

Summary

The incidental catch of dolphin and porpoise species in fishing gear – or ‘by-catch’ - is widespread and it is suggested by many authors that it threatens the integrity of dolphin and porpoise populations throughout European waters. Despite this, and reflecting the lack of systematic monitoring, there are relatively few records of by-catch events. The small cetacean species at risk are thought to include the harbour porpoise (*Phocoena phocoena*), the common dolphin (*Delphinus delphis*), the Atlantic white-sided dolphin (*Lagenorhynchus acutus*), the Atlantic white-beaked dolphin (*Lagenorhynchus albirostris*) and the bottlenose dolphin (*Tursiops truncatus*).

Nearly all types of fishing gear have the potential to incur cetacean by-catch. However, those most commonly associated with the incidental catch of cetaceans are gillnets, mid-water trawls, driftnets and purse seine nets. Purse seine nets are no longer used in the north Atlantic and the United Nations Global Assembly issued a moratorium on the use of driftnets in 1991. This will become effective in EU legislation in 2002. Less well publicised, by-catch in gillnets and mid-water trawls is also high.

There is a great deal of conjecture over the way in which small cetaceans become entangled in the fishing gear which leads to further argument over the most effective way to tackle the problem. Ultimately, most authors agree that dolphins and harbour porpoises can detect gillnets and trawls, that they perceive them as a threat and that the overlap in the diet of the cetacean species and the fish targeted by the fisheries plays a part in the interaction.

Methods used to estimate by-catch rates, include: on-board observers, voluntary and mandatory reporting schemes, strandings surveys, carcass salvage schemes, interview, telephone and postal questionnaire surveys of fishermen and logbook analysis. With all methods, a trade-off exists between the quantity and quality of data collected, since most efforts to measure the by-catch problem are subject to financial constraints. Observer studies to monitor marine mammal by-catch evolved in parallel to those designed to monitor fish catches and are generally considered the most cost-effective and reliable approach.

Estimates of by-catch rates in European waters generally refer to single areas or fisheries. Examples include 13.4 harbour porpoises per 100 days at sea in the Celtic Sea hake gillnet fishery between 1992 and 1994, and 3.8 common or white-sided dolphins per 100 trawl tows targeting mackerel between 1992 and 1993 in the Bay of Biscay and along the French coast. The former by-catch rate was extrapolated to an estimated removal rate of 6.3% of the harbour porpoise population in the Celtic Sea. The growth rate of this population was estimated to be around 4% suggesting that the removal caused by by-catch alone is unsustainable in the long term. However, in most studies, the status of the cetacean populations is uncertain and it was not possible to quantify by-catch rate or assess its sustainability.

Efforts to reduce the by-catch rate include use of a variety of methods combining new technology and changes in fishing strategies. Studies have shown that the longer the soak time of a bottom set gillnet, the greater the by-catch rate and the poorer the fish catch. Therefore, reduced soak time may be beneficial. Thus far however, by-catch reduction devices which enhance the detectability of nets to cetaceans have proved the most successful at reducing the incidental entanglement of non-target species.

Many EU directives, regulations, etc. refer to cetaceans and the need for measures to conserve them. However, it is doubtful that this alone will lead to reductions in fishery by-catches, at least in the short-term, due to the time taken for such directives to be incorporated into national law, and the need for monitoring and enforcement. Efforts to conserve cetaceans also include the designation of Special Areas of Conservation under the Habitats Directive (92/43/EEC), however, owing to the extensive ranges of these animals, protection of specific areas is generally unlikely to be an effective approach to their conservation.

The US MMPA (Marine Mammal Protection Act) offers a possible model for effective by-catch reduction, requiring collection of data on cetacean population size, measurement of current by-catch rate, explicit statements about acceptable levels of by-catch, implementation of conservation measures (e.g. use of closed areas or seasons, pingers) and monitoring of success in meeting these targets. Important features of the implementation of the MMPA are the involvement of the fishery

industry from the start, a legally enforceable requirement for boats to carry observers, and adequate finance for the programme.

Present EU laws have not led to establishment of routine programmes for measuring cetacean population status, setting by-catch limits, implementing reduction measures or monitoring the success of such measures. To some extent such activities are currently carried out, piecemeal, by a variety of different bodies, usually on an individual project basis. However, such measures could be implemented within the CFP (Common Fisheries Policy) framework.