



Protecting **Manx Wildlife**
for the future

The Isle of Man Shark Tagging Programme

End of Year Report 2014



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 initiated a small shark tagging project in the Isle of Man. After being deemed successful, the project has been undertaken for another year, the data of which is the focus of this report.

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. This information may also contribute to future updates of the 'Management Plan for Tope and Other Small Species of Elasmobranch in Manx Waters' first produced by DEFA in 2013.

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

In 2014 the project was advertised locally and interested anglers targeting small sharks were invited to partake in the project. This year, 10 new anglers were trained. Four anglers deployed tags, two of which had not tagged during 2013.

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. The 2014 data was later sent to the Manx Wildlife Trust at the end of the tagging season.

Results

Sharks tagged in 2014

In total, 23 sharks were tagged in 2014, including one bull huss, one spurdog and 21 tope (Figure 1). Length of the individual bull huss and spurdog, and both length range and average length of tagged tope, are depicted in Table 1. Figure 2 displays the length of each tagged tope.

When considering sex, the single bull huss and spurdog captured were male and female respectively. The majority of tope captured were male (n=10) (Figure 3). The range and average length of tagged male and female tope is depicted in Table 2.

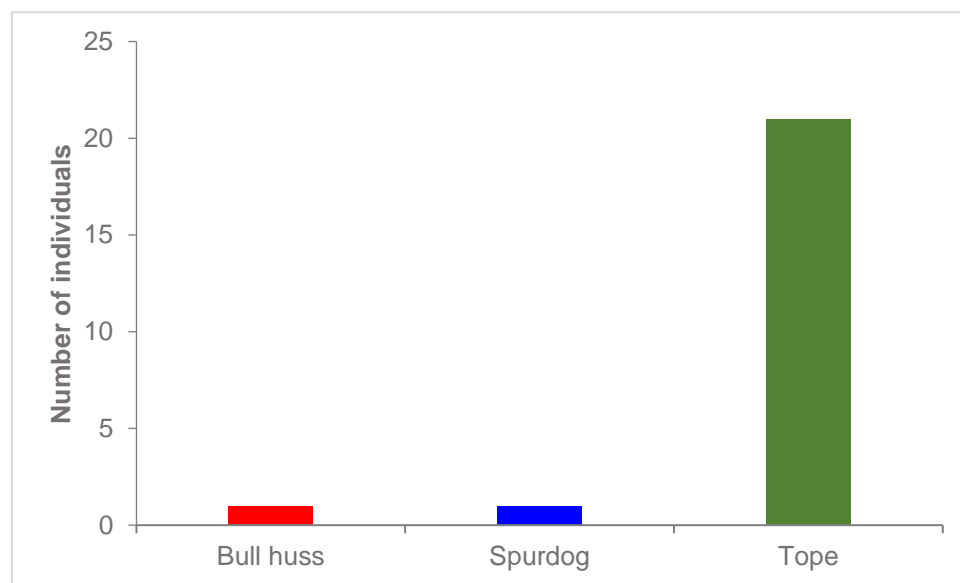


Figure 1 – The number of small sharks tagged in Manx water during 2014.

Table 1 – The range and average length (\pm SD) of small sharks (tope; n=21) tagged in Manx waters during 2014. Only one individual bull huss and spurdog were tagged, therefore range and average length were not calculated.

Species	Length (cm)	Length range (cm)	Average length (cm)
Bull huss	89	-	-
Spurdog	100	-	-
Tope	-	94-145	124.95 (\pm 14.95)

