



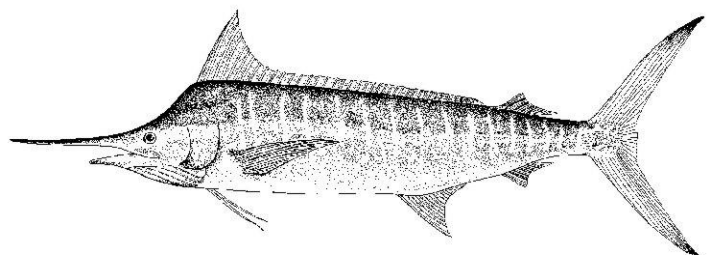
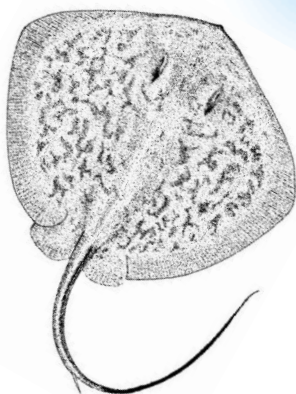
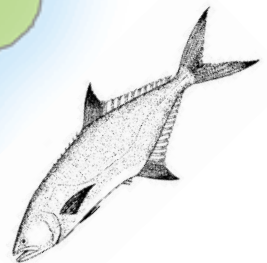
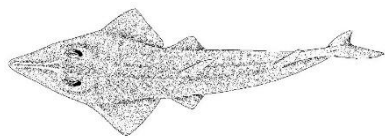
INCORPORATING



Helping people to care for our ocean

OCEANOGRAPHIC RESEARCH INSTITUTE'S COOPERATIVE FISH TAGGING PROJECT

A guide to the tag and release of marine linefish in South
Africa





TAG & RELEASE

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Accredited member of PAAZA (Pan-African Association of Zoos and Aquaria).

ORI is academically affiliated to the University of KwaZulu-Natal

Welcome to the ORI Cooperative Fish Tagging Project

You have just joined a group of enthusiastic fishermen intent on supporting research to the benefit of all anglers. Although the Tagging Project involves the cooperation of voluntary members and the marine angling public, the tagging of fish is still a science with the primary aims of learning more about movement patterns, growth rates, mortality rates and population dynamics of our important linefish species. This information is extremely valuable and is used by scientists and managers around the country to enable more effective management and sustainable use of our linefish. Tagging efforts are focused on priority species (see page 14) and the best available tagging equipment is used. Much focus is placed on the capture and handling of fish to ensure their greatest chance of survival. This manual sets out some of the details on the methods of tagging. There are, however, many aspects that you will learn and develop yourselves and we would appreciate hearing about these from you. Please also don't forget to watch our instructional videos which we have provided on the flash stick in your tagging kit to learn more about the tagging project and how to handle and tag fish correctly. You can find some more tips on how to handle your caught fish correctly by reading the documents on our website (www.oritag.org.za/Mediareleases).

As a tagging member you have been allocated a tagging reference number to ensure that you will be informed of any recaptured fish you may have tagged. This system also helps us keep a strict record on the number of tags that you have been issued with and the number of tags that you have used (i.e. the number of fish you have tagged). Furthermore, as a tagging member you can view your own profile and track your tagging performance at any time (go to www.oritag.org.za) and check that all your recent tagging information is entered correctly on our system. **Please remember to notify us of any changes in your contact information so that we can contact you if necessary with further information.** You can also manually update your contact information yourself. Note that to login you need your tagging reference number as a six-digit number, e.g. BA0031 and the password provided in your welcome letter.

We issue you with tags against your tagging reference number so it would help if you refer to your reference number whenever possible. When submitting tag returns or recapture information, it is preferable to do so via email or directly on the website. We have designed a simple Excel spreadsheet for your use and we ask you to transfer the data from the white tag return cards onto these spreadsheets and email it to us (send us an email requesting these spreadsheets if you do not have them). For those of you who do not have access to email or internet, simply put the completed white tag cards in the white envelopes provided (preferably a few in one envelope) and send them off to us. Note that it is important to keep the white tag cards if you have sent the information in via email/online as they can be referred back to in case there is a mistake (please don't send us these cards if you have already sent the data by email/online). Please be aware that there is also a dedicated cell phone number (079 529 0711) which is kept by the Tagging

Officer for reporting important recapture information. A text message (sms)/WhatsApp is quite adequate.

New tags can be ordered by simply indicating this on the last return card/spreadsheet or via email or WhatsApp. There is no charge for additional tags, though we will normally limit each issue to approximately ten tags per angler to avoid too many tags remaining unused. Please complete your tag return card/s correctly and submit these returns promptly in the manner most convenient to you so that your efforts will not be wasted and any recaptures can be followed up immediately.

YOUR KIT

Your tagging kit contains a number of items that you will need, including tags, an applicator, applicator cleaning swabs, applicator cleaning brush, tape measure, sticker, pencil, flash stick and business reply envelopes. Three basic type of tags are available to meet the requirements of different fish and conditions (see Diagrams 1 and 2):

1) A-Tags

This is the most widely used tag and provides the best overall results for fish and sharks over 60cm. The stainless steel applicator loaded with a tag is inserted at an angle (45°) into the muscle beneath the dorsal fin. The tag barb must be anchored between the pterygiophores (see Diagram 3 on page 7) for better retention. This means that the applicator needle is permitted to pass approximately half way through the width of the fish before setting the tag. The depth of tagging is obviously dependent on the size of the fish. It is important to set the tag with the streamer pointed towards the tail and the barb of the tag facing inwards/downwards. The tag should fit loosely into the applicator, insert with a quick thrusting motion and a somewhat slower retrieval (refer to instructional videos provided). It is advisable to gently tug the tag to see that it is secure and so that it may lock into place more firmly. For sharks the tag is inserted into the back muscle just **below** the dorsal fin (see Diagram 3 on page 8). **To avoid the tag barb from getting cut off by the applicator when it is inserted, it is best to make a small slit/incision in the shark or ray's skin no more than 5mm deep, before inserting the tag with the applicator.** Skates/rays are tagged at the base of the tail on the dorsal (top) side into the muscle. Please be careful of the poisonous spine/s when inserting the tag. Avoid tagging rays on either side away from the base of the tail as there are internal organs (i.e. kidneys) found in this region.

2) D-Tags

This tag provides the best results on small fish and sharks between 30cm and 60cm fork length. Research has shown us that fish that are tagged under 30cm have a decreased survival rate due to the stresses caused by the tags and we urge you to stick to our 30cm minimum limit. Note that it is 30cm fork length in fish with a forked tail and 30cm total length in fish without a forked tail (see Diagram 3 on page 7). The D-tags are inserted with a stainless-steel needle applicator, slimmer than the A-tag needle applicator. The tag is

inserted into a fish in the same manner as the A-tag is inserted. For further information please refer to our instructional videos online.

