

# Lower Zambezi

## Catch & Release Initiative

## GUIDELINES

Measuring and weighing fish

### MEASURING AND WEIGHING FISH

Many catch-and-release anglers will want to know just how big their catch really was before releasing it. This means that they will either need to weigh or measure the fish before releasing it. Details such as length and weight are important for record keeping and can provide valuable data for analysis of fish health and population status. However, measurement does entail further handling of fish and increases the time they spend outside of the water, which can affect the fish's post-release survival. As with any handling of fish before release, time is of the essence and it is important to work quickly, and get the fish back in the water as soon as possible.

This sheet explains some of the commonly used measures of length and gives some basic guidelines on handling fish for weighing and measuring that can help ensure the best chance of the fish surviving after its release.

#### Tips for weighing and measuring a fish

##### *Be prepared*

- Make sure that all the necessary equipment for measuring the fish and recording data is ready and accessible
- Be ready to measure the fish before you remove it from the water

##### *Make a space*

- Have a clear space on the boat in which to do all your measurements.
- Do not lay the fish down on a hot deck, rather have a wet towel or thick plastic sheet laid down to protect the fish from hot or abrasive surfaces

##### *Work together*

- It is easier and more efficient if one person handles the fish while another acts as a scribe/ data recorder to make notes and record the measurements
- The time the fish spends out of the water should be kept to a minimum

##### *Use the right equipment*

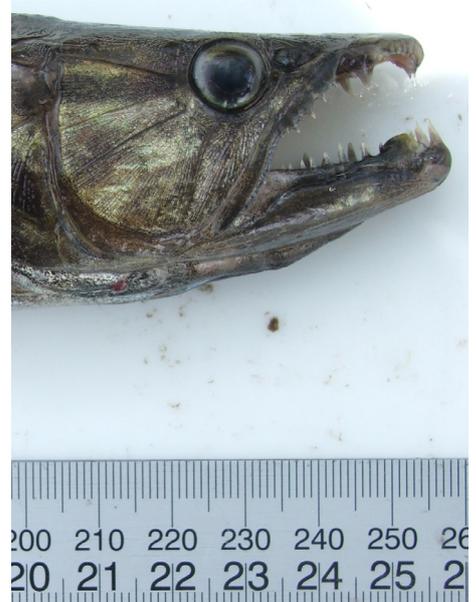
- A fish measuring board with a stopper at one end will make measuring length quicker and easier
- Using a weigh bag or sling to weigh large fish can help minimise the risk of injury caused by vertical suspension

##### *Use the right measure*

- Length is generally a better measure to use than weight as it is less stressful on the fish

#### Measuring length

Length is often quicker and easier to measure than weight. For many species the relationship between length-and weight is well established, so weight can be estimated quite accurately for a known length using a length-weight relationship equation. If you are reporting or submitting catch records, it is important to stick to a standard measure of length or state which measure was used.



#### ***In the bag***

*Avoid the temptation to use the inbuilt scale on your lip-gripper to weigh the fish by suspending it from its jaw as this can cause permanent damage to the jaw and spine, especially for large fish. Using a weigh bag or sling can minimise the chance of injury*



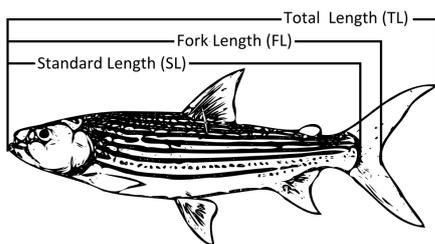
## ***Respect • Record • Release***

For more information on how you can participate in fish conservation on the Lower Zambezi visit [www.wildtracks-zambia.com/index.php/LZCRI](http://www.wildtracks-zambia.com/index.php/LZCRI)

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Conventional measures of fish length are Standard Length (SL) Fork Length (FL) and Total Length (TL). In the field TL and FL are generally easier to measure than SL and so are commonly used by fish biologists. LZCRI uses FL as a standard length measurement.

