

Kastelein RA, W.W.Au, and D. de Haan. 2000. Detection distances of bottom-set gillnets by harbour porpoises (*Phocoena phocoena*) and bottlenose dolphins (*Tursiops truncatus*). *Marine Environmental Research* 49(4):359-75.

Abstract:

Many odontocetes die annually in gillnet fisheries. Why they become entangled is not yet clear. Maybe some species detect the nets too late to avoid collision. Therefore, the target strength of 11 types of bottom-set gillnets was measured under 0 and 45 degrees angles of incidence. From these target strengths and from knowledge on the echolocation abilities of two odontocete species (harbour porpoises, bottlenose dolphins), the detection ranges of the nets by these small cetaceans could be estimated. The 90% detection range by echolocating harbour porpoises, approaching the nets at right (perpendicular) angles under low noise level conditions, varied between 3 and 6 m depending on the net type. For bottlenose dolphins, under high noise conditions, the 90% detection range varied between 25 and 55 m. At other angles of approach, the estimated detection ranges are shorter. The study suggests that echolocating bottlenose dolphins can detect nets in time to avoid collision, whereas echolocating harbour porpoises cannot in most cases. Suggestions for future research to reduce small cetacean bycatch by improving the nets' detectability by echolocation are given.