

Angling for and Tagging Sharks from Small Boats

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**North Sea
Shark Network**



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A bit about the authors

Adrian Pinchbeck started to fish with his dad at the age of around five, initially coarse fishing in local rivers and lakes while his dad introduced him to bird-life and a general appreciation for nature and the countryside. Continuing through match fishing, specimen hunting, and game fishing, it wasn't until a planned fishing trip to New Zealand and then Australia in the early 2000's did his interest for bigger fish, and sharks begin. These days, aboard his own boat Cutty Shark, the pursuit of sharks continues a little closer to home.

Magnus Johnson is an environmental marine scientist with an interest in all things fisheries. Much of his research is based on conversations with or ideas gleaned from fishfolk who spend more time on the water than he does. He views anglers as monitors of the marine environment who can provide essential data on non-commercial species that would be very expensive to survey in any other way.



Section 1: Small Boat Shark Angling

Know your limits

While this isn't a step-by-step this is how to do it, we all know that our boating and angling abilities have limits, none of us are experts in everything, and sooner or later something at sea will test both of them. Similarly, boats come in all shapes and sizes, and handle differently at anchor and underway. Furthermore, it is important not to overestimate what we can personally accomplish on a chosen day, weather and tide will usually dictate, so we all need to responsibly acknowledge any clear limitations.

Small sea-going angling boats in the UK are normally between 16 and 20ft, with the majority of trailered boats at the lower end of the range. If you are fishing for the smaller shark species, such as dogfish, rays and thornbacks, boat features are relatively unimportant as a good landing net should provide sufficient control most of the time. However, if the target is for example tope or larger, then freeboard, beam, provision of a bathing platform, access around the boat, and crew availability all become more important aspects to consider. Fish upward of 50lb can be physically difficult to handle safely in the wrong conditions, or aboard an inappropriate boat with inexperienced crew.

Welfare and Safety

On a small boat good shark welfare and angler safety rely on the same requirement – a careful and well-thought-out plan. Two small boats are never the same, differences such as freeboard, available deck space, stowage locations, seaworthiness, state of repair, experience of crew on the day, weather etc, all have a bearing upon the plan. Furthermore, as space on a small boat is obviously very limited, as well as the angler having a thorough plan, the boat should be kept as tidy and clutter-free as possible while bait is in the water. Additionally, a well-stocked first aid kit with contents within the expiry date also comes in handy!

Handling Small Sharks for Unhooking and Tagging

Due to the difficulties of attempting to accurately tag a small shark in what is normally a turbulent sea, it might be considered appropriate to bring smaller sharks onboard for a more controlled process, and avoid inadvertently injuring the catch. Sharks to around 20lb can be brought aboard using a knotless landing net of the type normally used for carp fishing, and placed on a soft surfaced unhooking mat, wetted and cooled with fresh seawater (see Figure 2). If smaller sharks are caught for sport and release, it is far better for them to be quickly released in the water using a 'T' bar or similar.

Before considering specific local shark species in turn, it is at this stage worth a few words on general shark handling matters to always be very mindful of. Firstly gills, they not only transfer the oxygen from seawater to the blood, but also regulate other biological functions, including the diffusion of carbon dioxide, help to regulate PH balance, and more¹. The high density of blood capillaries within the gills, and fragility of gill filaments means that any physical damage is likely to result in reduced efficiency, profuse bleeding and possible eventual death. Attempting to extract a deep hook or indeed anything through the gills, or any manual handling through the gill slits must therefore be

¹ Daniel C Abel, R Dean Grubbs (2020) Shark Biology and Conservation – John Hopkins University Press

totally avoided. Next, sharks have no ribcage to protect internal organs, they are normally fully supported by surrounding seawater (see Shark Physiology below), and as such any lifting by the tail alone is likely to tear and damage ligaments connecting these organs, resulting in unseen damage and any number of longer-term health issues or eventual death. When attempting to lift a shark, it is very important to hold it horizontally while supporting the body, avoiding damage to the unusually large liver in sharks that not only processes blood and nutrients, but also provides buoyancy in the absence of a swim bladder. It shouldn't need to be said that standing on a shark to restrain it, dropping it, wedging it in a corner, pulling it over the handrail and so-on, must be consigned to history. We know that anglers (particularly shark anglers) are being watched, so doing all we can to promote shark welfare through thoughtful angling and careful handling will hopefully benefit us all.

Some of the species caught off the Yorkshire Coast that could fall in to the smaller category are included below, and generally have specific handling requirements:

Dogfish, as most people know, are able to cause a painful abrasion if allowed to freely twist around the arm, and are normally small enough to be carefully held for unhooking with the tail against the head in the same hand, and unhooked using the other hand. Tagging can be made easier by partially wrapping a freshly sea-soaked towel around the fish, but care must be taken not to squash it within the towel.

Bull Huss are larger and stronger than a dogfish, and are better equipped to cause harm, they will twist and turn, and quite likely to try and bite! Use of a freshly sea-soaked towel over the head, or an extra pair of hands will assist with unhooking. Careful handling is required with both hands, one gripping the tail wrist and the other supporting the body and below the pectoral fins, in order to release.

Smoothhound and Starry Smoothhound will thrash around if left loose on deck, so again careful movement restriction with a freshly sea-soaked towel quickly placed over the head and body and turning the fish upside-down for unhooking is advised. Carefully hold the fish by the tail wrist (peduncle) in one hand and support the body and below the pectoral fins with the other, in order to release.

Spurdog have a mildly venomous² curved spur located to the front of both dorsal fins and are capable of causing a painful injury to the unaware. Once boated, the spurdog can be aggressive and will try to thrash around, arching it's back in an effort to defend itself. A freshly sea-soaked towel quickly placed over the head and body can be used to restrict movement and turning the fish upside-down for unhooking can also help. Carefully hold by the tail wrist in one hand and support the body and below the pectoral fins with the other, in order to release.