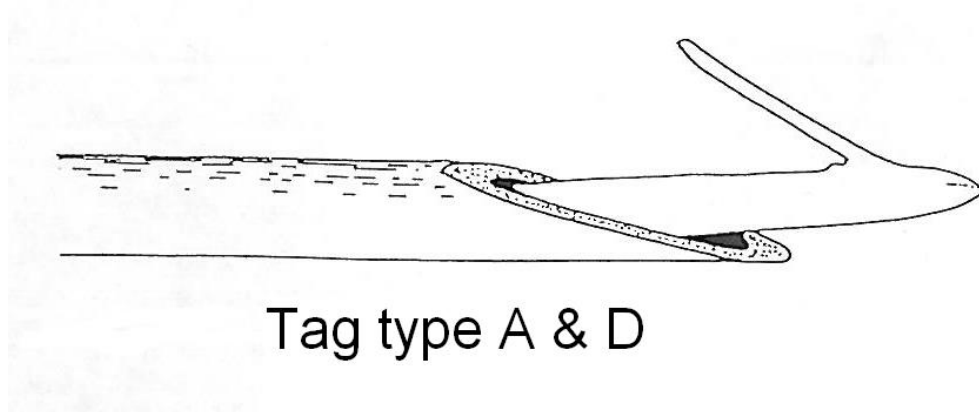


Diagram 1) – The A- and D-Tag types

3) M-Tags

This tag has been especially designed for use on marlin, sailfish and large gamefish that cannot, in most cases, be easily boated. The tag, with its two wing-barbed head, is applied by means of a hand applicator or a tagging pole fitted with a metal applicator tip/needle (see Diagram 2). Tagging poles are normally made from 20 to 25mm diameter wooden rods/poles. A 1.5m to 2.5m length of pole should be used depending on your boat freeboard. A “V” notch at the opposite end of the tag pole is often valuable for de-hooking fish immediately after tagging. To mount the tagging applicator/needle onto the tagging pole, drill a 4mm diameter hole 20mm deep being careful to ensure that the hole is perfectly aligned and centred with the pole. Place a small amount of strong bonding glue (epoxy works well) in the hole and on the base of the applicator. Holding the applicator on the middle of its tapered shoulder with pliers, centre the large end over the hole. Drive the applicator 20mm down into the pole by hammering on the pliers and not the applicator.

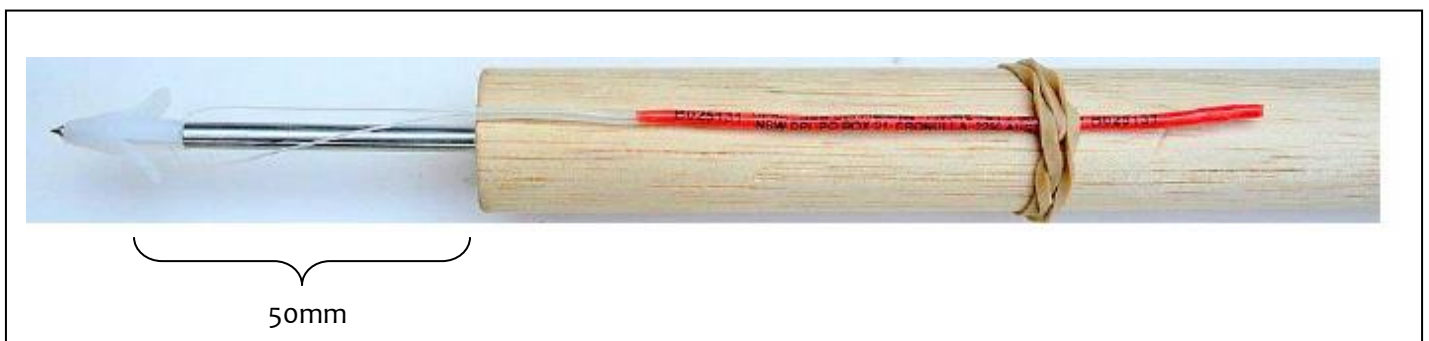


Diagram 2) – A finished tag pole with an M- tag secured in place with a rubber band

To load the tag on to the applicator, fit the tag loosely onto the stainless-steel tip and secure it there with a small rubber band provided with the tags (see Diagram 2). When using a hand applicator, the tag can also be held in place without the rubber band between the thumb and hand to prevent it from dropping overboard. This tag is intended to anchor in the muscle only without necessarily locating it between the pterygiophores.

The tag should be inserted so that the streamer slants towards the tail of the fish. A rubber stopper may need to be fitted to the pole so as to stop the steel head applicator from inserting too deep into the flesh when inserting (harpooning) the tag with force. The correct tagging depth is approximately 50-70mm. Refer to Diagram 3 on page 8 and Diagram 14 on page 18, or watch the instructional videos for more information.

Please note that use of our old C-tags and B-tags has been discontinued. We suggest that anglers who still have C- /B-tags in their possession use these up before switching to the other specified tags, which may be obtained from the Tagging Officer. However, you may also bring these older tags in to be exchanged for the newer tags if you wish.

It is important that all equipment should be washed in fresh water after use and preferably sterilized using methylated spirits or alcohol. A straw cleaner can also be used to clean the inside of the applicator needle. This will ensure that the next fish that is tagged will not get any infections from decaying/old flesh that was not cleaned off the applicator from the previous tagging event. Alcohol swabs and an applicator cleaning brush are provided in your tagging kit to regularly clean the applicator. A clean airtight container should be used where possible to house the tags when not in use.

If at some stage you wish to add to your kit by obtaining any of the other tag and applicator types, simply contact the Tagging Officer at ORI (079 529 0711/ oritag@ori.org.za). We do not usually charge for extra tags, but an additional tag applicator costs R150.00.

