



Protecting *Manx Wildlife*  
for the future

# The Isle of Man Shark Tagging Programme

*End of Year Report 2018*



*Written for:*

*The Department of Environment, Food and Agriculture (DEFA)*

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## Introduction

In May 2013, at the request of the Department of Environment, Food and Agriculture (DEFA), Manx Wildlife Trust (MWT) initiated a small shark tagging project in the Isle of Man. The present report is a continuation of this project, summarising the findings of the sixth 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 in 2013 (funded by DEFA), design of a project logo and the provision of tags/tagging equipment which has continued each year.

The most predominant elasmobranch species caught by anglers in Manx waters are bull huss (*Scyliorhinus stellaris*), spurdog (*Squalus acanthias*) and tope (*Galeorhinus galeus*). These are the only species tagged to date. 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

Each year the project is advertised locally and interested anglers targeting small sharks are invited to partake in the project. This year five anglers were trained to tag small sharks, meaning 57 individuals have been trained since 2013. In total, six anglers administered tags during 2018.

All trained 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.

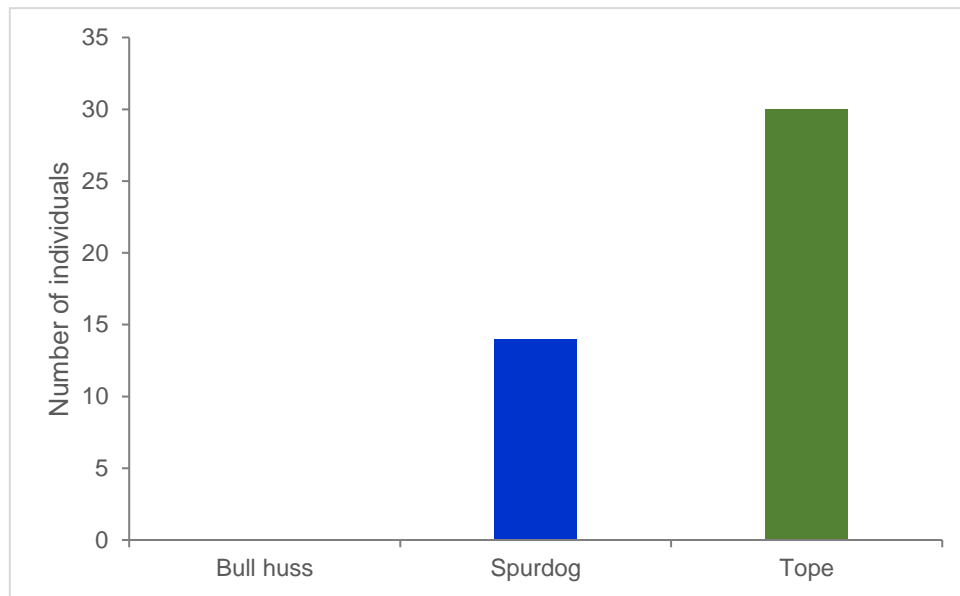
Information is recorded about the shark at the time of initial capture and tagging, including species, length and sex. Capture location is also noted. Each tag has a unique identification number so that if the shark is recaptured in the future, details can be cross referenced. This provides data on migration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

## Results

### *Sharks tagged in 2018*

In total, 44 individuals were tagged during 2018, including 14 spurdog and 30 tope (Figure 1). Length range and average length of tagged spurdog and tope are depicted in Table 1.