Thornback Rays are protected with large, scattered thorns on the upper disc and snout areas, along the central disc and tail, lateral tail both sides, and underside. Carefully³ hold by supporting the snout (avoiding the nostrils, gills and spiracles) and the base of the tail, wet gloves are recommended to protect against the thorns and to avoid removing the mucus layer from the fish and damaging its skin.

Spotted Ray – support and hold as thornback above.

Cuckoo Ray – support and hold as thornback above.

² <https://www.sharkophile.com/2019/04/25/sharkofiles-spiny-dogfish/>

³ Field Guide to Sharks, Rays & Chimaeras – Appendix 3 and Shark Trust – Best Practice Shark and Ray Angling

Blonde Ray – support and hold as thornback above.

Tope and the Planning Required

The area of the North Sea off East Yorkshire tends to produce a high proportion of large female tope. Checking my records over recent years, the averaging size is well over 40lb, commonly going to 55lb, with a fair few well over that. Before the first bait goes out, it is essential on a small boat to:

- completely clear the deck
- stow tackle bags up front
- prepare the net
- place sling and scales close to hand if required
- prepare and deploy the rubby-dubby
- safely install the cutting surface
- Make sure that all necessary unhooking tools and equipment are placed at the ready, but out of the way
- have a towel soaking in a bucket to the side

Once these tasks are done, with a clear open deck, the baits are good to go. If you are lucky enough to get a run straight away, you will not be frantically attempting to find what you need with a big lump of muscle and teeth thrashing around your dancing feet!

Once you do get an enquiry and the ratchet starts to click, that is when the fun starts, but things can turn from silently nodding in your chair, to frantic chaos in an instant. Time spent digging out missing tools and equipment could turn a safe capture and healthy release, into a slow lingering death for the shark. From experience, if you do something for long enough, at some stage something is likely to go wrong, very quickly indeed aboard a boat, so trying to be as prepared for the unexpected as you can will help when it does.

Other Shark Species to Consider

The North Sea seems to have a habit of throwing up an unusual shark species when you least expect it, including blues, threshers and porbeagles, and I have heard first-hand diver reports of some very unusual ray sightings too. With the seas gradually warming, various shark species could be adjusting their ranges from the south, possibly resulting in some less-common species getting caught. If an unusual or immediately unidentifiable shark/ray/skate is caught, the recommendation is to take a number of photographs, if possible and as appropriate, one from the left side, an upper one, and one from the underside. Measurements can also be taken, or locate the shark next to something of known size to place it in context when taking the photograph. Some skates and rays particularly, can be very difficult to identify at the time. Field guides can then be consulted later, or the photographs can be forwarded to ourselves, or others for possible identification. You will generally find that anglers interested in sharks will be only too happy to assist with an identification.

Rubby-dubby Recipes for Tope

Ask any shark angler, and they will usually have their own recipe for the best rubby-dubby mix (chum, burley, groundbait etc. in other areas of the world). If you already have your own recipe and

method of use, I would suggest you skip this section, if not... I normally bag up and chill all my unused hook-baits caught on the day, and back home I'll cut and mash them up (guts and all), adding cod-liver oil, sardine oil, menhaden oil, grit sand, and flaked bran from a local horse-feed supplier, then mix the smelly lot in the garden and cover from flies. I'll leave this to soak and expand for about an hour, scoop the mix into old margarine tubs or similar, and freeze to form blocks. Once back at sea and the anchor is down, the frozen blocks are put in a holed bucket with a snap-on lid, attached with a loop and hung off the transom. Gradually the block melts in the sea, and releases oils and bits of fish etc. over time. I keep adding blocks through the session as they disperse, regularly giving the bucket a few lifts to rinse out anything lodged between holes. Sometimes I will use a large stainless bait-dropper to also regularly release fish chunks on the bottom, otherwise I'll cut fish into cubes, and drop them over the side. Once you find a method that works for you, stick to it as your confidence with it grows.

Minimising Fight Time

Because there is thought to be a link between fight time and mortality⁴ in some shark species, most marine scientists writing about shark angling recommend using heavy fishing gear, minimising the fight time, and therefore reducing the stress this causes to the fish. From an angler's perspective, I feel this is an area that deserves clarification. Clearly it would be possible to use IGFA 80 rated tackle (80lb class rod, reels, lines etc.) for say tope, and simply winch the fish straight to the boat for unhooking. Neither is this method going to be at all sporting, but more importantly any shark brought to a small boat with limited space this way will be too 'green' to deal with safely (lively and furious). The fish is likely to be thrashing about like a huge mackerel, potentially likely to damage itself, impossible to safely deal with in the water alongside, and too dangerous to board.

My approach is to take a balanced view of tackle required, though I do tend to fight fish harder than some I've fished with alongside. This is not a section about prescribing any particular tackle, as I'm sure that as you've arrived at this point, you already have some experience of catching sizable fish. I'm not however an advocate of using the smallest hooks and very light tackle myself, as I'd rather have confidence in my own equipment should something larger than expected come along, or maybe I have a large fish 'wrapped' by the tail in a large tide while at anchor (being brought in backwards). A comfortable safety margin is always my preference.

