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**Bycatch and discard mortality in commercially caught blue sharks
Prionace glauca assessed using archival satellite pop-up tags**

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ABSTRACT: Blue sharks *Prionace glauca* are the most frequently discarded fish species during commercial pelagic longline fishing operations worldwide, yet their post-release mortality rate has never been measured. A generalized linear model of 12 404 blue sharks observed during the Canadian Atlantic pelagic longline swordfishery suggested a hooking mortality of 12 to 13%, yet scientific examination of 902 of these sharks indicated that hooking mortality was actually higher. A random sample of 40 of these blue sharks were tagged with satellite pop-up archival transmission (PAT) tags, then monitored for periods of up to 6 mo after release. All of the surviving sharks exhibited a depth-holding recovery behaviour for a period of 2 to 7 d after release. All healthy sharks survived, while 33% of those that were badly injured or gut hooked subsequently died. Overall blue shark bycatch mortality in the pelagic longline fishery was estimated at 35%, while the estimated discard mortality for sharks that were released alive was 19%. Survival time models indicated that 95% of the mortality occurred within 11 d of release, indicative of death by trauma rather than starvation. The annual blue shark catch in the North Atlantic was estimated at about 84 000 t, of which 57 000 t is discarded. A preliminary estimate of 20 000 t of annual dead discards for North Atlantic blue sharks is similar to that of the reported nominal catch, and could substantially change the perception of population health if incorporated into a population-level stock assessment.

KEY WORDS: Discard mortality · Hooking mortality · Tagging · Bycatch · Satellite tags

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