TAGGING PROCEDURE

If you are not fishing alone it is advisable to request a colleague to assist you. It is better to decide beforehand that you will tag your next catch so that the equipment is ready with applicator loaded, thereby minimizing the fish's time out of the water. There are no fixed rules about the actual hooking and fighting of your fish, though generally a fish that is not played for too long and landed quickly has a better chance of survival. Heavier tackle and single hooks with a squashed/flattened barb are far better than ultra-light line and barbed hooks and trebles. Circle hooks with flattened barbs are excellent for releasing fish. Remember, only fish in **excess of 30cm** should be tagged and it is important for you to assess the condition and suitability of your fish for tagging (note that the larger A-tags are **only** used on fish greater than 60cm due to their larger size). Injured or exhausted fish may die after release, thereby biasing the tagging results. If you should inadvertently tag a fish that is in poor condition, please indicate this on your return card in the comments section. However, it is beneficial not to waste a tag on a fish you suspect will soon die after capture. Fish that cannot be boated should be tagged before removing the hook or cutting the leader as close to the hook as possible. Hooks do not necessarily rust and fall out in a matter of weeks, so it is best to try and remove the hook whenever possible. However, if the hook has been swallowed or cannot be retrieved, it is best to cut the line

as close to the hook as possible and quickly release the fish after tagging. Such information can also be recorded in the comments field on the white tag cards. It is advisable to try and revive exhausted fish by slowly moving it forwards through the water and allowing water to pass unrestricted through the mouth and over the gills.

Fish that are landed or boated should be treated with great care in order to avoid loss of mucus and scales and injury through flapping. Having a bucket of fresh seawater close by is ideal and the fish should immediately be placed head-first into the bucket after capture so that it can continue breathing underwater. Once you are ready to tag, remove the fish from the bucket and place it on a wet sack or piece of mattress foam and cover the head (eyes) with a wet cloth or towel. Turning the fish belly-up also usually helps to calm it down. Keeping a wet dish cloth/rag handy, i.e. attached to your fishing bucket, works well for this purpose. Refer to the instructional videos for examples on how to handle and tag fish in the correct way. Remember to limit the time the fish is out of the water to a maximum of 30 seconds.

Please measure your fish in a straight line from the tip of the snout to the fork of the tail (fork length), preferably on a flat surface with the tape measure beneath the fish (refer to page 9). Kob, rockcod and other similar fish without a forked tail are measured to the end of the tail (i.e. total length). Billfish are measured from the tip of the lower jaw to fork of the tail (i.e. lower jaw fork length). Most shark species are measured from the tip of the snout to the precaudal notch (a groove/notch on the top of the shark just before the tail/caudal fin). However, several shark species, such as sand sharks, hound sharks and spotted gully sharks without a precaudal notch, are measured total length (tip of snout to the tip of the tail in a straight line). If you cannot measure your fish with a tape measure then mark off its length with a piece of string or fishing line or on the boat's gunwale and measure it later. If you are unsure of what measurement type to take, you can simply take more than one measurement, i.e. total and fork/precaudal length and indicate this on your tag release card. Note that rays are measured from the tip of each wing in a straight line (i.e. wing span/disk width). Refer to the diagrams on page 9, or the instructional videos for further information on the correct measurements required.

The precise place of inserting a tag depends on the species and type of tag being used. By reading through your particular tag type description (see above), Diagram 3 on page 7 and 8, and by referring to the instructional videos it should be simple to locate the correct spot on any fish. For bony fish remove one scale in the spot where you are going to insert the tag to avoid it being pushed into the flesh. Remember to make a small incision through the skin in sharks and rays first before inserting the tag. Please ensure that your fish is measured as accurately as possible, properly tagged and returned to the water as fast as possible. Again, refer to the instructional videos for the correct positioning of the tag and handling of fish.

REPORTING

To avoid tag cards getting the incorrect data written on them, please record your tagging data immediately after you have tagged the fish and as accurately as possible on the prepared, self-addressed release card that accompanies each tag. Please be sure to complete all that is requested and do not hesitate to include any additional information you feel necessary to tell us.

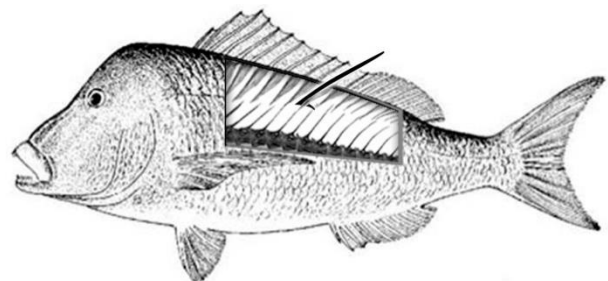
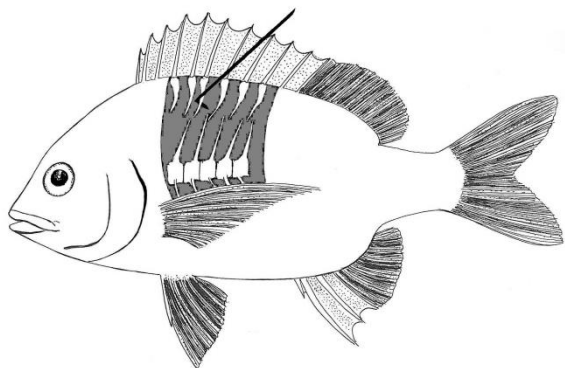
Please take note of the following when filling in the white tag card return information:

- 1) **Species** – This is the species/type of fish you have tagged. If you are not sure of the exact species, write the name you think followed with a “?” and give us a brief description or if possible, take a photograph (with your cell phone camera). Some species have many common names which can be confusing. Please use the accepted common name in full (e.g. “black musselcracker” not just “musselcracker” as there are two different species of musselcracker). Please refer to pages 14-16 for priority species to be tagged.
- 2) **Correct length measurement** – It is essential that ORI receives correct measurements from you. If you do not have a tape measure handy, use a piece of nylon or string to measure with, marking it with a knot at the correct length. Do not lie the tape measure/string over the body but rather hold it under the fish in a straight line. Indicate on the return what measurement type was taken (whether fork length, total length, precaudal length or disk width). If you are uncertain about the length type that needs to be taken, then simply measure more than one (e.g. fork length and total length or precaudal length and total length). Where possible, fish under one metre in length should be measured to the closest millimetre (mm), while fish over one metre can be measured to the nearest centimetre (cm). Remember, length measurements for minimum legal size limits are always total length. Always try to make sure you are measuring the right length type on the particular fish species you are tagging. Refer to page 9 for the correct measurements needed for specific fish species.
- 3) **Shark/Ray sex** – If you tag a shark or a ray, please mark the sex of the animal (Male or Female – Diagram 10 and 11 on page 10) in the tick box or in the comments section on your tag card. If you are not sure of the sex then please mark “Unknown”.
- 4) **Exact locality** – This is the exact area where you caught and tagged your fish. This needs to be very specific, always state the province and/or major river/town in the vicinity to ensure that we know exactly where you were tagging. If you can give us the GPS coordinates, even better. Our coastline extends for over 3000km and many of the fishing spots have the same name or many different names!
- 5) **Date** – Please use the standard format **yyyy/mm/dd**
- 6) **Angler reference number** – Supply us with your angler reference number in the relevant field, even if you did not catch the fish yourself.