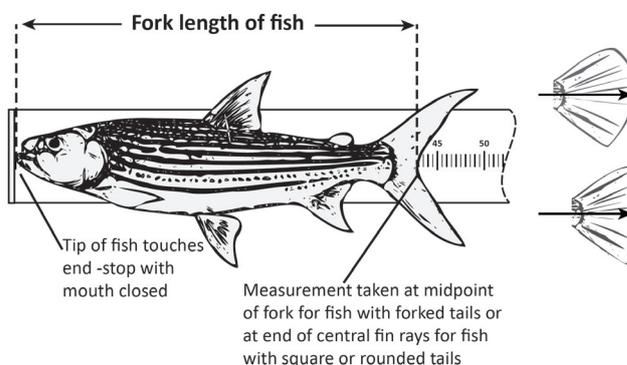
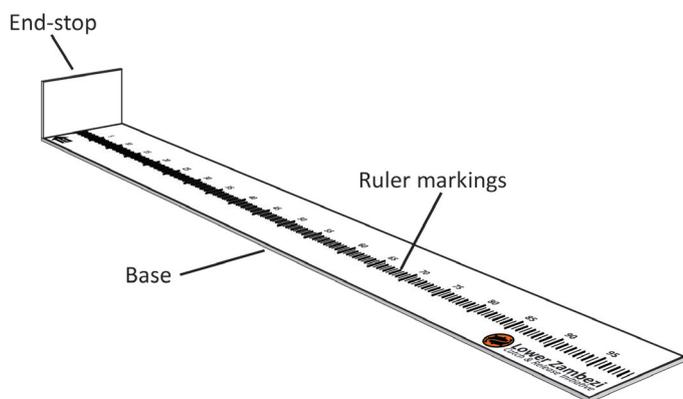


**Standard length (SL):** the length of a fish measured from the tip of the snout to the posterior end of the last vertebra and excludes the length of the caudal fin.

**Total length (TL):** the straight line length from the tip of the snout to the tip of the longer lobe of the caudal fin, usually measured with the lobes compressed along the midline.

**Fork length (FL):** the length from the tip of the snout to the end of the middle caudal fin rays and is used in fishes in which it is difficult to tell where the vertebral column ends.

Length is best measured using a ruler, preferably one with a stopper at one end to rest the nose of the fish against. If you use a tape to measure length, you should measure the flat length beneath the fish rather than the curved length along the body of the fish. Length is often quicker and easier to measure than weight. For many species the relationship between length and weight is well established, so weight can be estimated quite accurately for a known length using a length-weight relationship equation.



### Measuring weight

- Conventional scales and those built in to lip-grippers generally involve suspending the fish by the jaw. This should be avoided as there is the potential to permanently damage to jaw or spine, particularly in large or heavy fish.
- If you need to weigh a fish rather use a weigh-bag or sling to support the weight of the fish horizontally. The weigh-bag can then be suspended from a conventional scale or lip-gripper with a built in scale.
- Weigh-bags should be made of a non-abrasive material and should be wet before placing the fish inside.
- A wet weigh bag also makes a useful, non-abrasive surface to work on should you need to lay a fish down for measurement or to remove difficult hooks
- Don't forget to tare (zero) your scale to account for the weight of the bag, or weigh the empty bag and subtract it's weight if your scale lacks a tare function.

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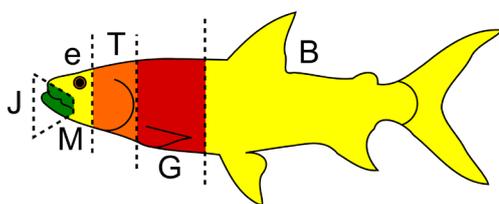
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### MINIMISING HOOK INJURY

Hook injury is one of the primary causes of death in released fish. Hooks can cause severe damage at the hooking location and these injuries can severely impact a fish's chance of survival. Through careful fishing, the selection of appropriate tackle and proper handling of hooked fish can all help minimise the damage caused by hooks and greatly decrease the chance of post-release mortality.

Fish are generally hooked in one of five different areas, each with varying risk of injury. By using the correct terminal tackle and making slight changes to the way you fish deep-hooking and other damage to fish can be avoided.