Chosen Hook and Trace Implications

The welfare of sharks generally, and whether to board the larger ones, is at the time of writing, a subject of hot debate. When considering whether or not to board a large shark, some serious questions need to be addressed even before the trace is chosen. Over recent years the wider use of circle hooks has reduced the likelihood of gut-hooking and thus damaging sharks and other fish, as these hooks are designed to obtain purchase in the corner of the jaw. French, et al (2015)⁵, made a

⁴ Ellis JR, McCully Phillips SR, Poisson F (2017) A review of capture and post-release mortality of elasmobranchs. *J Fish Biol* 90:653–722. <https://doi.org/10.1111/jfb.13197>

⁵ French RP, Lyle J, Tracey S, et al (2015) High survivorship after catch-and-release fishing suggests physiological resilience in the endothermic shortfin mako shark (*Isurus oxyrinchus*). *Conserv Physiol* 3:cov044. <https://doi.org/10.1093/conphys/cov044>

comparison between hooking locations for 'J' hooks and Circle hooks on 33 shortfin mako sharks caught (Table 1). It is clear that circle hooks are much less likely to lodge in the throat, gills or gut.

Table 1. Summary of anatomical hooking locations for 33 shortfin mako sharks caught on two types of terminal tackle. J hooks are 9/0 stainless steel 'Shogun' hooks, Circle hooks are 13/0 'Eagle Claw'.

	'J' Hook Location	Circle Hook Location
Jaw	3	15
Throat	5	2
Gut	4	0
Body	0	1
Gills	3	0
Total	15	18

However, if circle hooks are not de-barbed (some are available barbless), sometimes they can be almost impossible to remove, even though located in the scissors as designed. Occasionally the trace wire needs cutting in order to pull the hook through backwards (in the same direction that it went in). Circle hooks must be really be rendered barbless to assist with removal, and the best way to do this is to grind or file off the barb completely – if you don't do it, time will be wasted attempting removal. Next, these hooks should also be non-offset, meaning that the hook point is perfectly aligned with the hook shank. Offset circle hooks have an increased ability to gut-hook, and their use has recently been banned in some US States for this reason⁶. Some offset hooks can be carefully straightened in a vice, as can non-offset hooks that haven't been manufactured correctly.



Figure 1. Flemish loop at top end of wire trace, with large snap swivel attached to the mono rubbing leader for quick release. Inset: Alternative hardware

The planned removal of a circle hook from a shark in the water alongside a boat can be extremely difficult to carry out if not almost impossible in poor weather. One method around this problem is constructing the wire part of the trace with a Flemish loop at the upper end, this can then be clipped to the rubbing leader, permitting the wire to be unclipped from the rubbing leader, and the circle hook and trace removed backwards with a T bar (or de-hooker by looping a wire behind the hook-point and pulling the hook and trace out in reverse from there, see Figure 2). However, on a rolling boat and in the heat of the moment, this may not be as simple in practice as it might sound.

⁶ https://dnr.maryland.gov/fisheries/pages/recreational/circle_hooks.aspx



Figure 2. De-hooker or disgorging for removal of circle hooks in reverse in the water, pole length sized to suit boat freeboard

When considering the likelihood of dangerous or lethal hook locations, if the intention is not to board a shark from the outset, then use of 'J' type traditional hooks will make hook removal easier using a T Bar, de-hooker or disgorging in the water. However, these hooks are much more likely to gut-hook or find purchase other than in the jaw, so now timing the strike becomes the most important consideration. When using 'J' hooks, the strike should be made as soon as the initial run has started, to set the hook in the jaw before the shark has a chance to swallow the bait. Use of barbless and non-offset 'J' hooks is again recommended.

If you intend to board your shark, the emphasis changes to good handling practice during your contact period with the catch once out of the water. Although sharks are very strong, have sharp teeth, rough skin and look to be very robust, they are delicate creatures and easily suffer from stress, particularly when out of the water and on deck. Stressed sharks, skates and rays turn a pink colour at fin extremities, and the advice is to release any that look stressed immediately. Clearly, larger sharks are also more susceptible to crushing injuries due to their weight and strength if brought aboard for unhooking.

Unhooking or Leaving the Hook in?

Although rare, if the correct hooks and techniques are used, a shark may still arrive with the hook completely out of sight, or just very difficult to remove. If the problem can't be resolved immediately, it is much better for the outcome of the shark to cut the trace as close to the hook as is possible. Although it might be tempting to take up the baiting knife and start some shark 'surgery' in order to recover a hook, enlarging openings to assist removal or potentially breaking the jaw, shouldn't be the price paid for recovering your trace intact. The hook left in a shark should be lost in a relatively short period of time, owing to the saltwater environment and/or stomach acids, or simply that the unwanted stomach contents are repelled (gastric eversion)^{7,8}. In this regard, the use

⁷ <https://www.sharkcagediving.net/shark-blog/sharks-puke-their-guts-out-literally>

⁸ [https://dlnr.hawaii.gov/sharks/anatomy/the-shark-inside/#:~:text=Sharks%20have%20large%20J%2Dshaped%20stomachs%20that%20can%20expand%](https://dlnr.hawaii.gov/sharks/anatomy/the-shark-inside/#:~:text=Sharks%20have%20large%20J%2Dshaped%20stomachs%20that%20can%20expand%20)

of stainless hooks generally should be avoided, as these are more likely to remain in a shark, and can migrate over time to organs inside the body and causing further damage or infection.^{9,10} De-barbing the hooks, in particular circle hooks was a revelation to me once I tried it, and often makes removal so much quicker.

Shark Physiology

Sharks have evolved and adapted for hunting, migration and habitat, and the use of cartilage and connective tissue instead of bone forms a lightweight, flexible structure, allowing for faster movement and tighter turns, ideal for chasing lunch. However, having no ribcage or abdominal muscles of land animals, so out of water their weight will apply pressure to internal organs that are normally supported by water pressure¹¹. Once out of the water, careful handling, the use of a sling, and some kind of soft matting can be used instead of placing the catch directly on to a hard (and potentially hot or cold deck surface), will all help reduce potential damage. Closed cell sleep mats of around 10mm thickness can be used on deck, or dovetailed workout matting of the same material, and rubber anti-fatigue mats as below (Figure 2). If kept wetted, these will also act as a thermal break if in full summer sunshine, helping to prevent shark skin burn injury.