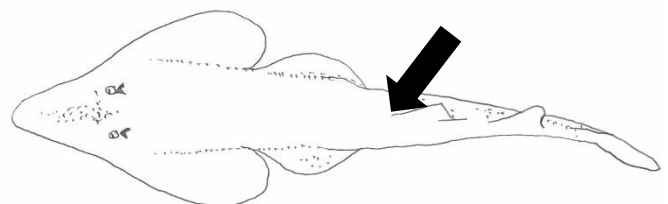
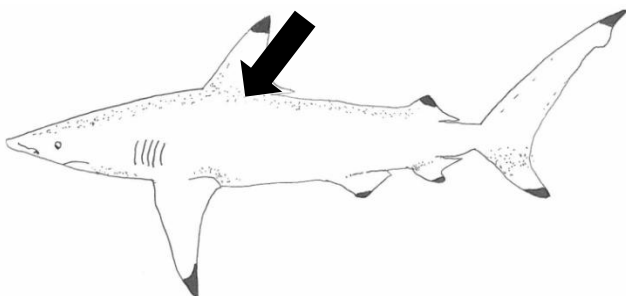
- 7) **Please send more tags** – Please mention if you require more tags or send us an email or WhatsApp requesting more.
- 8) **Comments** – Please write down any comments that may be of importance for your tagged fish, such as sex, if a hook was not removed, missing fins, condition, etc.

Remember that if you are submitting your tag returns via email using our specialized Excel spreadsheets, please make sure that you enter all the written data from your white tag card/s correctly. Please enter each tag individually as finger/typo errors with tag numbers are very easy to make and will cause major problems when your fish is recaptured. Don't forget to keep the white tag cards in case an error has been made and don't send them in via post if you have already submitted the data electronically.

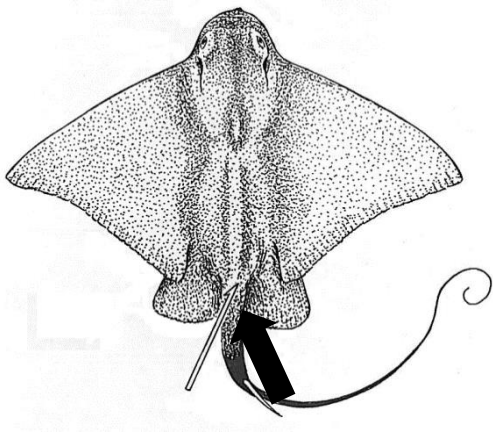
GENERAL TAG POSITIONS



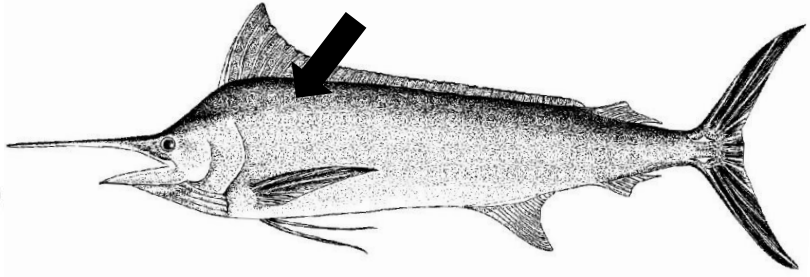
BONY FISH



SHARKS



**STINGRAYS
AND SKATES**



BILLFISH

Diagram 3) – Tag placements for various species

CORRECT MEASUREMENTS REQUIRED

We have experienced many problems with anglers measuring fish incorrectly. We urge you to **please measure as indicated and write this in the appropriate area on your tag card** to confirm the type of measurement you made. All edible fish that have a forked tail (e.g. garrick/leervis & elf/shad etc) are measured from the tip of the snout (with the mouth closed) to the fork of the tail as indicated in Diagram 4 below. Fish that have no fork (e.g. rockcods and kob) are measured from the tip of the snout to the very end of the tail, i.e. total length (see Diagram 5). Sharks are all measured from the tip of the snout to the precaudal notch (a groove found at the start of the tail/caudal fin) as illustrated in Diagram 6. However, some shark species do not possess a precaudal notch and are thus measured from the tip of the snout to the very tip of the tail (laid as straight as possible), i.e. total length (see Diagram 7). Examples of sharks that are measured total length include all hound sharks, spotted gully sharks, sand sharks and catsharks. All skates and rays are measured disk width, which is the wingspan of the ray/skate (see Diagram 8). Billfish are measured from the start of the lower jaw to the fork of the tail as Diagram 9 illustrates. **It is important to note that if you are unsure of the correct measurement type needed, then simply measure more than one and write these on the tag cards. The Tagging Officer will then use the correct measurement for the specific species tagged when it is captured onto the data base.**

