



Protecting *Manx Wildlife*
for the future

The Isle of Man Shark Tagging Programme

End of Year Report 2015



Written for:

The Department of Environment, Food and Agriculture (DEFA)

Written by: Melissa Parsons and Dr Lara Howe



Introduction

In May 2013, at the request of the Department of Environment, Food and Agriculture (DEFA), Manx Wildlife Trust initiated a small shark tagging project in the Isle of Man. The present project is a continuation of the previous work, representing the third year of the Small Shark Tagging Programme.

The project aims to engage with local anglers to undertake tagging and record subsequent recaptures should they occur. It is hoped that data obtained will provide information on the abundance and distribution of Manx small shark populations, which may be useful in the development of future management plans and conservation activities.

The tagging of small elasmobranchs in UK waters has predominantly been conducted by the UK Shark Tagging Programme, through angler-based projects that aim to increase understanding of the distribution and behaviour of elasmobranch target species (Drake et al., 2005). Furthermore, the Scottish Shark Tagging Programme (SSTP) are responsible for a similar scheme that aims to tag and record data on species occurring in Scottish coastal waters. Whilst the current project is not novel in approach, small shark tagging projects focusing on the Isle of Man specifically have not been previously conducted.

The Isle of Man's close geographical proximity to Scotland and thus the possibility of shark crossover, contributed to the involvement of SSTP. The organisation shared knowledge and resources throughout the process, including the deployment of two officers who trained Manx local anglers (funded by DEFA), design of a project logo and this year the provision of tags/tagging equipment has continued.

The most predominant elasmobranch species caught by anglers in Manx waters are bull huss (*Scyliorhinus stellaris*), spurdog (*Squalus acanthias*) and tope (*Galeorhinus galeus*). Each of these species is a conservation concern, with the bull huss listed as 'near threatened' (Ellis et al., 2009) and both spurdog and tope considered 'vulnerable' (Walker et al., 2006; Fordham et al., 2016) by the IUCN Red List.

Methodology

This year, seven new anglers were trained. Five anglers tagged small sharks, three of which had not previously tagged in either 2013 or 2014. The remaining two anglers that tagged in 2015 had also deployed tags in both 2013 and 2014.

Anglers were given a minimum landing size crib sheet, recording cards and tagging equipment (Appendix 2 and 3). The tagging equipment consisted of a canula with five standard floy tags (Appendix 1) and a micro gun with ten micro tags (for tagging smaller sharks). Tag equipment was replaced in small quantities when required, depending on anglers likelihood of being able to fish.

Information is recorded about the shark at the time of initial capture and tagging, including species, length and sex. Capture location is also noted. Each tag has a unique identification number so that if the shark is recaptured in the future, details can be cross referenced. This provides data on migration distances, site fidelity, sex segregation, growth and other life history traits. The Manx data is stored on the SSTP online database and at MWT. Anglers were able to upload tagging information directly and the data is sent to the Manx Wildlife Trust.

Results

Sharks tagged in 2015

In total, 21 sharks were tagged in 2015, including one spurdog and 20 tope. No bull huss were captured this year (Figure 1). Length of the individual spurdog and both length range and average length of tagged tope are depicted in Table 1. It should be noted that length was not obtained for eight individual tope and therefore length calculations are based on just 12 individuals. Figure 2 displays the length of each individual tagged tope for which length was recorded.

When considering sex, the individual spurdog captured was a female. Equal proportions of male (n=8) and female (n=8) tope were captured. Furthermore, there were an additional four individuals for which sex was undetermined (Figure 3). The range and average length of tagged male and female tope is depicted in Table 2. Length data was not provided for one three male and one female tope.