Figure 2. Soft rubber unhooking mat over the deck surface, swilling with fresh seawater will cool it on hot days

Bringing a Tope Aboard

The decision whether to bring a tope aboard or not, will take into account factors such as the size of it, competence of available crew to handle it, placement of the hook and hook-hold, sea conditions, and the need for bringing it aboard in the first place. Unfortunately, small private boats are rarely fitted with a transom door, so in the majority of cases the only way of getting a shark on deck, is over the gunnels.

[20considerably.&text=The%20stomach%20produces%20an%20acid,be%20regurgitated%20through%20the%20mouth.](#)

⁹ <https://www.hawaii.edu/news/2020/01/12/shark-study-fish-hooks/>

¹⁰ J Borucinska, N Kohler et al (2002) Pathology associated with retained fishing hooks in blue sharks, *Prionace glauca* (L.), with implications for their conservation - *Journal of Fish Diseases* 25: 515-521

¹¹ <https://sharksinfo.com/skeleton-html/>

Critically at this moment it is important that everyone on board must know their role and be aware of what exactly is planned. If a crewmember is not required, keep out of the way!

I tend to proceed as follows: As the tope approaches the boat ready for boarding, the rubbing leader is firmly grasped but not wrapped around the hand, the reel drag is released, and the rod placed out of harm's way. Once it is settled and ready, firstly a pectoral fin is grasped very firmly with one hand, the rubbing leader can now be released from the other, and the wrist of the tail is grasped again very firmly by the free hand (grasping a pectoral fin and the tail wrist gives the handler more control over the tope than would be achieved by grasping the dorsal fin and tail wrist). In a single continuous movement, the tope is then lifted horizontally out from the water, over the side and on to a soft-surfaced, pre-wetted unhooking mat (see Figure 2), while keeping the sharp end well away from yourself or other crewmembers close by.

In the event that a large tope is brought to the boat, it may be necessary for two people to handle it safely. One person handles the pectoral end, the other the tail wrist, and working together the shark is manoeuvred into the boat in exactly the same way. Clearly however, if there is any doubt about boating any shark, it should be dealt with in the water.

Once the tope is placed upon the deck or on to an unhooking mat, it is instantly loose if released, and free to try and 'swim' for freedom all over the boat. Even a 30lb tope is very strong, and if allowed to thrash around, will smash and clatter anything in the way, creating pandemonium and potentially damaging itself, boat seats, fuel tanks etc. Also remember that it still needs to be unhooked, so the rod, trace, and weight it was just caught on could be pulled into the melee.

Clearly, on a small boat or in a confined area, the moment the tope is placed down, it is imperative that the person assigned to unhooking it immediately, but very carefully straddles the shark, knees either side and behind the pectoral fins, and feet either side towards the wrist or caudal fin. Just sufficient lateral restraint is applied to prevent the shark from thrashing side to side or twisting like a corkscrew. Under no circumstances must any pressure be applied from above or the gills touched. During this moment, a towel soaked in fresh seawater can be placed over the head of the tope covering the eyes, this will help to subdue it ready for unhooking¹². Once safe to do so, the tope can be turned to expose the hook site, the hook extracted and the whole trace handed to another person for stowing safely away from the area.

An interesting study is worth noting here, analysing post release mortality of Blacktip sharks in recreational charter fishing within three areas of the Gulf of Mexico.¹³ Blacktip sharks are of a similar size to tope, and separately have been found to be 'particularly sensitive to capture due to intensive swimming acceleration when hooked',¹⁴ similarly in angling circles, tope are well-known for their long, screaming runs and as a UK sport fish. Charter boat catches in the three regions were recorded separately and compared, sharks were brought aboard using different techniques in each region, while no handling guidance was provided to the charter crews by the scientists. Pop-up satellite tags were attached to the sharks for recording temperature, depth and light following shark release. The study found that by comparing fighting times, handling techniques, temperature and salinity, it was long fight times and poor handling that was more likely to cause lethal damage. We

¹² <https://www.ssacn.org/sharks-fighting-for-survival/handling-tope-sos-best-practice/>

¹³ J A Mohan, E R Jones, et al (2020) Capture stress and post-release mortality of blacktip sharks in recreational charter fisheries of the Gulf of Mexico. *Conservation Physiology*, Volume 8, Issue 1, 2020, coaa041
<https://academic.oup.com/conphys/article/8/1/coaa041/5838494>

¹⁴ Gallagher AJ, Staaterman ER, Cooke SJ, Hammerschlag N (2016) Behavioural responses to fisheries capture among sharks caught using experimental fishery gear. *Can J Fish Aquat Sci* 74: 1–7.

must all be aware that although a shark may swim strongly away once released, it is also quite possible that it could head towards the bottom and subsequently perish out of sight, so it is in all our interests to look after them while they are in our care.

Tonic Immobility

Occasionally, and probably for a variety of reasons, a shark arrives to the boat quietly, then suddenly take fright once on deck, failing to relax even after a soaked towel is placed over the eyes.

For a good number of years, I have been turning various shark species caught in the UK and abroad upside down in an effort to subdue for unhooking, assuming all sharks will respond to it (but not all do). Once upside down, the hook can be better placed for removal too. I have used the procedure on tope, blacktips, sandbar whalers, bull sharks, lemon sharks, grey reef sharks, guitarfish, and at least one spinner shark, and I am quite convinced that it helped on most occasions. The technique taps into a type of hypnosis called tonic Immobility. Below are two excerpts extracted from the internet, that describe the term:

Tonic immobility, also known as (TI) is an unlearned reflex action that leads to a state of paralysis that some animals can enter into involuntarily when they feel threatened and is characterised by a state of immobility. This behaviour has been reported to occur in a variety of animals including insects, reptiles, birds, amphibians, mammals and fish¹⁵.