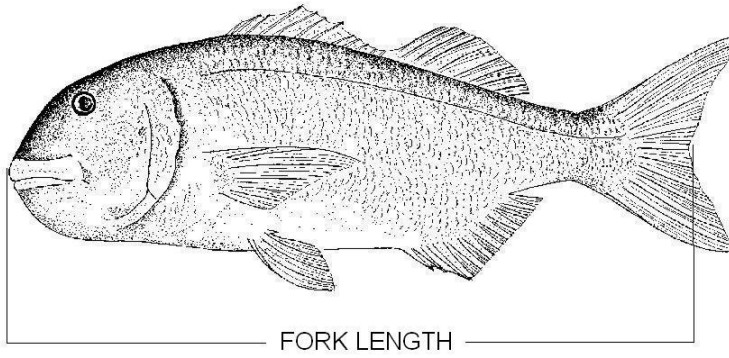


Diagram 4) BONY FISH
FORKED TAIL

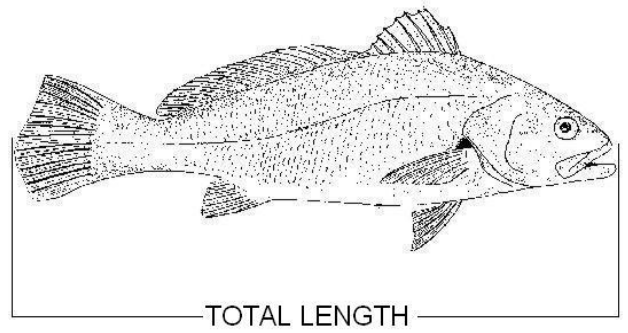


Diagram 5) BONY FISH
NO FORKED TAIL

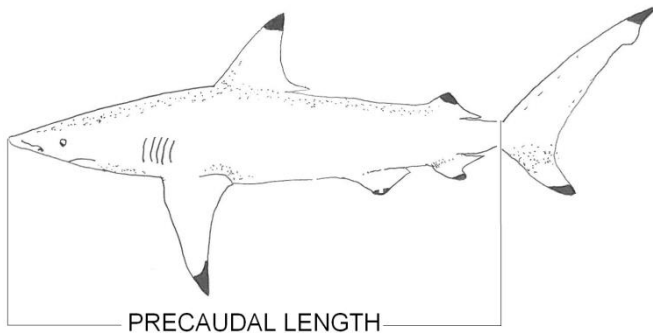


Diagram 6) SHARK
SNOUT TO CAUDAL NOTCH

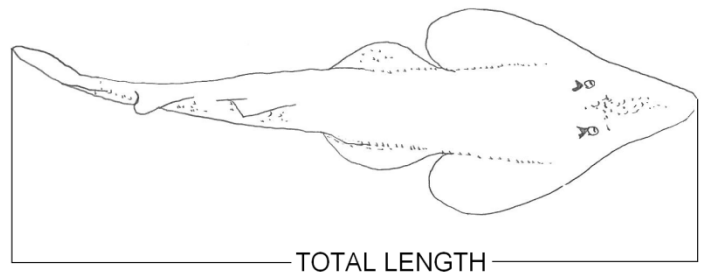


Diagram 7) SHARK
TOTAL LENGTH

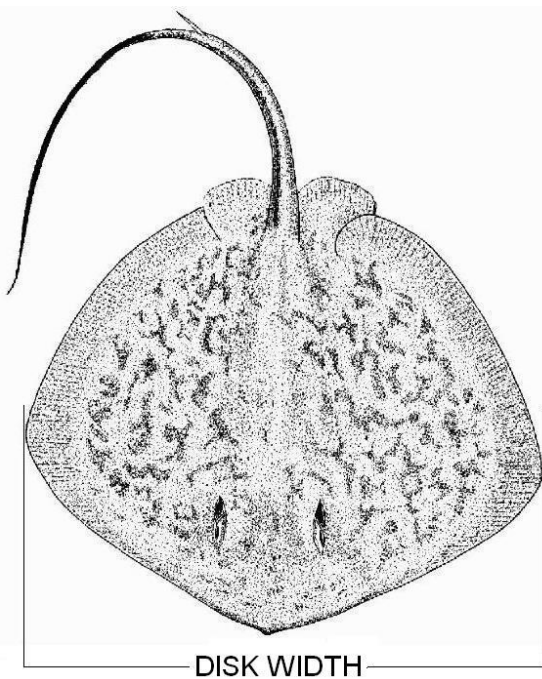


Diagram 8) STINGRAY & SKATE
DISK WIDTH

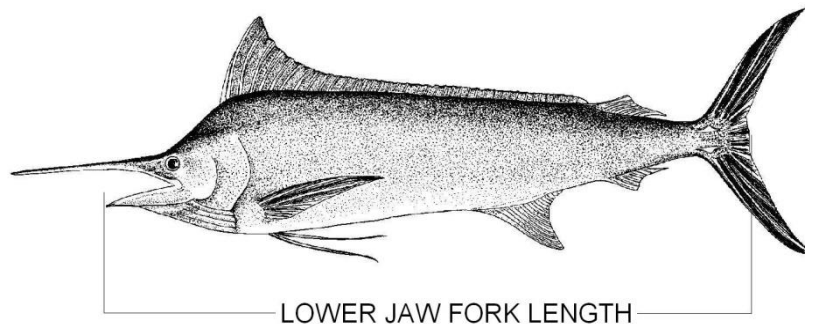


Diagram 9) BILLFISH
LOWER JAW FORK LENGTH

IDENTIFYING THE SEX OF SHARK/RAY SPECIES

Unlike most teleost species, elasmobranchs have external sex organs which make them easily identifiable as male or female (see Diagram 10 and 11 below). Male sharks, skates and rays have two “claspers” which are used to deposit sperm into a female, whereas these are absent in females. Claspers are a cartilaginous extension of the pelvic fins found on the inner margin of the pelvic fins on the underside of the animal. In mature, adult individuals these are easy to spot as they are often large and extend beyond the length of the pelvic fins. Whereas in juveniles the claspers are shorter than, or only slightly protrude past the pelvic fins, making them a bit more difficult to see clearly. If you are unsure of the sex of the animal, then rather capture the sex data as “Unknown” or take a photo and send it through to us via email or WhatsApp and we will confirm.

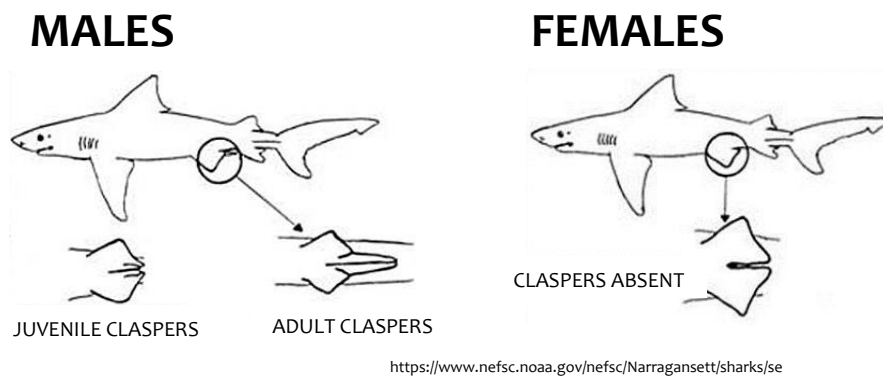


Diagram 10) – Identifying sex in shark species

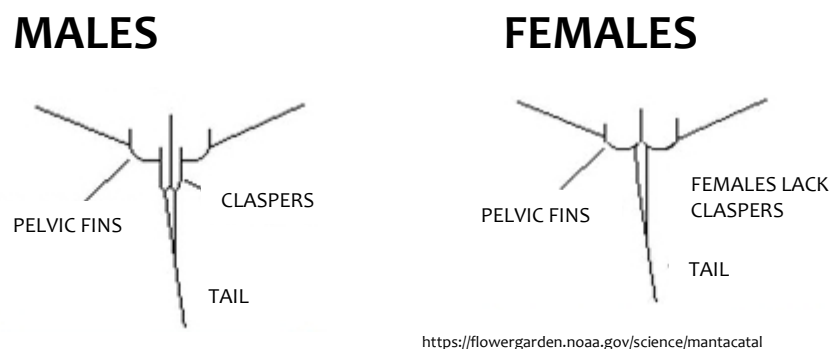


Diagram 11) – Identifying sex in ray species

TAG RECAPTURE PROCEDURE

How and what information to report when a tagged fish is recaptured

When an angler catches a tagged fish (known as a recapture) it is most important that the correct details are sent in promptly to ORI. Valuable information is often lost with the delayed reporting of a recapture as well as the incorrect reading of a tag number or poor measurement of the fish length. Fortunately, ORI has developed a number of initiatives to help you report this important information quickly. A dedicated cell phone number (079 529 0711), email address (oritag@ori.org.za) and online reporting system are now available for your benefit and allows you as the tagger/angler to receive detailed information in a short period on the fish you have recaptured. **Please make sure that the information you send in is accurate (see the tag information report form on page 13 or consult the tag recapture spreadsheet we provide on request for recaptures sent via email).** The following information is required when a tagged fish is recaptured:

- 1) **Tag number** – Record the tag type and unique number which is up to six digits in most cases e.g. D132526. Please note that the old round clip-on C-tags (similar to the ear-tags used on cattle), which may be found clipped to a sharks dorsal fin is not an easy tag to read and should if possible be removed from the fin whether, you intend on releasing the shark or not. With all other tag types (A, B, D and M) it is not advisable to remove the tag if you are going to release the fish again. Rather carefully read the tag number (ask someone to verify this number if possible), measure the fish, write down this information and then re-release the fish. If it is not possible to read the tag number only then can you try and remove the tag so that the number near the barb of the tag can be read. In such cases the fish can be re-tagged with a new tag, preferably on the other side of the fish. Please make sure you inform us of both tag numbers if this is done. Remember, if you don't have a pen or pencil, you can record the details of a recaptured fish on your cell phone and simply sms/WhatsApp it to us on our dedicated cell phone (079 529 0711).
- 2) **Species** – This is the species/type of fish you have recaptured. If you are not sure what species it is, write the name you think followed with a “?” and give us a brief description or if it is possible take a photograph (using your cell phone camera). This can then be sent to us with the recapture information via sms/WhatsApp. Some species have many common names which can be confusing. Please use the accepted common name in full (e.g. “spotted grunter” not just “grunter” as there are a number of different grunter species).
- 3) **Correct length measurement** – It is essential that ORI receive correct measurements from you. If you do not have a tape measure, use a piece of nylon or string to measure with, marking it with a knot at the correct length. Do not lie the tape measure/string over the body but rather hold it under the fish or in a straight line. Indicate on the return

what measurement type was taken (whether fork length, total length, precaudal length or disk width). If you are uncertain about the length type that needs to be taken, then simply measure more than one (e.g. fork length and total length or precaudal length and total length). Remember, length measurements for minimum legal size limits are always total length. So always make sure you are measuring the right length type for the fish species you have recaptured.

- 4) **Shark/Ray sex** – If you recapture a shark or a ray, please record the sex of the animal (Male or Female) in the tick box or in the comments section on the recapture form. If you are not sure of the sex then please mark “Unknown”.
- 5) **Exact locality** – This is the exact area where you caught your tagged fish. This needs to be very specific and always state the province and or major river/town in the vicinity to ensure that we know exactly where you caught the tagged fish. Exact GPS coordinates are even better! Our coastline extends for over 3000km and many of the fishing spots have the same name or many different names!
- 6) **Date** – Please use the standard format **yyyy/mm/dd**
- 7) **Whether the fish was kept or re-released** – It is important for us to know this as if the fish was re-released, was the original tag left in the fish or was it removed? **A fish that already has a tag in it should never be retagged unless the original tag was removed.**
- 8) **Angler name and contact details** – Supply us with your name, email address and phone number in case more information is needed. We send out an exciting, detailed report on every recaptured fish to the angler who caught it and sent us the information. Remember that the more accurate the information you provide us with, the better the report will be!

It is important to note that if you see or hear of any angler that has caught a tagged fish, please offer to assist him/her in recording the relevant information and even offer to send the information in to us on their behalf. In that way you will be assisting in educating fellow anglers about the Tagging Project and ensuring that the recapture data gets through to us correctly.



An example of a tag recapture form:

TAG RECAPTURE INFORMATION SPREADSHEET

*	Tag Type (A/D/B/M)	A
*	Tag No. (6 DIGITS)	123456
*	Species	Dusky / Grey shark
*	Recap Date (yyyy/mm/dd)	2020/01/23
*	Locality Recaptured	Umhlanga lighthouse, KwaZulu-Natal
Length (mm)*	FORK	
	TOTAL	
	PRE-CAUDAL	955
	WIDTH	
* * * * *	Shark or Ray sex (M/F/U)	Male
	Weight (not essential)	
	Released again? (Y/N)	Yes
	Tag No. if re-tagged	
	Angler Name (Full)	Joe Soap
	Ref No. (If applicable)	JS9999
	Email/Postal Address	joessoap@gmail.com
	Tel No.	079 529 0711
	Reported by:	
	Ref No. (If applicable)	
	Email	
	Tel No.	
	Comments (not essential)	Shark swam off strong

* = Must be completed if possible



IMPORTANT POINTS OF HOW TO BE A RESPONSIBLE ANGLER

In an attempt to create greater angler awareness and custodianship of South Africa's marine fish resources, WWF South Africa and their Fish4Life initiative partnered with specialists from the South African Shark Conservancy, South African Institute for Aquatic Biodiversity, Rhodes University and the Oceanographic Research Institute to develop some important points for anglers to consider. This is what they came up with:

The responsible angler not only adheres to recreational permit conditions and regulations but also adopts an ethical code of conduct to ensure they are going above and beyond the rules to reduce the impacts of angling.

A responsible recreational angler:

- 1) Has a valid recreational angling permit and is familiar and compliant with the relevant regulations;
- 2) Seeks information and remains informed about the status of marine resources and the impacts of angling on species and habitats;
- 3) Is adaptable to change and embraces recommendations made by informed researchers and fishery managers;
- 4) Acts responsibly when exposed to activities that will negatively impact on the conservation of marine resources;
- 5) Collects bait with the minimum disturbance to the environment;
- 6) Only keeps fish and bait sufficient for their immediate needs and does not sell fish;
- 7) Quickly and humanely kills fish that are retained to ensure the least amount of suffering;
- 8) Handles all fish that are to be returned to the sea, regardless of species, in a way that ensures their best chance of survival;
- 9) Uses equipment and tackle that minimises stress and injury to fish, especially when practising catch and release;
- 10) Appreciates the environmental and social value of a healthy environment and always disposes of unwanted fishing line and plastics appropriately leaving the fishing area in the same or better condition than when he/she arrived;
- 11) Reports illegal activities including poaching, environmental destruction and pollution events, to the relevant authorities;
- 12) Uses established legal roads and tracks when accessing fishing areas;
- 13) Is considerate of other legitimate marine users and respects their right to access marine resources;

- 14) Educates others, especially children, in sustainable fishing practices; and
- 15) Is a role model to other anglers and always leads by example.