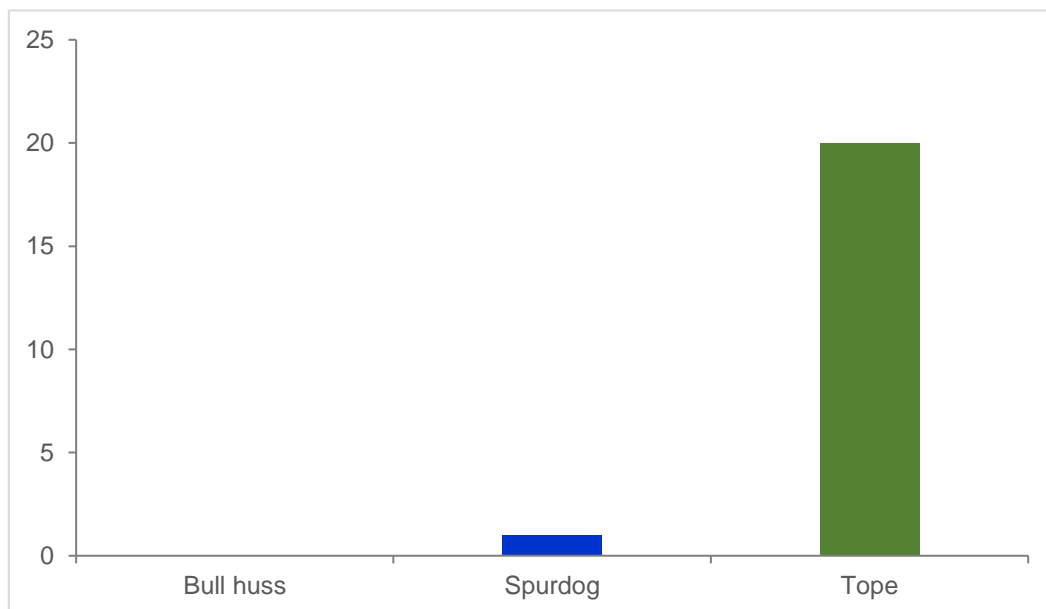


Figure 1 – The number of small sharks tagged in Manx water during 2015.

Table 1 – The range and average length (\pm SD) of small sharks (tope; n=12) tagged in Manx waters during 2015. Only one individual spurdog was tagged, therefore range and average length were not calculated.

Species	Length (cm)	Length range (cm)	Average length (cm)
Spurdog	101	-	-
Tope	-	80-153	122.00 (\pm 24.10)

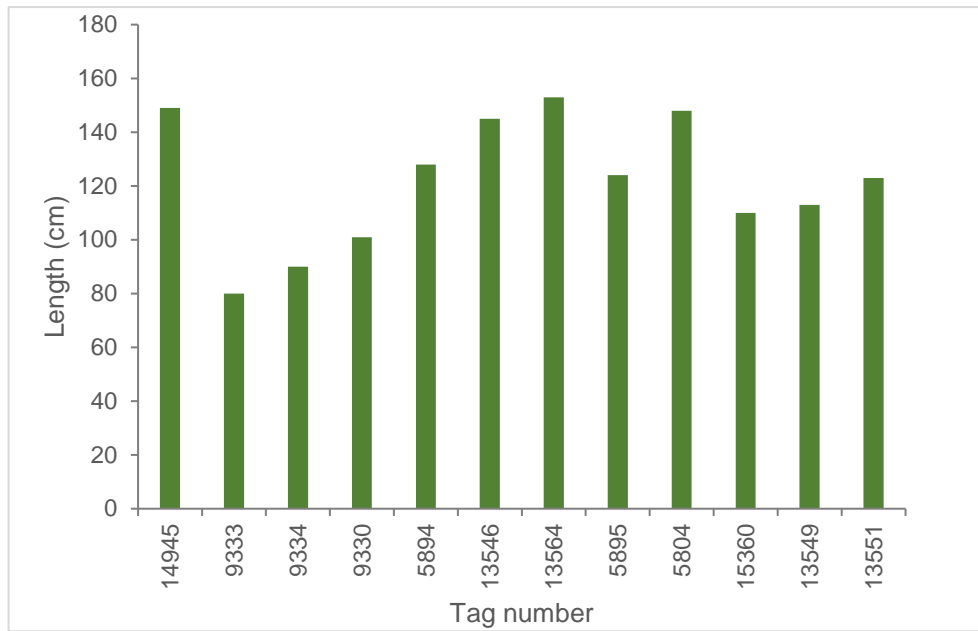


Figure 2 – Length of tope individuals (n=12) tagged in Manx waters during 2015.