Tonic immobility is often used by researchers when handling sharks to subdue them. Whether in the wild, captivity, or a laboratory. Subduing them minimises their struggling and reduces the possibility of injury¹⁶.

A study in South Africa on two species of catshark, found that the time taken to induce TI differed between the species, but not between sexes, and concluded that it was probably an anti-predatory response.¹⁷

Be careful if using this technique abroad though, because some species of shark are so flexible that they are able to turn completely round on themselves so they could bite their own tails (notably lemon sharks, and I gather blues also), turning such fish part-way could leave yourself in a vulnerable place should they decide to turn on you! Therefore, be very careful trying this on any small unfamiliar shark species you may bring inside the boat, and don't forget to put your gloves on and cover bare skin every time (I've paid the price of not doing so too many times).

Suggested Selection of Tools Required and Immediately at the Ready:

Rigger or gardening gloves etc
T Bar, disgorging or de-hooker
Wet sea-soaked towels
Long-nosed pliers 11" 45 degrees
Wire cutters
Fabric sewing tape measure (3m long for tope)

¹⁵ https://dnr.maryland.gov/fisheries/pages/recreational/circle_hooks.aspx

¹⁶ <https://www.sharktrust.org/tonic-immobility>

¹⁷ Lemone Mareaux Sebastian, Dr Vanessa Couldridge (2020) Tonic Immobility in two species of catsharks – University of the Western Cape

Landing net of suitable strength and size for target species

Camera

Scales (to 110lb/50kg for tope) and suitable sling if required, but neither recommended

Note that there is no gaff. Never use a gaff or a rope lasso-tailer.



Figure 3. Left: Selection of tools required ready to hand.

Right: Landing nets of appropriate size and strength for target species.

The Need for Speed

Every effort needs to be made to minimise the time each shark is out of the water. If you normally fish with the same crew, jobs can be refined and streamlined to save time. Recording captures on an action camera or similar located high on the arch, will allow for later review of your procedures, and can often result in highlighting improvements that otherwise may be missed in the heat of the moment - particularly if mistakes are made.

The procedure for tagging and recording is detailed below, but it is imperative that whatever is carried out once the shark is caught, it must be achieved very quickly and efficiently. From personal experience, measuring length and girth with a fabric tape, and later looking up the corresponding weight on the Table below is much quicker than using a weigh sling and scales. In any case the accuracy of ordinary scales on a boat at sea is very questionable. In an effort to fine-tune the procedure and maximise survival rates (and subsequently the chances of potential recapture), handling time should be targeted at around a maximum of two minutes out of the water, taken from the first touch of the fish, boarding if necessary, unhooking, tagging and recording etc., and finishing when the shark is placed back in the sea for recovery. The time spent recovering a fish will clearly depend upon circumstances.

Weigh or Measure?

Tope can be weighed using a purpose-made sling, or a catfish sling, and should be positioned inside the sling that has previously been laid out on deck, ensuring it is secure and well supported before lifting to weigh. Over time any sling is likely to suffer from teeth cuts or rough skin damage, and need to be very robustly made, so it is a good idea to periodically check that it remains robust.

An alternative to weighing is measuring, using a fabric sewing tape sold from haberdashery stores, as these are very flexible, easily stored, and do not rust. Alternatively mark up the rubbing stake in appropriate intervals to help quickly measure the total length of a shark in the water.

Length	Girth	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33						
20	4.6	4.9	5.2	5.6	6.0	6.4																												
22	4.9	5.2	5.6	5.9	6.3	6.7	7.2																											
24	5.2	5.5	5.9	6.3	6.7	7.2	7.6	8.2																										
26	5.5	5.9	6.3	6.7	7.1	7.6	8.1	8.7	9.2																									
28	5.9	6.2	6.7	7.1	7.6	8.1	8.6	9.2	9.8	10.5																								
30	6.2	6.6	7.1	7.5	8.0	8.6	9.2	9.8	10.4	11.1	11.9																							
32	6.6	7.0	7.5	8.0	8.5	9.1	9.7	10.4	11.1	11.8	12.6	13.4																						
34		7.5	8.0	8.5	9.1	9.7	10.3	11.0	11.8	12.5	13.4	14.3	15.2																					
36			8.5	9.0	9.6	10.3	11.0	11.7	12.5	13.3	14.2	15.2	16.2	17.2																				
38				9.6	10.2	10.9	11.6	12.4	13.3	14.1	15.1	16.1	17.2	18.3	19.5																			
40					10.9	11.6	12.4	13.2	14.1	15.0	16.0	17.1	18.2	19.4	20.7	22.1																		
42						11.5	12.3	13.1	14.0	14.9	15.9	17.0	18.1	19.4	20.7	22.0	23.5	25.1																
44							12.3	13.1	14.0	14.9	15.9	16.9	18.1	19.3	20.6	21.9	23.4	25.0	26.6	28.4														
46								13.9	14.8	15.8	16.9	18.0	19.2	20.5	21.8	23.3	24.8	26.5	28.3	30.2	32.2													
48									14.7	15.7	16.8	17.9	19.1	20.4	21.7	23.2	24.7	26.4	28.2	30.0	32.0	34.2	36.5											
50										16.7	17.8	19.0	20.3	21.6	23.1	24.6	26.3	28.0	29.9	31.9	34.0	36.3	38.7	41.3										
52											17.7	18.9	20.2	21.5	23.0	24.5	26.2	27.9	29.8	31.7	33.9	36.1	38.5	41.1	43.9	46.8								
54												20.1	21.4	22.9	24.4	26.0	27.8	29.6	31.6	33.7	36.0	38.4	40.9	43.7	46.6	49.7	53.0							
56													21.3	22.8	24.3	25.9	27.6	29.5	31.5	33.6	35.8	38.2	40.7	43.5	46.4	49.5	52.8	56.3	60.1					
58														24.2	25.8	27.5	29.4	31.3	33.4	35.6	38.0	40.6	43.3	46.2	49.2	52.5	56.0	59.8	63.8	68.0				
60															25.7	27.4	29.2	31.2	33.3	35.5	37.9	40.4	43.1	46.0	49.0	52.3	55.8	59.5	63.5	67.7	72.3	77.1		
62																29.1	31.0	33.1	35.3	37.7	40.2	42.9	45.7	48.8	52.1	55.5	59.2	63.2	67.4	71.9	76.7	81.9	87.3	
64																	30.9	33.0	35.2	37.5	40.0	42.7	45.5	48.6	51.8	55.3	59.0	62.9	67.1	71.6	76.4	81.5	86.9	92.7
66																		35.0	37.3	39.8	42.5	45.3	48.4	51.6	55.0	58.7	62.6	66.8	71.3	76.0	81.1	86.5	92.3	98.5
68																			39.7	42.3	45.1	48.1	51.4	54.8	58.4	62.4	66.5	71.0	75.7	80.8	86.1	91.9	98.0	104.6
70																				44.9	47.9	51.1	54.5	58.2	62.1	66.2	70.6	75.4	80.4	85.8	91.5	97.6	104.4	111.1
72																					50.9	54.3	57.9	61.8	65.9	70.3	75.0	80.0	85.4	91.1	97.2	103.6	110.6	118.0



