Major bycatch reduction of cetaceans and marine turtles by use of subsurface gillnets in Pakistan

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ABSTRACT

Pakistan has a large tuna gillnet fleet that operates in coastal waters, Exclusive Economic Zone as well as in the Area Beyond National Jurisdiction. Gillnet being used for catching tuna and tuna like species is generally about more than 7 km and is known for extremely high bycatch including turtles, whales, dolphins, whale sharks, mobulids, requiem sharks and sunfish. In order to reduce entanglement of megafauna, pilot scale alternate gears are being introduced but conversion of fleet to any such change will take many years before it is fully adopted by fishermen. WWF-Pakistan, therefore, has convinced the tuna gillnet fishermen to use subsurface gillnetting (placing gillnet about 1.5 to 1.8 m below surface) which requires only minor modification in the fishing operation. Such subsurface gillnets (locally known as “tilo mahore”) were used by fishermen in Balochistan a few decades back if they intended to target yellowfin tuna. Through WWF-Pakistan’’s crew based observer programme, this modification was readily accepted by fishermen. Since the start of modification in August 2014, about 63 % of the fishermen have fully changed their fishing operation through subsurface gears whereas about 27 % have changed about 60 % of their nets into subsurface type whereas remaining part of the net is still deployed on surface. About 6 % of fleet have only 40 % subsurface and 60 % surface gillnets whereas only about 4 % have not changed their mode of operation.

Preliminary analysis of the data revealed a major decline in the entanglement of megafauna. The entanglement of marine turtles has decreased from an annual estimate of about 28,900 in 2014 to merely on annual average 2,700 during 2015 and 2016 (IOTC-2014-WPEB10-INF25) whereas their mortality was calculated to be about 0.04 % (as compared to 2.5 % in 2014). In case of dolphins, entanglement has dropped from an annual level of 12,000 to merely 480. All dolphins that entangled either on surface or subsurface gillnets die due to drowning. No significant change in the entanglement of whale shark or mobulids was noticed. In addition to reduction in entanglement of megafauna, catches of dolphinfish and billfishes were also observed to have decreased in subsurface gillnets.