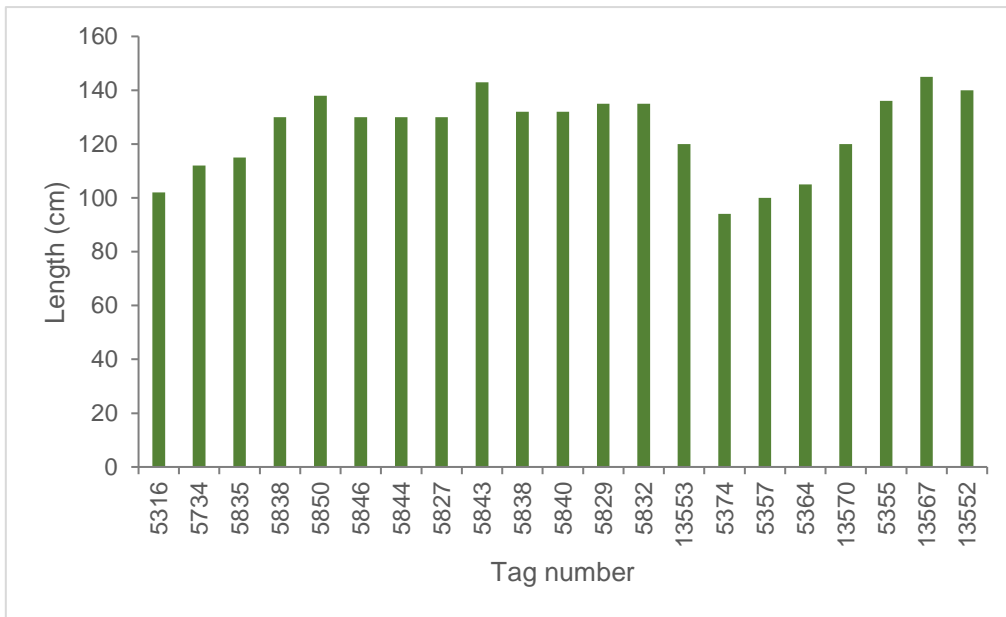


Figure 2 – Length of tope individuals tagged in Manx waters during 2014.

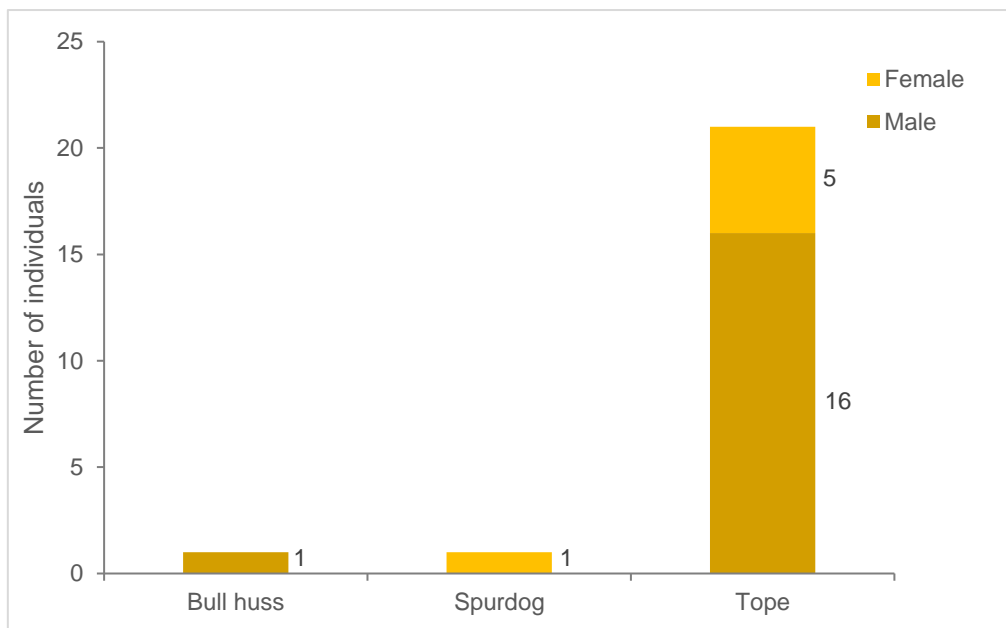


Figure 3 – Sex of sharks tagged in Manx water during 2014.

Table 2 – The range and average length (\pm SD) of male (n=16) and female (n=5) tope tagged in Manx waters during 2014.

Species	Males		Females	
	Length range (cm)	Average length (cm)	Length range (cm)	Average length (cm)
Tope	94-145	125.38 (\pm 14.99)	100-143	123.60 (\pm 16.50)

Distribution of sharks tagged in 2014

It is interesting to note that several small sharks were tagged north of the Island, with two tope and one bull huss actually tagged in relatively close proximity to Scotland. A total of 11 tope were tagged close to the Point of Ayre in the north of the Island during a single fishing trip.