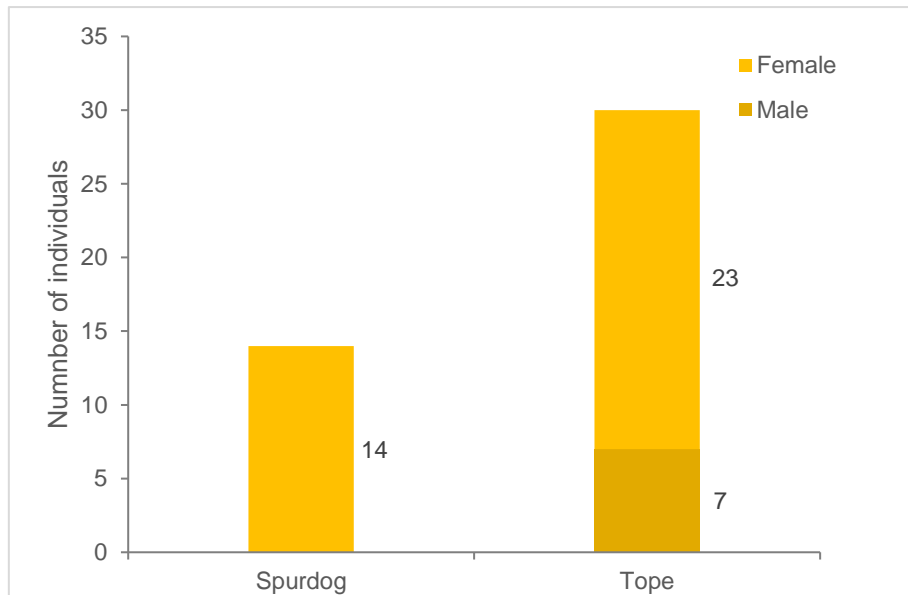
All tagged spurdog were female (Figure 2). Similarly, the majority of tope tagged were also female (Figure 2). The range and average length of male and female tope are depicted in Table 2.



**Figure 1** – The number of small sharks tagged in Manx water during 2018.

**Table 1** – The range and average length ( $\pm$  SD) of small sharks (spurdog; N=14, tope; N=30) tagged in Manx waters during 2018

Species	Length range (cm)	Average length (cm)
Spurdog	98-110	104.93 ( $\pm$ 3.67)
Tope	78-171	145.93 ( $\pm$ 21.97)



**Figure 2** – Sex of sharks tagged in Manx water during 2016.

**Table 2** – The range and average length ( $\pm$  SD) of male (n=7) and female (n=23) tope tagged in Manx waters during 2018.

Species	Males		Females	
	Length range (cm)	Average length (cm)	Length range (cm)	Average length (cm)
Tope	78-146	132.86 ( $\pm$ 24.37)	92-171	149.91 ( $\pm$ 20.09)

#### *Distribution of sharks tagged in 2018*

All small sharks were tagged in the southern half of the Island. Four individuals were tagged in close proximity to Douglas (three tope and one spurdog) and four tope were tagged in waters surrounding the Calf of Man. Spurdog were predominantly captured to the east of the Island, whereas tope were more frequently tagged on the west coast.

#### *Recaptures*

This year, one recapture was reported. An individual tope tagged in May 2018 was captured in the Netherlands during September 2018. However, no further information (e.g. tag number, sex or length) was recorded. Regardless, this is an interesting finding, suggesting tope inhabiting Manx waters may be migrating to waters elsewhere in Europe. This species is known to migrate (Holden & Horrod, 1979) but it is useful to determine which areas specifically Manx small sharks are utilising, in order to design effective management plans.

### Comparison of sharks tagged 2013-2018

In total, 284 small sharks have been tagged since 2013 (Table 3). This year, tope was the most tagged species, consistent with previous years, with the exception of 2017 in which a greater number of spurdog were tagged.

In comparison to 2017, less individuals were tagged and angler participation was reduced this year. However, last year two group angling/tagging trips were organised by MWT resulting in uncharacteristically high tagging success. Excluding 2017, this year was more successful than 2014, 2015 and 2016, as demonstrated by the greater number of tagged individuals.

**Table 3** - The number of small sharks (per species) tagged in Manx waters 2013-2018.

Species	Year					
	2013	2014	2015	2016	2017	2018
Bull huss	16	1	0	0	0	0
Spurdog	6	1	1	4	90	14
Tope	28	21	20	12	40	30
	<b>50</b>	<b>23</b>	<b>21</b>	<b>16</b>	<b>130</b>	<b>44</b>

Spurdog average length calculations have been similar throughout the six-year study period, particularly in the last three years (Table 4). Tope average length shows more variation (Table 5). Average length of tope was greatest this year, though the range was also greatest this year, with both the smallest (78cm) and largest individuals (171cm) recorded. Table 6 depicts calculated average length for all individuals tagged between 2013 and 2018 (for which length was recorded).

**Table 4** – The length range (cm) and average length (cm) of spurdog tagged in Manx waters 2013-2018. Values for 2014 and 2015 have been omitted as only one individual spurdog was tagged in each of these years.

