to the fleet was not possible.

An ongoing study on the same pelagic longline fishery, including vessels from the three Brazilian ports, aims to evaluate the depredation by killer whales and false killer whales and to identify which biological, environmental or operational factors determine the occurrence of depredation. The ultimate goal of this study is to identify spatial and temporal patterns that might lead to the proposal of areas of exclusion. Preliminary results from 19 trips monitored by onboard observers between 2003 and 2005 do not seem to differ from the observed patterns of a decade ago. Depredation by killer whales occurred on 31.6% of the trips (4.8% of sets) resulting in a loss of 0.48% of the total catch. Depredation by sharks occurred on 73.7% of the trips (20% of sets) resulting in a loss of 1% of the total catch (Monteiro et al., 2006). It is not known, however, whether the problem has increased in recent years.

Characteristics of this type of fisheries, such as length of longline and long soaking times, frequently preclude fishermen from knowing when a depredation event is happening, what makes it even more difficult to try to prevent or minimize it. Attempts by fishermen to reduce killer whale depredation have included ineffective shooting and harpooning, but in general they move to other areas hopefully far enough that the whales will give up following the vessel.

References:

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