Recaptures

In addition to the 23 newly tagged sharks in 2014, 21 of which were tope, there was a single tope recapture. This individual (tag number: 3085) had been tagged in Scotland by SSTP and was captured in good physical condition. Unfortunately, the data associated with the tag was incorrect whereby it was described as a skate despite clearly being a tope. Furthermore, no measurements were obtained and sex of the individual was not determined as the anglers were visiting anglers and not trained in this programme.

Comparison of sharks tagged in 2014 and 2013

This year was less successful when considering the number of individuals tagged. This year there were 23 small sharks tagged, compared to 50 in 2013. Whilst this may be a result of decreased shark abundance in waters around the Isle of Man, it is perhaps more likely to be a result of the number of anglers partaking in tagging. This year only four anglers were involved in tagging, two of which also tagged in 2013. However, 2014 presented the first recaptured shark, demonstrating the potential use of the programme as it continues into subsequent years.

Tope were caught more often than bull huss and spurdog in both years (Figure 4), perhaps indicating a higher abundance of tope in Manx waters. It is also notable that the number of bull huss tagged this year decreased from 16 in 2013, to just six (Figure 4).

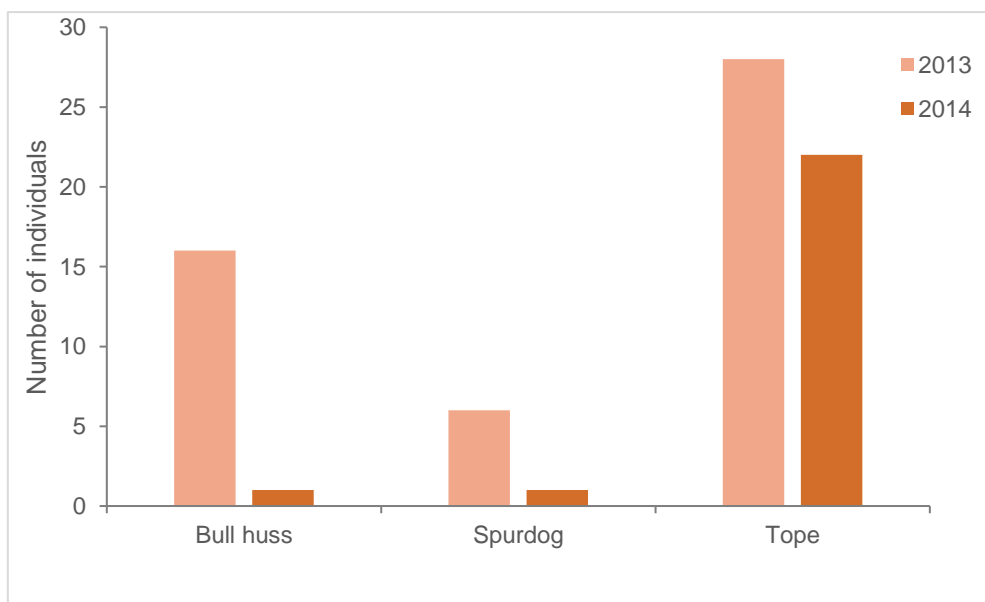


Figure 4 - The number of small sharks tagged/recaptured in Manx waters during 2013 and 2014. 2013; N=50, 2014; N=24 (including 23 tagged individuals and one recaptured individual).

Tope average length was smaller this year (124.95 (\pm 14.95)), compared to 2013 (141.71(\pm 12.32)). The individual bull huss tagged in 2014, which measured 89cm, falls within the 2013 range of 63-110cm. Similarly, the individual spurdog tagged (100cm) fits within the 2013 calculated range of 75-107cm.

When considering the sex of tagged bull huss (Figure 5) and spurdog (Figure 6), sex ratio between years cannot be compared as only one individual was tagged per species during 2014. However, in both instances, the individual tagged belonged to the sex that was mostly frequently tagged during 2013. Perhaps the most interesting sex ratio result comes from the comparison of tagged tope, whereby a greater number of females were tagged in 2013 and males in 2014 (Figure 7).