Figure 4. A Tope length-girth-weight chart produced by the 2000+ UK Shark tagging programme in consultation with taggers. The chart was produced from two years sampling (1111 fish from 40 locations). By measuring the length and girth of a particular fish the chart can be used to estimate its weight. Measurements are in inches and weight is in lbs. The table cannot be used to estimate weights of gravid females.

The above length-girth table was produced for use in the UK Shark Tagging Programme and has been found to be reasonably accurate. Measuring a tope can be carried out much quicker than weighing, reducing handling time out of the water.

The Trophy Shot

Traditionally most photographs are taken once a small shark has been successfully unhooked aboard the boat. If the intention is to later upload to Social Media or an Internet Forum, it is a good idea to swill the catch in fresh seawater immediately beforehand, but keep hold while doing so.



Figure 5. Left: The author supporting a 40lb Tope caught off the Yorkshire Coast in 2020. Right: Camera location on cuddy handrail.

Once again, we emphasise the need to work quickly to avoid any unnecessary time out of the water. Setting up an Action Camera on the boat beforehand, it can be possible to use WIFI, speech

recognition, or a shutter extension cable to remotely take your photograph, or have a crewmember take them (the multiple shot setting is useful for later selection of the best ones). Being already prepared with a camera fixed in the ideal position on the boat, switched on and ready, you will not be wasting time setting something up, or finding batteries not charged etc., when you really need to be working as efficiently as you can.

Therefore, if you are able to quickly but carefully picking up a tope by grasping the tail wrist as earlier, supporting the stomach below the pectoral fin area, it can be lifted horizontally, and a few shots can be taken as long as release is not significantly delayed. Whilst you still have a good hold, the shark can then be returned to the sea. Please do not hold the fish by the gills or only by the tail so that it is draped vertically, as this is likely to cause significant internal injury both to the gills and the internal organs. The Shark Trust have published two shark handling best practice illustrations that succinctly demonstrate practical handling recommendations:

<https://www.sharktrust.org/Pages/FAQs/Category/angling-project>

The latest recommendation however, is that your photographs should be taken while the shark is in the water or during release, this in order to avoid any unnecessary handling and time spent dealing with the shark out of the water. Again, it is possible to set up a camera on a pole above the water-line, and remotely take your photographs in a more 'shark-friendly' composition.

Release Protocol

When releasing the shark, if it has already been boarded, it should be lowered carefully over the side horizontally, held facing the tide, keeping it steady and upright to regain strength. When ready to go, they sometimes stiffen slightly and wake up. With a little push, it is great to watch it head back where it belongs, and perhaps this is the best time for a photo opportunity!



Figure 7. The author releasing a 59lb Tope, tagged in 2022.

Section 2: Tagging Sharks

Tagging Procedure - T-Bar Anchor Tags and Gun

Before discussing the actual procedure, it is important to have everything ready before a shark is hooked. The tagging gun (T-Bar Gun) needs to be loaded with a strip of tags, the next available tag number recorded on the tagging card, a working pen kept dry with the cards, and any measuring equipment ready to hand (tape or scales and sling). In the event that a shark is not caught or tagged during this trip, the tag strip can be removed from the tagging gun and stored with the pre-numbered tagging card (with paperclip indicating the next tag to deploy), ready for the next outing.

As we have stated on the tagging cards, please immediately release without tagging, a bleeding, stressed (fin extremities flushing pink), a clearly pregnant shark, or any shark that is showing signs of exhaustion and a lack of response to stimuli.



Figure 8. T-Bar tagging gun, loaded and ready for use
Inset: Strip of T-Bar Anchor tags for loading

Refer to Figure 8 for tag location, depending upon the type of shark being tagged.

Step 1 – Load the T-Bar Gun as per instructions provided in the box.

Step 2 – Inserting the cannula.

