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Fishing and conservation

Turtle power

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"Bycatch" from fishing is a bigger problem than was realised

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LEATHERBACK turtles swam with the plesiosaurs. They survived the catastrophe 65m years ago that wiped out not only all the other marine reptiles around, but also the dinosaurs. They faced down competition from mammals that took to the sea. But now they may have met their match. Over the past two decades, the number of Pacific leatherbacks has dropped by more than 95%.

Leatherbacks are high-profile victims of a phenomenon known as bycatching—in other words, the wrong species ending up in the net or on the hook. Bycatching threatens species other than turtles. In the north-west Atlantic, for example, the scalloped hammerhead shark has declined by 89% since 1986. It is also wasteful. Daniel Pauly, a fisheries scientist at the University of British Columbia, told the AAAS meeting that he estimates the global total of discarded fish to be between 18m and 40m tonnes a year. The upper bound of this estimate of what gets thrown back is equivalent to almost half the amount of fish that is actually landed.

Some of that bycatch is caused by regulations governing what individual boats may land. A codfish caught by a boat with a cod quota may be landed legally. A boat without a quota has to throw it back, even though it will probably die anyway. But even economically useless species taken as bycatch are being removed from the food chain, to the ultimate detriment of fisheries.

Whether the quota regulations could be changed in ways that would help, rather than hinder, the objective of preserving stocks is dubious. Legitimising the landing of accidental catches of valuable species would probably just lead to more "accidents". But the true effect of bycatching certainly needs to be built into models of marine ecology.

For the leatherbacks, though, there may be two possibilities. The reptiles are mostly the victims of long-line fishing for prey such as swordfish and tuna. (Ironically, environmentalists pushed this method on tuna fishermen, to stop the bycatching of dolphins in nets.) Lines as long as 40km, bearing baited and buoyed hooks at regular intervals, are reeled out across the ocean. Occasionally, a turtle snaps at the bait. Larry Crowder, of Duke University Marine Laboratory, in North Carolina, who has been studying the problem, is trying to design a hook that will catch fish but not turtles. Even if that works, though, it will take time to introduce. So, if people are really concerned about turtle bycatch, he suggests that they boycott swordfish. It worked for dolphins. The question is, are turtles sufficiently charismatic?