

Tuesday, 23 May 2006, 14:23 GMT 15:23 UK

Fishing 'major threat' to turtles

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The endangered loggerhead turtle may face a greater threat than previously realised from longline fishing.

Researchers found that many turtles spend considerably longer in the open ocean, where longline boats operate, than earlier studies had indicated.

The boats aim to catch big predatory fish such as tuna and marlin, but accidentally snare other species including turtles and albatrosses.

The new research is published in the journal *Current Biology*.

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Until now scientists have believed that young turtles live in the open ocean, but change to a coastal habitat when they reach a certain size.

But researchers working in Cape Verde found that most adults nesting there retain their open water behaviour, with the attendant risk posed by longline boats.

"The bottom line is that we thought juveniles experienced this risk out in the open ocean with longline fisheries," said Brendan Godley from the University of Exeter.

"We thought that if you got them past that, then unless they're being taken by inshore fisheries, you're OK," he told the BBC News website.

"But now you've got adults exposed to longline fisheries, which is very worrying."

Twin lives

Longline boats trail fishing lines tens of kilometres long, with baited hooks at regular intervals to catch some of the biggest and most powerful fish in the oceans.



Sea birds and turtles are among the other creatures caught accidentally.

With several thousand longline boats in operation, US scientist Larry Crowder has calculated that 1.8m hooks are set each night, and that a loggerhead turtle has about a 50% chance of encountering one each year.

Loggerheads (*Caretta caretta*) are categorised as Endangered on the internationally-recognised Red List of Threatened Species.

In theory, the turtles should be safe from longline vessels once they reach maturity, with research indicating that at an age of about 15 and a length of about 50cm they swap open water for a coastal environment.



"[The young ones] venture out into the open ocean, and that's thought to be because they hide in the open - the shore environment is the worst place to be for predatory fish," said Dr Godley.

"Then, we thought, they would grow to a size where if they come near to the shore they can deal with it, diving to 20 or 30 feet (six to 10 metres) [to hide from predators]. We always thought they moved into the inshore environment because the food supply is more reliable."

Using satellite transmitters placed on the turtles to follow their movements - a technique pioneered by the conservation group seaturtle.org, which co-funded the research - the team found that most of the adults did not make this switch.

- Most of the adult loggerheads swam in open water
- A minority journeyed to more fertile inshore feeding grounds



Bigger individuals did, while smaller ones stayed away from the shore. This means, the researchers say, that attempts to conserve them will have to focus even more closely on longline boats.

Bird conservation groups have developed a set of simple measures which they say can substantially reduce the annual bycatch of albatross, thought to number about 100,000.

These include trailing streamers behind the boats to scare birds away, weighting hooks so they stay below the surface, and fishing at night.

A similar set of measures to discourage loggerheads may not be so easy to develop, though keeping hooks deeper than the turtles usually dive may be one option, as may using blue-coloured bait, which they do not see as easily.