Hold the shark with either a wet glove or wrap/restrain it in a wet towel to restrain it in one hand, and the T-Bar Gun in the other hand. Insert the cannula at about 45° to the fish (for streamlining the tag as it swims and ensuring the tag sits in the muscle, rather than risking hitting vertebrae or important blood vessels). Squeeze the trigger and hold it in, give the gun a half-turn and then slowly withdraw the cannula. Give the tag a gentle tug to ensure it is correctly secured within the fish (not simply pulling on the surface skin).

Step 3 - Record details on the tagging card, and report the data once convenient to do so;

Quickly and accurately:

- measure or weigh the catch and note;
- the sex
- condition of the shark, parasites, scars or unusual markings

Check the boat GPS position (anchor may have slipped/tripped during the fight or since previous check), check for other tags and note details if found, and take some photographs if possible. It may be quicker for one person to carry out the physical tasks, and another person to record details on the card. Send through the completed tagging records to North Sea Shark Network as soon as possible.

Tagging Procedure – Floy Tags

Once again, it is important to have everything ready before a shark is hooked. The tagging stick needs to be loaded with the next tag, that tag number recorded on the tagging card, a working pen kept dry with the cards, and any measuring equipment ready to hand (tape or scales and sling). In the event that a shark is not caught or tagged during this trip, the tag can be removed from the tagging stick cannula and clipped to the pre-numbered tagging card with a paperclip, ready for the next outing.

As we have stated on the tagging cards, please immediately release without tagging, a bleeding, stressed (fin extremities flushing pink), a clearly pregnant shark, or any shark that is showing signs of exhaustion and a lack of response to stimuli.

The following tagging guidelines and tagging stick construction details have been combined with reference to the UK Shark Tagging Programme and the Scottish Shark Tagging Programme.

Step 1 – Loading the cannula:

Place the blunt end of the tag inside the hollow, pointed tip of the cannula, and push all the way inside until only the barb is visible, and in line with the angled tip (see Figure 9).

Step 2 – Inserting the cannula:

Push the cannula firmly through the skin at an angle of 45 degrees, so as to leave the free-end of the tag trailing towards the tail, thus streamlined to the direction of water flow. Due to the tough skin, be sure to apply steady pressure until the cannula tip breaks through. Immediately release the pressure, then slowly push the tag in until the anchor barb disappears under the skin. The optimum depth for tag placement is 35mm beneath the surface of the skin. Affix the tag just below and to the side of the dorsal fin, or in the case of skates and rays, in the pectoral fin.

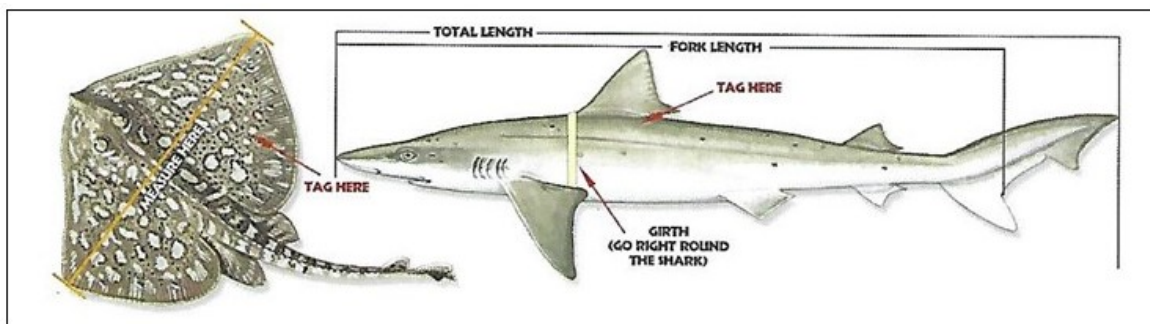


Figure 9. Measuring and tagging directions produced by Scottish Shark Tagging Programme, in association with SSACN

Step 3 – Removing the canula

Once inserted, twist the tagging stick to turn the barb towards the dorsal fin, and remove the canula from the fish, pulling firmly back at the same angle it was inserted. Tug the tag slightly to ensure the barb is set.

Step 4 – Record details on the tagging card, and report the data once convenient to do so:

As already detailed above, quickly and accurately:

- measure or weigh the catch and note;
- the sex
- condition of the shark, parasites, scars or unusual markings

Check the boat GPS position (anchor may have slipped/tripped during the fight or since previous check), check for other tags and note details if found, and take some photographs if possible. It may be quicker for one person to carry out the physical tasks, and another person to record details on the card. Send through the completed tagging records to North Sea Shark Network as soon as possible.

Typical Tagging Stick Construction

Most tagging sticks are made from timber broom handles or similar. Cut the length to suit your needs and shape the end accordingly. Longer handles suited to boat freeboard will be required for tagging in the water, shorter ones for shark tagged on the boat. The cannula is mounted on the side of the wooden shaft inside a small groove, whipped and secured in place with epoxy resin to seal the whipping cord. The point of the cannula need only protrude 40 to 50mm. Avoid too long a protrusion as this could damage the shark. Protect the point with a cork or short length of tubing tied to the stick with a length of whipping cord to prevent loss. The exposed timber handle can be sealed using Danish Oil or similar if required.

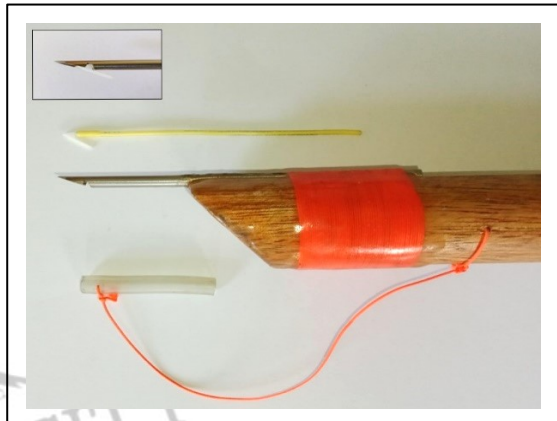


Figure 10. Tagging Stick and Floy Tag
Inset: Loaded cannula

Shark Size Guidelines for Tagging

Please consider the following shark size guidelines, and in particular the differences recommended between floy and T-Bar tags.