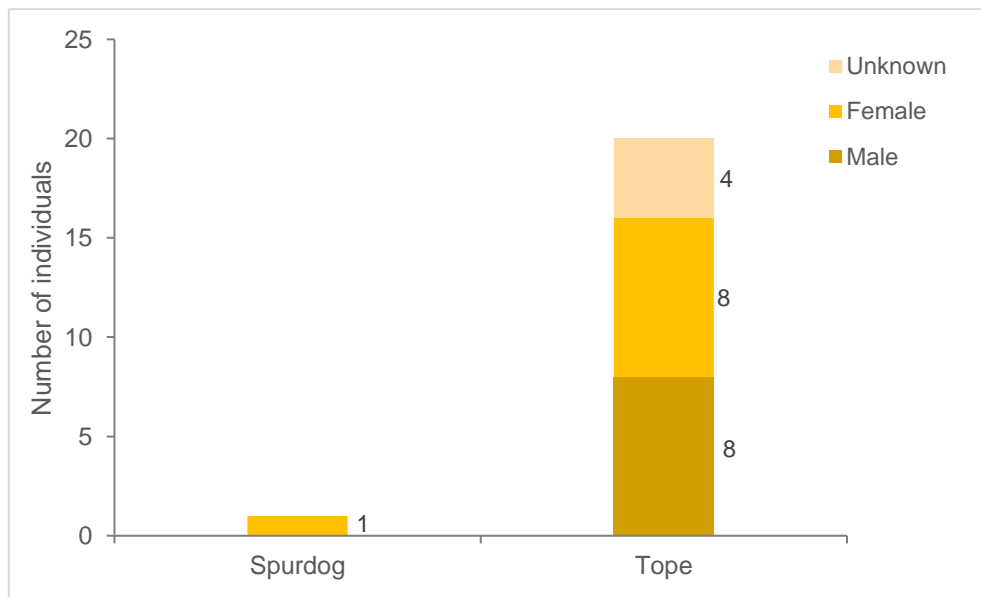


Figure 3 – Sex of sharks tagged in Manx water during 2015.

Table 2 – The range and average length (\pm SD) of male (n=5) and female (n=7) tope tagged in Manx waters during 2015.

Species	Males		Females	
	Length range (cm)	Average length (cm)	Length range (cm)	Average length (cm)
Tope	80-128	109.00 (\pm 19.22)	90-153	131.29 (\pm 24.03)

Distribution of sharks tagged in 2015

Sharks were predominantly tagged in coastal waters, particularly southeast of the Island. Only one individual tope was tagged west of the Island and this also represents the individual captured furthest offshore. There are two small clusters, whereby four tope were captured off the east coast of Langness and three tope were captured in relatively close proximity to Douglas Bay.

Recaptures

In 2015 no recaptures were made.

Comparison of sharks tagged 2013-2015

Overall there has been a decrease in the number of sharks tagged per year. The number of individuals tagged declined from 50 in 2013, to 23 in 2014 and just 21 individuals in 2015. This equates to a 58% decrease from 2013 to 2015.

Figure 4 demonstrates that tope is consistently the most tagged species, perhaps implying this species is more abundant than other small sharks in Manx waters. However, it is perhaps likely that this is reflective of alternate factors such as angling technique or location. No bull huss were tagged this year and only one individual in 2014, compared to 16 during the pilot year (Figure 4). The number of spurdog tagged has remained the same in the last two years, a slight decline on the six individuals tagged in 2013 (Figure 4).

When considering the number of anglers involved in tagging, there was a slight improvement this year on 2014, with one more angler tagging (five anglers, compared to four in 2014). However, this figure represents just 12.82% of the total number of trained anglers between 2013-2015.