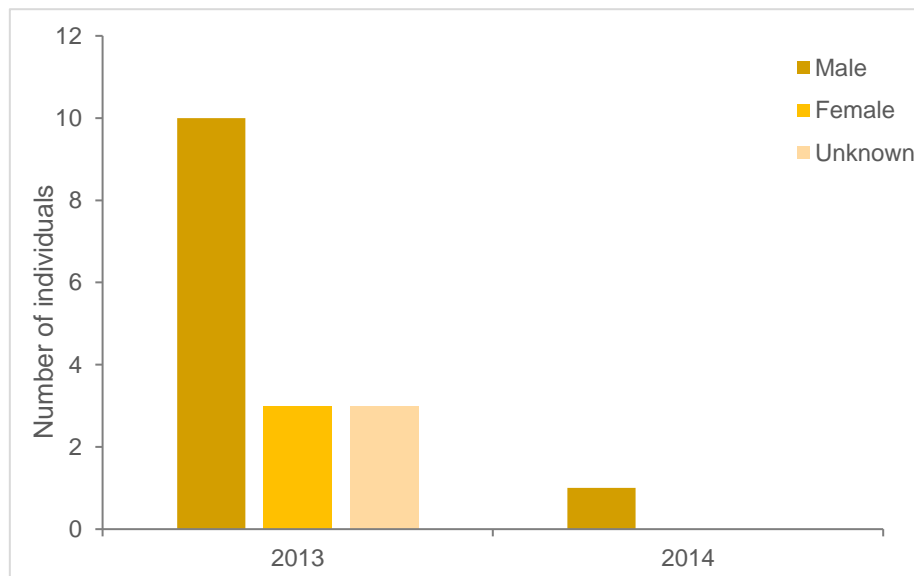


Figure 5 - Sex of bull huss tagged in Manx waters during 2013 and 2014.

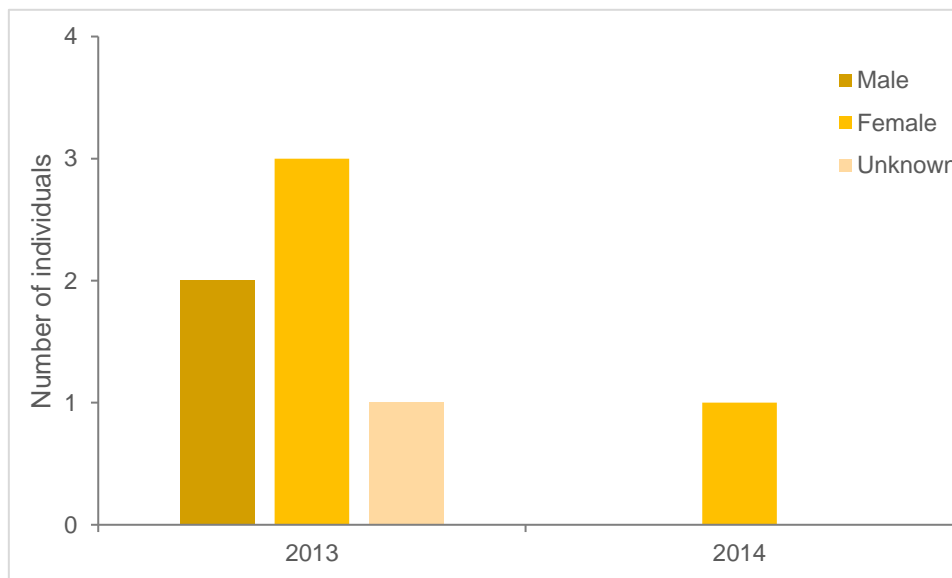


Figure 6 - Sex of spurdog tagged in Manx waters during 2013 and 2014.

