Satellite tracking blue sharks

Spending more time at the surface than we thought

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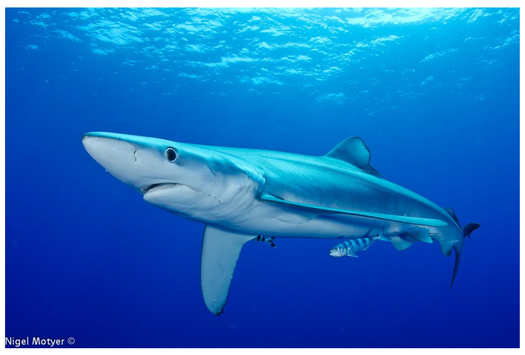
Background and aims



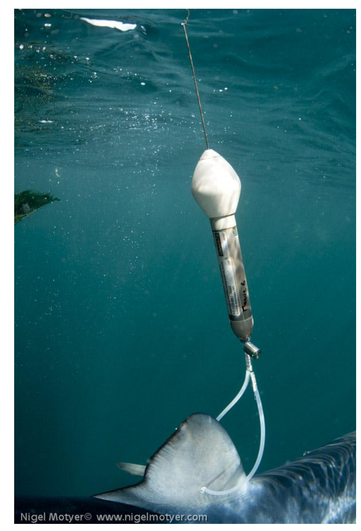
Blue sharks are the most abundant large shark in the world and occur in Irish waters (May-October: mostly immature females but some males also occur). Unfortunately, in the North Atlantic large numbers are caught in longline and gill-net fisheries that target tuna and swordfish. As their meat is of low value many are thrown back overboard, however many are also finned. Blue shark fins comprise a major component of the international shark fin trade with ~10 million blue sharks passing through Hong Kong fish market each year. This is unsustainable.

This project aims to investigate the migrations and dive behaviour of 'Irish' blue sharks.

Methods

Satellite tag deployments

Two sub-adult females were tagged with Pop-off tags (PATs) on 17/09/2010. Another PAT was attached to a juvenile female 07/09/2012, and a sub-adult male was tagged with a SPOT tag on 19/09/2012.



Pop-off tags are attached to dorsal fin and are programmed to archive all recorded data until they detach from the shark after a predetermined time (60-120 days). The tag records light, temperature and dive behaviour data.

SPOT (Smart position only) tags are attached to the dorsal fin and transmit the location of the shark in real-time when the tag/dorsal fin breaks the surface. No other data is recorded

Preliminary results

1st PAT tag popped off 100 km NW of Madeira in January 2010, showing that the shark had travelled ~2500km in 4 months. This female spent a large proportion of her time in the top 10m of the water column (Fig. 1). The 2nd PAT deployed in 2010 did not report. The 3rd PAT tag deployed in Sept 2012 is due to report in November this year. The SPOT tag deployed on a male shark is currently reporting daily locations (Fig 2).

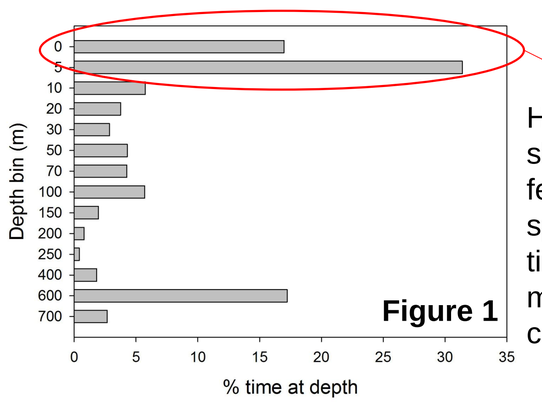


Figure 1

Highlighted area shows that the female blue shark spent 45% of her time in the top 10 meters of the water column

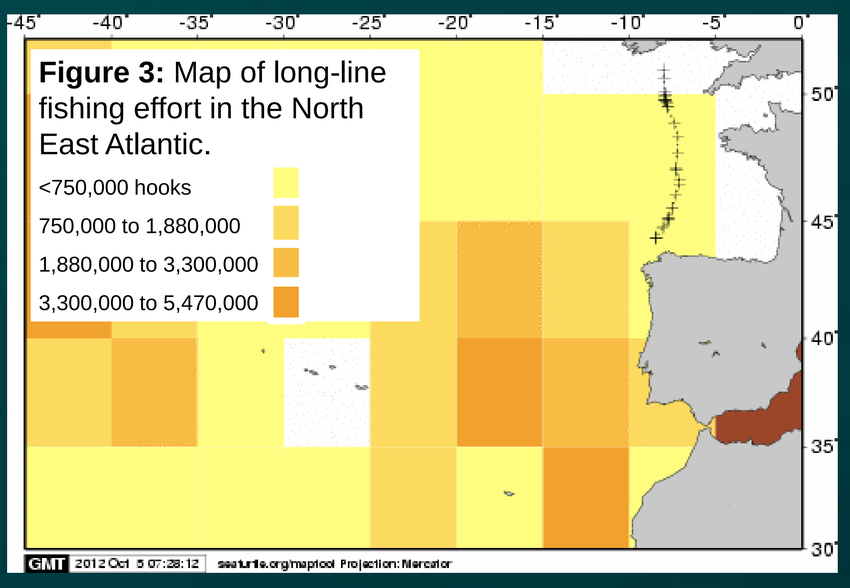


Figure 3: Map of long-line fishing effort in the North East Atlantic.

<0 hooks
750,000 to 1,880,000
1,880,000 to 3,300,000
3,300,000 to 5,470,000

Figure 2: Track of male blue shark satellite tagged on the 19th Sept 2012, 30km south of Cork Harbour

Open circles represent blue shark surfacing events. So far we have 43 surfacing events.

Preliminary findings and future research

The present study demonstrates the feasibility of satellite tagging blue sharks in Irish waters.

The recorded behaviour suggests that blue sharks spend more time in surface waters than previously thought, suggesting that we may have underestimated interactions with pelagic longline fisheries.

This highlights the need to increase tagging effort to fully explore the effect of fisheries on blue shark populations.

All shark images are by Nigel Motyer

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