Minimum Tagging Sizes for Sharks (Total Length or Wingspan)		
Species	Floy Dart Tag	T-Bar Tag
Tope	36"	36"
Bull Huss	36"	26"
Spurdog	36"	26"
Smoothhound	36"	28"
Rays and Skates	20" wingspan	14" wingspan

Table 2. Minimum tagging sizes in inches, appropriate to type of tag being used
Source: Scottish Shark Tagging Programme, in association with SSACN

General Notes for Recording Data

We would be grateful if as much detail as possible is recorded for each fish tagged on the tagging cards provided, however, do not be too concerned if all the card details are unable to be completed. Please record as much information as you can at the time of capture, but we appreciate that conditions aboard a small boat at the time will dictate how much is possible.

Recording any sharks caught but not tagged for any reason can also be valuable (undersized, stressed, unhealthy, lost at the side of the boat etc.), recording whatever details are possible at the time.

Lastly, if the day turns out to be a disappointment, with no bites or fish caught, this can also be reported on the card and submitted. Blank fishing days can assist with interpreting seasonal or daily/tidal movement timings, and migration trends.

Summary - Angling for and Tagging Shark from Small Boats

Have a thorough and well-thought-out plan, taking into account boat limitations, crew abilities, and sea conditions.

Ensure the deck is completely clear, and all unwanted items are stowed safely away, and all unhooking tools and equipment required should to hand and at the ready, before baits go out.

Decide while setting up whether to board the shark, or unhook alongside, and use appropriate traces.

Make sure everybody onboard is aware of the plan and knows what is likely to happen, and their roles, if any are expected of them.

Wear appropriate clothing, and gloves when the handling of a shark is required.

Sharks have no bones or ribcage, and out of water their weight will apply pressure to internal organs that are normally supported by water pressure. Matting can be used to assist, being soft and providing a thermal break from the deck.

Please immediately release without tagging, a bleeding, stressed (fin extremities flushing pink), a clearly pregnant shark, or any shark that is showing signs of exhaustion and a lack of response to stimuli

Carefully turning a shark over may help to subdue a lively boarding.

If necessary to do so, carefully lift the shark by firmly grasping the pectoral fin with one hand, and the tail wrist with the other, the shark should be lifted horizontally while supporting the stomach if possible. Two people may be required for larger shark. Alternatively, deal with the shark in the water alongside.

If the intention is to tag the shark, follow the guidelines noted above, but if for any reason you are not happy to tag, release the shark immediately.

Every effort needs to be made to minimise any time a shark is out of the water – target a maximum time of two minutes in total.

When it is time to release, the shark should be lowered carefully over the side horizontally, held facing the tide for a time, keeping it steady and upright to regain strength until ready to go.

Latest recommendations are to photograph sharks in the water if at all possible, practical and safe to do so.

Tips

Wear appropriate long-sleeved clothing, jeans or trousers, appropriate footwear and gloves when handling sharks, as the skin is extremely abrasive in the wrong direction, and thorns, spurs and teeth can all hurt!

Ensure a fully stocked 1st Aid Kit is available onboard to deal with any scuffs and cuts.

Use of a large purpose-made landing net can be useful when dealing with larger sharks, or if you want a lightly hooked shark aboard, but can themselves be cumbersome on deck and heavy in the water, and the mesh has a tendency to catch all manner of boat fittings etc.

Be prepared for some tope to run around the anchor, or suddenly turn-tail when running away, and some seem to have a sudden mood change upon arrival on deck.

Ensure you have enough mainline on the reel to withstand runs of around 200 metres or more when targeting tope, and constantly check drag settings.

Double-check traces, crimps, hooks and leaders for damage as often as you can, and store each with a good spray of WD40 before packing each away in a sealed container. Remake or replace any damaged traces immediately.

Prepare to get wet, set your camera up beforehand, and don't forget to smile!



Taking it Further - Recommended Reading and Viewing

Shark Identification, Conservation and Biology Literature:

Peter Klimley A (2013) The Biology of Sharks and Rays. University of Chicago Press

Daniel C. Abel and R. Dearn Grubbs (2020) Shark Biology and Conservation. Johns Hopkins University Press, Baltimore

David A Ebert and Marc Dando (2021) Field Guide to Sharks, Rays & Chimaeras of Europe and the Mediterranean. Princeton University Press

Online Videos and Tutorials:

Various shark fishing and conservation videos located on the Angling Trust/Shark Hub UK website:
<https://anglingtrust.net/sea/shark-hub-uk/>

Shark Hub – video: Changing SeasTV Recreational Shark Fishing – Collaborating for Conservation
<https://www.youtube.com/watch?v=FZRTpYPj8xl>

Angling Trust Video: Tope and Interactions with Recreational Sea Anglers with Dr James Thorburn
<https://www.youtube.com/watch?v=vfHDSrYd-6w>

Angling Trust Video: Deep Sea Project – Ulster Wildlife
<https://www.youtube.com/watch?v=LtsiX7QqrhU&t=1s>

Hallprint T-Bar tagging instructions: <https://www.youtube.com/watch?v=q7P01-orJAU&t=1s>

Hallprint Floy tagging instructions: <https://www.youtube.com/watch?v=yTONL-DPXBg&t=1s>

Shark Angling Literature:

Mike Thrussell (1990) First Run Shark – The Complete Guide to Porbeagle Fishing. Ward Lock

Brigadier J A L Caunter (1961) Shark Angling in Great Britain. George Allen & Unwin Ltd