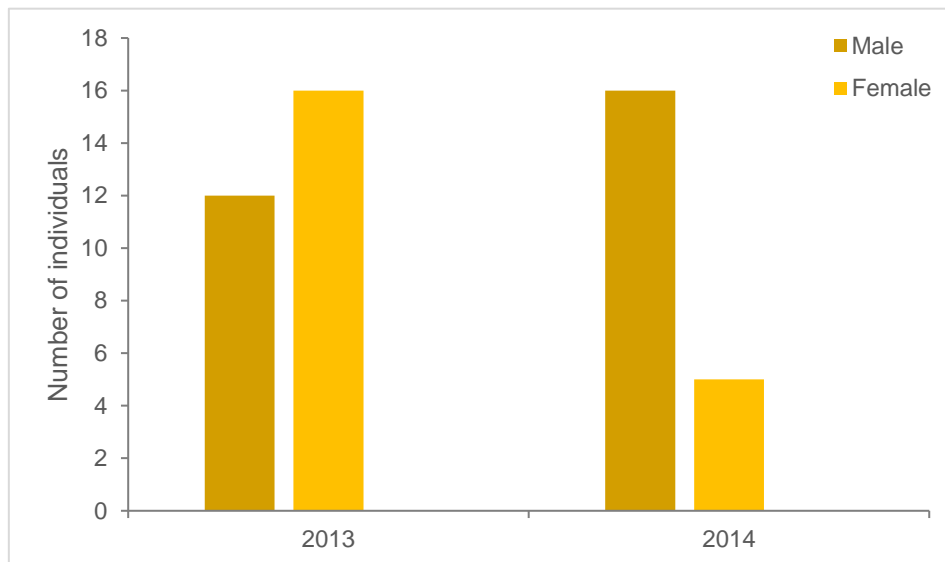


Figure 7 - Sex of tope tagged in Manx waters during 2013 and 2014.

There is quite a noticeable variation in the distribution of shark captures when comparing 2013 and 2014. This year, several tope and an individual bull huss were tagged in waters north of the Island. Comparatively, no sharks were tagged in this area during 2013. Furthermore, shark tagging locations this year were more widely spread, as opposed to 2013 in which taggings predominantly occurred in clusters in relatively close proximity to the Island. The variation in shark tagging locations is perhaps unlikely to reflect true altered species distribution, but rather extraneous variables influencing accessibility and angler fishing location preference.

Conclusions and recommendations

Overall, 23 sharks were tagged in 2014 and whilst this is lower than the 2013 tag rate, it increases the total number of sharks tagged since the beginning of the programme to 73. Furthermore, one recapture occurred, supporting the hypothesis that individuals are moving between Scottish and Manx waters and that there may be population overlap. This also highlights the need for international management and conservation of this vulnerable species.

As of 2014, there is not sufficient data to observe distinct patterns or draw any conclusions about the small shark population inhabiting Manx waters. However, the programme is only in its second year and it is anticipated that more information will be obtained in years to come.

The small number of anglers partaking in tagging this year restricted the number of sharks that could be tagged and thus it is of the utmost importance to encourage anglers to administer tags. More training events or the use of angler surveys to infer what would facilitate greater support for the project, may increase participation. It is hoped that this would lead to an increase in both initial tagging and recapture rates, allowing for the accumulation of more data, perhaps even allowing the documentation of migratory paths.

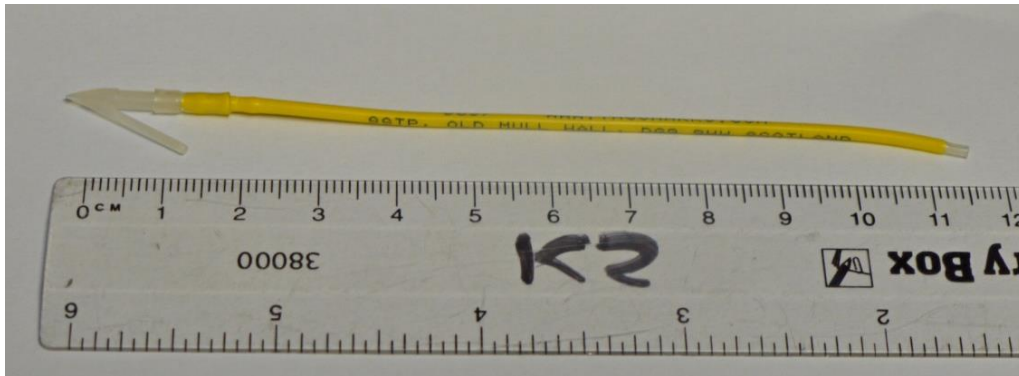
The Manx Wildlife Trust is grateful for the support of this programme, and is optimistic concerning the potential for future data collection.

References

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- Walker, T.I., Cavanagh, R.D., Stevens, J.D., Carlisle, A.B., Chiaramonte, G.E., Domingo, A., Ebert, D.A., Mancusi, C.M., Massa, A., McCord, M., Morey, G., Paul, L.J., Serena, F. & Vooren, C.M. (2006). *Galeorhinus galeus*. *The IUCN Red List of Threatened Species* 2006: e.T39352A10212764. <http://dx.doi.org/10.2305/IUCN.UK.2006.RLTS.T39352A10212764.en>. Downloaded on 04 March 2019.

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