Year	Length range (cm)	Average length (cm)
2013	75-107	94.17 ( $\pm$ 11.92)
2016	101-108	104.00 ( $\pm$ 3.16)
2017	74.50-113	100.49 ( $\pm$ 6.76)
2018	98-110	104.93 ( $\pm$ 3.67)

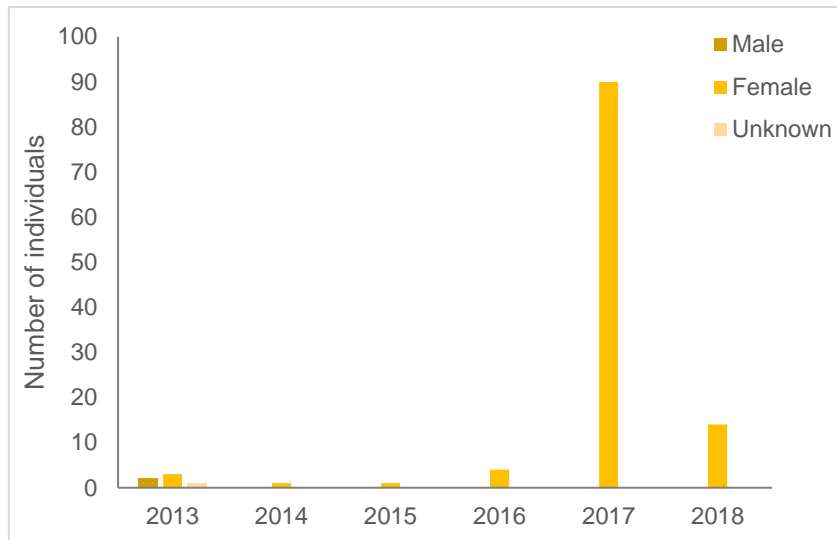
**Table 5** – The length range (cm) and average length (cm) of tope tagged in Manx waters 2013-2018.

Year	Length range (cm)	Average length (cm)
2013	110-156	141.71(±12.32)
2014	94-145	124.95 (±14.95)
2015	80-153	122.00 (±24.10)
2016	89-157	130.70 (±24.07)
2017	99-168	142.38 (±14.51)
2018	78-171	145.93 (±21.97)

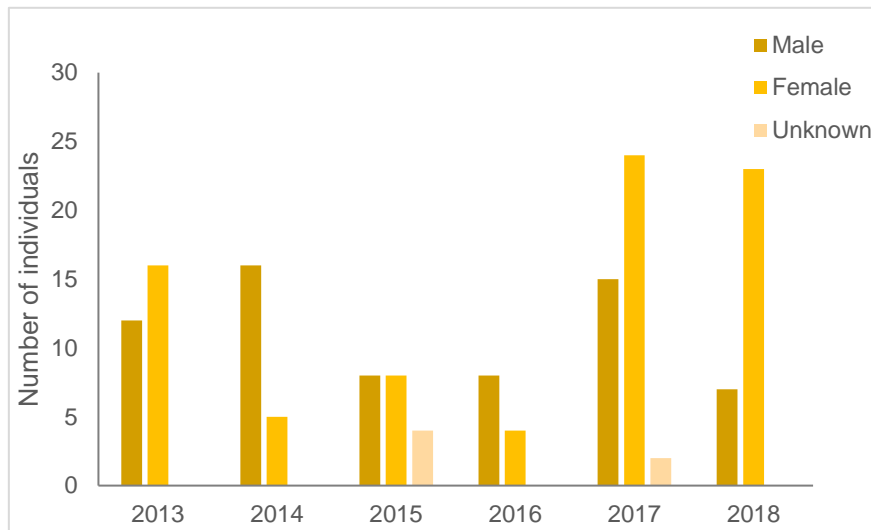
**Table 6** – The length average length (cm) of bull huss (N=17), spurdog (N=116) and tope (n=141) tagged in Manx waters 2013-2018.

Species	Length range (cm)	Average length (cm)
Bull huss	63-110	91.06 (±14.14)
Spurdog	75-113	100.82 (±6.94)
Tope	78-171	137.84 (±19.38)

The large majority of tagged spurdog have been female, with no males tagged since 2013 (Figure 3). This could be interpreted to suggest that Manx waters may predominantly be used by females, perhaps supporting the idea that this area may provide important small shark nursery grounds. However, as the number of individuals tagged has been relatively low throughout the six-year study period, perhaps with the exception of 2017, it is uncertain whether this pattern is coincidental or truly representation of the population. Whilst tagged tope sex ratio shows more annual variation, females have been more frequently tagged in the last two years (Figure 4). Similarly, the small number of total taggings occurring each year cannot provide in-depth population sex data.