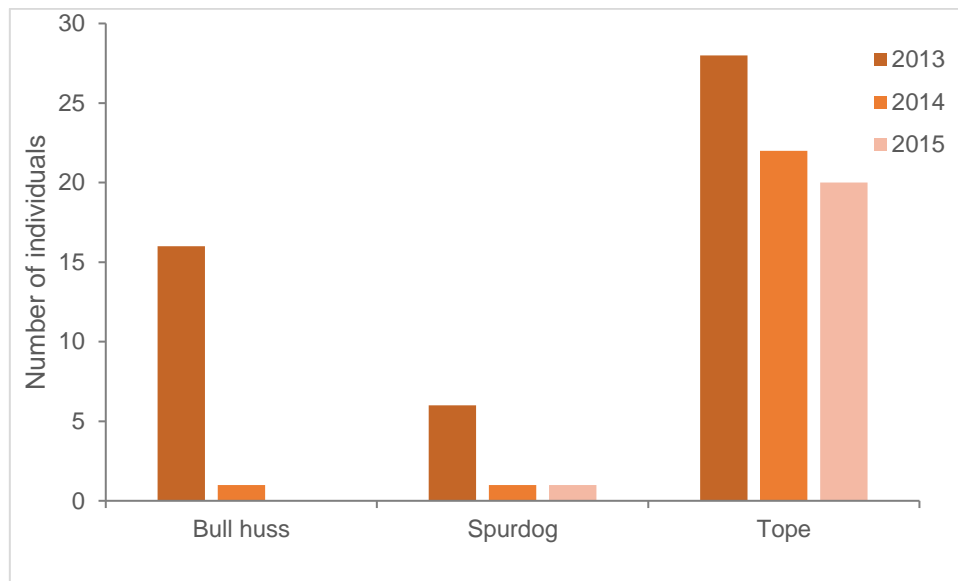


Figure 4 - The number of small sharks tagged/recaptured in Manx waters during 2013, 2014 and 2015. 2013; N=50, 2014; N=24 (including 23 tagged individuals and one recaptured individual), 2015; N=21.

Tope average length was smaller this year (122.00 (± 24.10)), compared to both 2014 (124.95 (± 14.95)) and 2013 (141.71 (± 12.32)). The individual spurdog tagged this year measured 101cm. This is similar to the individual spurdog tagged in 2014 which measured 100cm. These values are slightly greater than the average spurdog length in 2013 (94.17 (± 11.92)) but fall within the range (75-107).

Both the individual spurdogs tagged in 2014 and 2015 were female. This was also the most frequently tagged sex in 2013 (Figure 5), though only by one individual. This year, an equal number of male and female tope were tagged, compared to predominantly females in 2013 and males in 2014 (Figure 6). However, it should be noted that four individuals were tagged for which sex was unknown and thus it is possible that one sex was tagged more frequently.