As members of the ORI-CFTP it our hope that you will adopt these 15 points and lead by example!

DOWN-RIGGER RELEASE WEIGHT SYSTEM

To improve the survival of released reef fish suffering from barotrauma

The release of marine fish has become increasingly important to recreational anglers. Besides fisheries regulations and management tools such as minimum and maximum legal size limits, daily bag limits and closed seasons, increasing conservation awareness has resulted in an increased number of fish being released. However, some deep water fish species (e.g. red steenbras and black musselcracker) suffer pressure related injuries called barotrauma (more commonly referred to as being “blown”). These injuries are a result of the expansion of gases in the swim bladder and other organs when fish do not have time to adjust to the rapid changes in water pressure as they are pulled to the surface. The physical effects of barotrauma are easily identified and can be seen in the form of inflated abdomens, bulging eyes, stomach pushed into the mouth and intestines protruding from the anus. Many fish suffering from barotrauma cannot swim back down to the bottom where they were caught and often just float at the surface when released.

Fortunately, scientists at ORI have successfully tested a simple method for overcoming this problem. All it requires is a large barbless hook and a weight (a few sinkers tied together works well) - made up as follows:

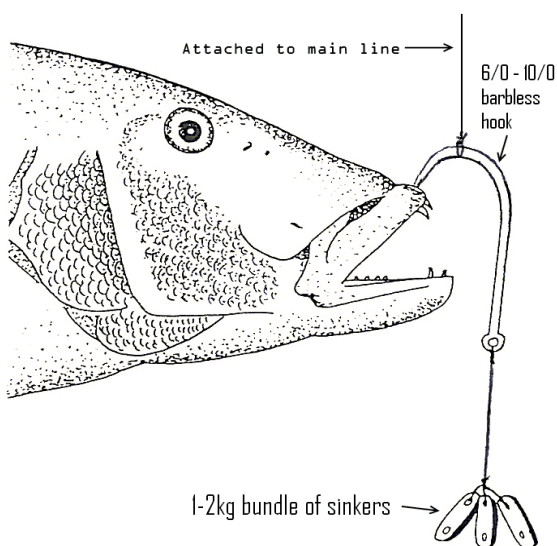


Diagram 12) – Nylon tied to sinkers

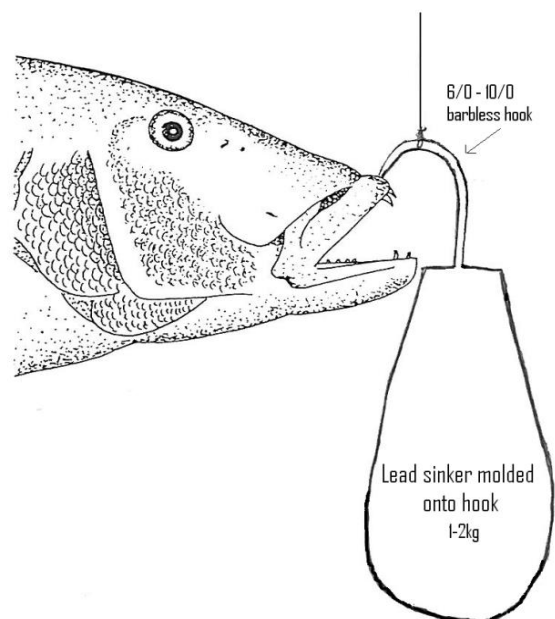


Diagram 13) – Nylon tied to a lead weight

An 8/0 to 10/0 barbless J-hook (simply squash or file off the barb yourself) is tied upside down to the end of the line on a dedicated rod and reel or hand line (thin rope) that is set aside for this purpose. The eye of the hook is tied to a bunch of heavy sinkers by means of strong nylon (see Diagram 12) or inserted into a moulded lead weight (see Diagram 13). The hook is inserted through the upper lip/jaw of the fish from the outside inwards, allowing the weight of the sinkers to hold it in place. Be careful not to drop the fish while inserting the hook into the upper jaw. The fish and inserted down-rigger is then carefully placed overboard and allowed to sink to the bottom. Once on the bottom, a firm tug/jerk on the line releases the hook, the fish swims off (as the inflated swim bladder has now been recompressed) and the down-rigger system is recovered. It is important to get the fish as deep as possible before it gets off the down-rigger and try not to have any sudden jerks on the line while the fish and weight are descending, as this will often dislodge the hook too soon causing the fish to float back to the surface. The SeaQualizer© which is now commercially available also works very well and basically consists of a boga-grip which is attached to the jaw of the fish and has a specially designed pressure release trigger which automatically releases the boga-grip at a predetermined depth/pressure. Please note that venting the fish by inserting a hypodermic needle into the swim bladder or simply pricking the stomach or other protruding organs to release the air pressure is not advised as it requires considerable skill to do this properly and may result in an infection which could kill the fish at a later stage. For more information on the down-rigger release weight system and barotrauma, please refer to the instructional videos provided.

TIPS ON BILLFISH TAG AND RELEASE

Before you catch your fish:

- 1) First decide if the billfish you intend catching is going to be tagged and released
- 2) Use heavier tackle to fish with than you normally would.
- 3) Rig your bait or lure with a single hook (a barbless circle hook is best)
- 4) Load the tag on the applicator and secure with a rubber band, stow the loaded tagging applicator in an accessible place.
- 5) Keep the tag information card and pencil in a dry, safe location (an airtight container) ready to be accessed when needed.

While hooked up

- 6) Pull your billfish in as quickly as possible
- 7) Keep the fish in the water and allow it to calm down prior to tagging. Do not attempt to tag the fish while it is jumping and thrashing about. If possible get the wireman to hold the bill firmly using gloves with the fish alongside the boat.

Tagging

- 8) Lead the fish alongside the boat and try and get a measurement of the length of the fish by marking the position of the tip of the lower jaw and the fork of the tail on the side of the boat (see Diagram 9 on page 9 and Diagram 14 on page 18). **Importantly, make sure that the fish is not already tagged! If it is try and get the tag number without harming the fish or removing the tag.**
- 9) Once the fish calms down, **insert the tag into the “shoulder” muscle just under the dorsal fin (see Diagram 14 on page 18).** Avoid any chance of inserting the tag into, or below the lateral line, the head or gills as the tag may pierce vital organs.
- 10) Insert the tag the full 50-70mm (7cm) into the muscle at an angle of about 45°. It is important that the tag applicator has a stopper to achieve this.
- 11) The fish should be tagged without excessive handling or allowing it to injure itself on the vessel’s hull or transom.