Hooking location plays a role in injury and post-release mortality. Generally fish deep hooked in the gut (G) or throat and gills (T) are more likely to suffer post-release mortality than those hooked in the mouth (M) or jaw and lips (J) where damage is usually minimal or not very severe. Foul hooking on the outside of the body (B) can cause some damage especially if sensitive parts such as the eyes (e) are involved.



### Best practice to minimise hook injury

#### Use the right hooks

- Use barbless hooks. They cause less damage and are easier to remove.
- Use circle hooks. They reduce the risk of deep hooking.
- Use single, barbless hooks rather than trebles. They cause less damage and are easier to remove.
- Use larger hooks than usual. This can reduce the chance of deep-hooking

#### Use lures rather than bait

- Lures are less likely to cause deep hooking than fishing with bait.
- Change treble hooks on lures for single, barbless hooks.

#### Remove hooks without causing further damage

- Long-nosed pliers or large surgical forceps (hemostat) are useful tools for removing deeply-embedded hooks or for fish with large teeth
- Hooks embedded deep in the throat or gut should not be removed as attempting to remove them will most likely cause further damage. Rather cut the line outside the mouth and release the fish with the hook in.
- For hooks embedded in the gills it may be possible to cut the line, lift the gill cover and remove the hook through the opening rather than through the mouth. Care must be taken however, not to touch or damage the delicate gill-filaments

#### Pay attention

- Unless you are using circle hooks, fish should not be allowed to swallow bait. Don't leave baited lines unattended.



Predatory fish such as tigerfish have tough mouths adapted to catching spiny or bony prey. Hooking these fish in the jaw or mouth is less likely to cause serious damage than hooking them in the throat or gut. Using the right hooks, can minimise the chance of deep hooking (by using circle hooks), reduce the amount of damage caused by the hook and make the removal of the hook much easier (by using barbless hooks and avoiding the use of treble hooks)

### Fish-friendly tackle

Rather than replacing the contents of your tackle box it is easy and inexpensive to convert your existing tackle



Treble hooks on lures can easily be replaced with single hooks with a wide gape



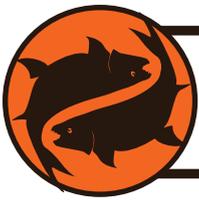
If barbless hooks are not available, simply squash the barbs on your existing hooks flat with a pair of fishing pliers

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GUIDELINES - Circle hooks for tigerfish



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## Photographing fish

### PHOTOGRAPHING FISH BEFORE RELEASE

Most catch-and-release anglers will still want to keep a memento of their more memorable catches before releasing it. The best way to do this is by taking a photograph. Photographs can also be important for positive identification of species that may not be easy to identify in the field. However, photography does entail further handling of fish and increases the time they spend outside of the water, which can affect the fish's post-release survival. This sheet gives some basic guidelines on handling fish for photographing that can help ensure the best chance of the fish surviving after its release.

#### Best Practice for photographing a fish

##### *Be prepared*

- Decide early if you are going to photograph the fish.
- Make sure the camera is ready and easily accessible

##### *Be supportive*

- Lift the fish horizontally, supporting its weight from below.
- If you are using a lip-gripper (e.g. Boga) DO NOT lift it vertically by the jaw alone.

##### *Keep it horizontal*

- Photograph the fish while supporting it gently in a horizontal position.
- Never suspend the fish vertically.
- Holding the fish horizontally is less damaging to the fish, and also makes for a better photo than a fish hanging from its jaw.

##### *Get a grip*

- Make sure you have a firm grip on the fish. Don't drop it!
- Lip-grippers are useful for holding difficult species like tigerfish, but should only be used with support for the rest of the body.
- DO NOT hold the fish by placing your fingers in the gills or eye sockets

##### *Make it snappy*

- Minimise the time that the fish spends out of the water.
- Take a few photos quickly before releasing the fish gently back into the water.



#### **Fishing guide's tip**

*Every second of a fish spends out of the water significantly increases the time it takes to recover time, affecting post release survival*

*Rather than boating the fish immediately and then getting the camera ready, keep the fish in the water, holding it with a lip-gripping device (Boga) until you are ready to take the photo at which point you can remove it from the water*

*(Alan Bonello, Sausage Tree Camp)*



This fish is properly supported from below in a way that best displays the fish but does not place strain on the jaw, spine and internal organs.

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