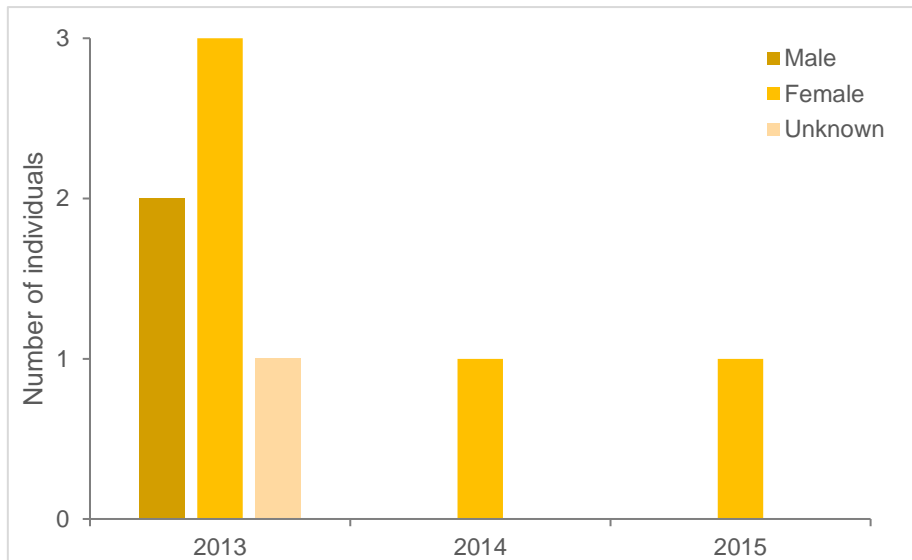


Figure 5 - Sex of spurdog tagged in Manx waters 2013-2015.

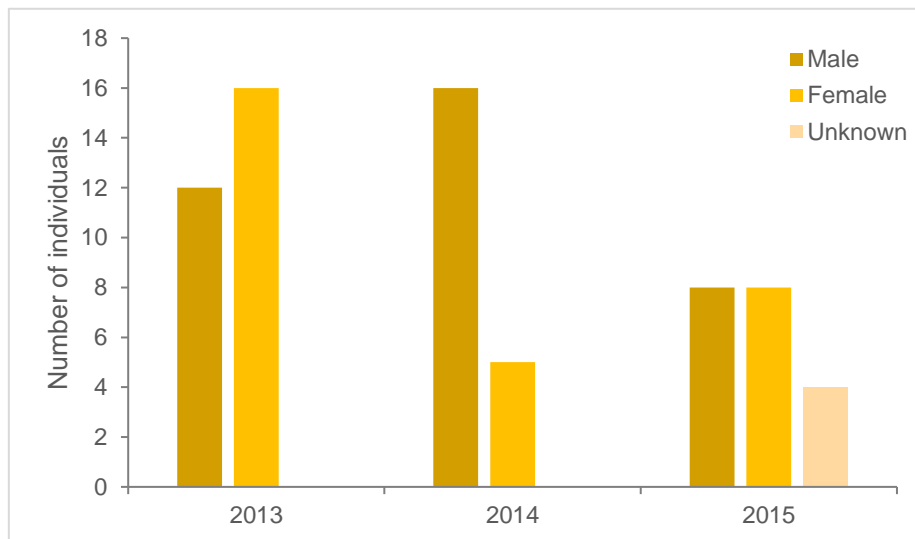


Figure 6 - Sex of tope tagged in Manx waters 2013-2015.

There does not appear to be any distinct similarities in the distribution of shark tagging locations between 2013 and 2015. The 2015 distribution appears more similar to that of 2013 than 2014, with captures occurring in predominantly coastal areas during both years. However, this year tope were mostly tagged to the east of the Island whereby in 2013 tope tagging off the west coast occurred more frequently.

Conclusions and recommendations

In 2015, 21 small sharks were tagged, increasing the total number of sharks tagged since the beginning of the programme to 94. Tope has been the most frequently tagged small shark species each year, perhaps suggesting this is the most abundant species in Manx waters.

It is likely that the low angler participation is predominantly a result of minimal angling opportunities, particularly as the participants partake in fishing solely as a leisure activity. Regardless, the programme hopes to see an improvement in the level of participation, and thus the number of sharks tagged, in forthcoming years.

Increased tagging and continuation of the programme in subsequent years is necessary to obtain substantial information about the distribution and population structure of small sharks. As of 2015, there is not sufficient data to observe distinct patterns or draw strong conclusions about the small shark populations inhabiting Manx waters. However, anglers do possess some knowledge of 'good' places to fish, where they are more likely to catch small sharks. Therefore, it can be assumed that the tag distribution maps are somewhat representative of small shark distribution.