**Figure 3** - Sex of spurdog tagged in Manx waters 2013-2018.



**Figure 4** - Sex of tope tagged in Manx waters 2013-2018.

This year, tope were captured around the Calf of Manx, though not to the same extent as during 2017 during which organised angling trips occurred in this area. However, this may potentially imply that this is a ‘popular’ area for tope. Similarly, small sharks have consistently been tagged in close proximity to Douglas, which may highlight this area as one of importance. A possible reason for this may be shoaling herring and mackerel in the autumn that use Douglas bay and south of Douglas for spawning. Despite this, it is important to consider that areas that appear ‘popular’ may reflect anglers choice to fish somewhere convenient as opposed to areas with especially high small shark abundance. During this year and 2016 tagging occurred exclusively in the southern portion of the Island. However, tagging in northern waters was more prominent during 2013 and 2014. Overall there does not appear to be any distinct patterns in tagging distribution and it could be suggested that the combined results demonstrate that all water surrounding the Island have shown presence of small sharks. Therefore it is possible that no specific regions are of particular importance.

## Conclusions and recommendations

In total, 284 small sharks have been tagged since 2013. However, only two recaptures have occurred, one individual tope this year and another tope in 2014 from Scotland. A greater occurrence of recaptures, and thus more substantial data, had been anticipated throughout the project. At present little, if any, data has been obtained about the migration patterns of small sharks utilising Manx waters. Additional tagging, and even more so, the capture of previously tagged individuals (recaptures) are necessary to obtain useful information about the distribution and population structure of small sharks in Manx waters. Further research into the abundance and distribution of bull huss around the Isle of Man may be crucial in determining the localised conservation status of this species, as no individuals have been tagged in the past four years.

Based on the present data set, particular areas requiring greater protection (perhaps in the form of restrictions or reserve formation) cannot be distinguished. Therefore, it may be necessary to implement conservation activities that apply to Manx waters in their entirety, in order to conserve these threatened small shark species.

Unfortunately, this year saw the closure of the SSTP. This has implications for the future of the Isle of Man Small Shark Tagging Programme, particularly as the floy tags have been supplied each year by SSTP. This uncertainty, in combination with both a limited number of tags and delay in receiving more, resulted in the decision to not run organised angling trips this year. The absence of angling trips restricted the number of tags administered, explaining the decline in tagging success in comparison to 2017. In light of SSTP closure, DEFA and MWT will be reassessing the programme and hope to explore cooperation with other shark tagging programmes.

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

## References

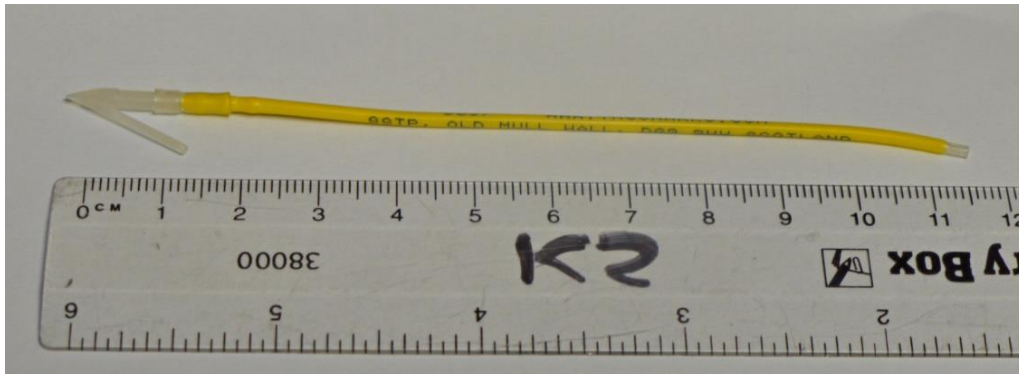
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## Appendices

### 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](mailto:eleanor@manxwt.org.uk) or drop in at 7-8 Market Place, Peel, IM5 1XF or online at:

[www.tagsharks.com](http://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](mailto:eleanor@manxwt.org.uk) or drop in at 7-8 Market Place, Peel, IM5 1XF or online at:

[www.tagsharks.com](http://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](mailto: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