Releasing

- 12) Remove the hook whenever possible. If hooked deeply in the throat or stomach, cut the leader as close to the hook as possible and record this on the tag card.
- 13) A fish that appears lethargic, but otherwise uninjured, can often be revived by slowly towing it head first through the water, forcing water through the mouth and gills until it begins to swim on its own. Often a billfish will “light-up” when it has regained equilibrium. Even a fish that has thrown its stomach can still be released.
- 14) **Most important:** complete the tag information card immediately and correctly, with all the relevant tag release information.
- 15) **Post/email (scan or excel spreadsheet) or submit online, the card to the ORI Tagging Officer immediately.**

For more information on tagging, releasing and handling billfish please refer to the instructional videos online.

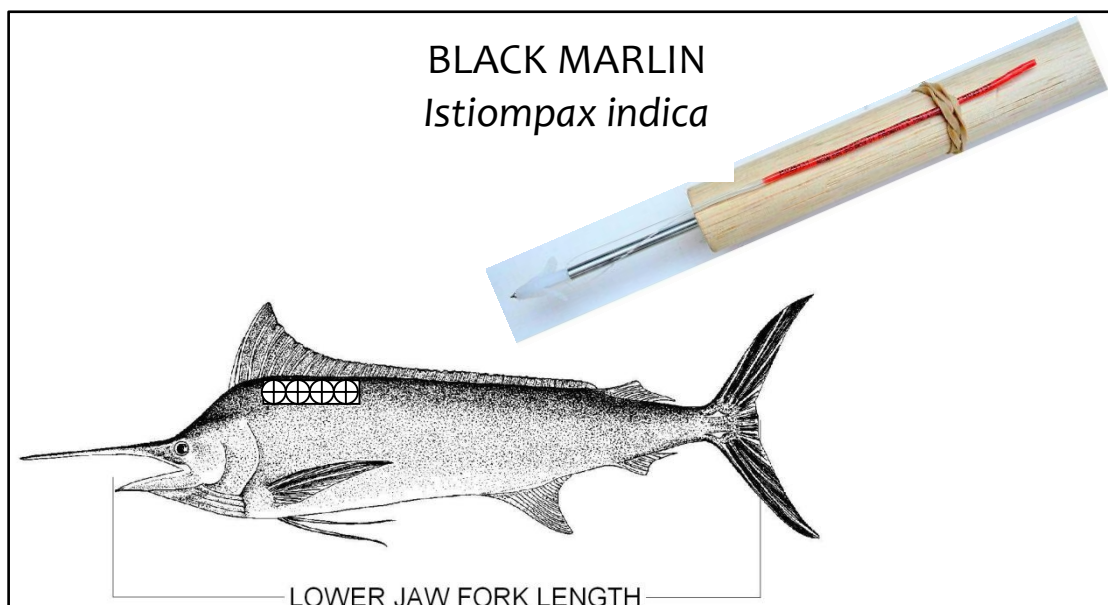


Diagram 14) – Correct tag position for billfish species

PRIORITY SPECIES TO BE TAGGED IN SOUTH AFRICA

A. Sandy beach/soft bottom species

Baardman/bellman/tassel fish
Cock grunter
Dusky kob/daga salmon
Geelbek/Cape salmon
Javelin grunter/mof grunter
Largespot pompano/wave garrick
Natal stumpnose/yellowfin bream
Perch/river bream
Silver kob (make sure of your ID)
Snapper kob
Southern/African pompano
Spotted grunter
Squaretail kob (make sure of your ID)
Tripletail
White steenbras/pignose grunter

B. Gamefish species

Albacore/longfin tuna
Bigeye kingfish
Black marlin
Blacktip/yellowtail kingfish

Bludger
Bludger
Blue marlin
Blue/Ferdy kingfish
Bluefin kingfish
Brassy/greenspot kingfish
Cape/giant yellowtail
Couta/king mackerel
Elf/shad
Garrick/leervis
Giant kingfish
Great barracuda
Greater amberjack/yellowtail
Largemouth/talang queenfish
Longfin amberjack/tropical yellowtail
Longfin kingfish
Natal snoek/queen mackerel
Pickhandle barracuda
Prodigal son/cobia
Sailfish
Shortbilled spearfish
Springer/ladyfish/tenpounder
Striped marlin

Swordfish/broadbill
Wahoo
Yellowfin tuna
Yellowspotted kingfish

C. Rocky shore and reef fish species

Banded galjoen
Blue emperor
Bronze/copper bream
Catface/brown-spotted rockcod
Cave bass
Galjoen/damba
Lemonfish
Minstrel rubberlip
River snapper/rock salmon
Speckled snapper
Stone bream/stinker
White musselcracker/brusher
Yellowbelly rockcod
Zebra/wildeperd

D. Offshore reef fish species

Blue hottentot
Dageraad
Dusky rubberlip
Englishman
German
Halfmoon rockcod
Hottentot
Kaakap/green jobfish
Lyretail/swallowtail rockcod
Malabar rockcod
Moustache rockcod
Poenskop/black musselcracker
Potato bass
Red stumpnose/Miss Lucy
Red/copper steenbras
Roman
Sailfin rubberlip

Scotsman
Seventy-four
Soldier/santer
Tomato rockcod
White-barred rubberlip
Wreckfish
Yellowfin emperor

E. Sharks

Blackspot shark
Blackspot smoothhound (make sure of your ID)
Blacktip/blackfin shark
Broadnose sevengill cow shark
Brown shyshark
Copper shark/bronze whaler
Dark shyshark
Dusky/grey shark
Flapnose houndshark
Giant hammerhead shark
Giant sandshark/guitarfish
Grey reef shark
Hardnose smoothhound
Java shark
Leopard catshark
Longnose blackfin/spinner shark
Puffadder shyshark
Sandbar shark
Scalloped hammerhead shark
Shortfin mako shark
Sliteye shark
Smooth hammerhead shark
Soupfin shark/vaalhaai
Spotted gully shark
Spotted ragged-tooth shark
Striped catshark
Thintail thresher shark
Tiger shark
Zambezi/bull shark
* No lesser sandsharks

F. Skates and Rays

No ray species to be tagged

SPECIES TO BE TAGGED IN MOZAMBIQUE

Amberjack
Black marlin
Blue marlin
Couta/king mackerel
Giant kingfish/trevally
Largemouth/talang queenfish
Natal snoek/queen mackerel
Sailfish
Southern/African pompano
Striped marlin
Swordfish/broadbill
Yellowfin tuna
Wahoo

** Please note that the tagging of fish using ORI tags is specifically restricted to South Africa and Mozambique. No fish are to be tagged with ORI tags in Angola, Namibia, Tanzania and/or Kenya.*