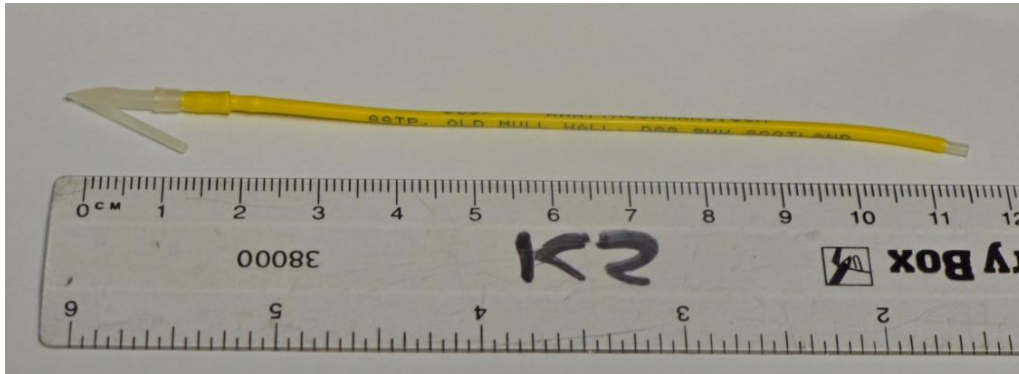
The Manx Wildlife Trust is grateful for the support of this programme, and is optimistic concerning the potential for future data collection.

References

- Drake, S.C., Drake, J.A. & Johnson, M.L. (2005). [2000+ UK Shark Tagging Program: An Angler Led Shark-tagging Initiative in UK Coastal Waters. *Journal of Northwest Atlantic Fishery Science*, 28, pp. 233-238.](#)
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Appendices

Appendix 1: Streamer floy tag used to tag small sharks.



Appendix 2: Tagging guidance crib sheet.

SSTP Floy Dart Tagging Guidelines



Floy dart tags are inserted using a sharp, clean canula.


1. Insert the tag into the canula (take a note of the tag number)
2. Insert the canula at an angle of 45° to a depth of around 35mm with the tag barb pointing upwards
3. Twist the canula at least 90° to anchor the tag
4. Remove the canula and give the tag a short tug to set the barb

Submit your data to Eleanor – eleanor@manxwt.org.uk or drop in at 7-8 Market Place, Peel, IM5 1XF or online at: www.tagsharks.com

These tagging guidelines are for floy darts and canulas **ONLY**.
SSTP minimum sizes are set to protect fish, if for any reason you are unsure about tagging please **do not tag the fish!**

SSTP Floy Dart Minimum Tagging Sizes	
Common Skate (wingspan)	55cm (5.3lb)
Tope	100cm (10.0lb)
Spurdog	90cm (6.4lb)
Smooth-hound	100cm (6.5lb)
Bull Huss	100cm (7lb)
Rays (wingspan)	50cm (5.25lb)

SSTP Micro-Tag Guidelines



Micro-tags are inserted using a tagging gun. When not in use we recommend that you use the needle guard to prevent injury!

1. Fit a strip of micro-tags into the tagging gun
2. Insert the needle at an angle of 45°
3. Push the trigger to insert a single tag into the fish
4. Remove the needle and give the tag a short tug to set the barb

Submit your data to Eleanor – eleanor@manxwt.org.uk or drop in at 7-8 Market Place, Peel, IM5 1XF or online at: www.tagsharks.com

These tagging guidelines are for tagging guns and micro-tags **ONLY**.
SSTP minimum sizes are set to protect fish, if for any reason you are unsure about tagging please **do not tag the fish!**

SSTP Micro-Tag Minimum Sizes	
Common Skate (wingspan)	Canula
Tope	65cm (2.8lb)
Spurdog	65cm (2.3lb)
Smooth-hound	70cm (2.2lb)
Bull Huss	65cm (2.5lb)
Rays (wingspan)	35cm (2.1lb)

Appendix 3: Record card.

Please send details to Eleanor by email: eleanor@manxwt.org.uk
 Or drop in/post to: 7-8 Market Place, Peel, IM5 1XF

Name/s: _____


Email address: _____

Date: _____ Time start: _____ Time end _____

Location (please circle): NE NW SW SE

Lat/Long (this will NOT be made public):
 _____ N _____ W

In association with:



Tag No.	Species	Sex	Length (cm)	Girth (cm)	Condition