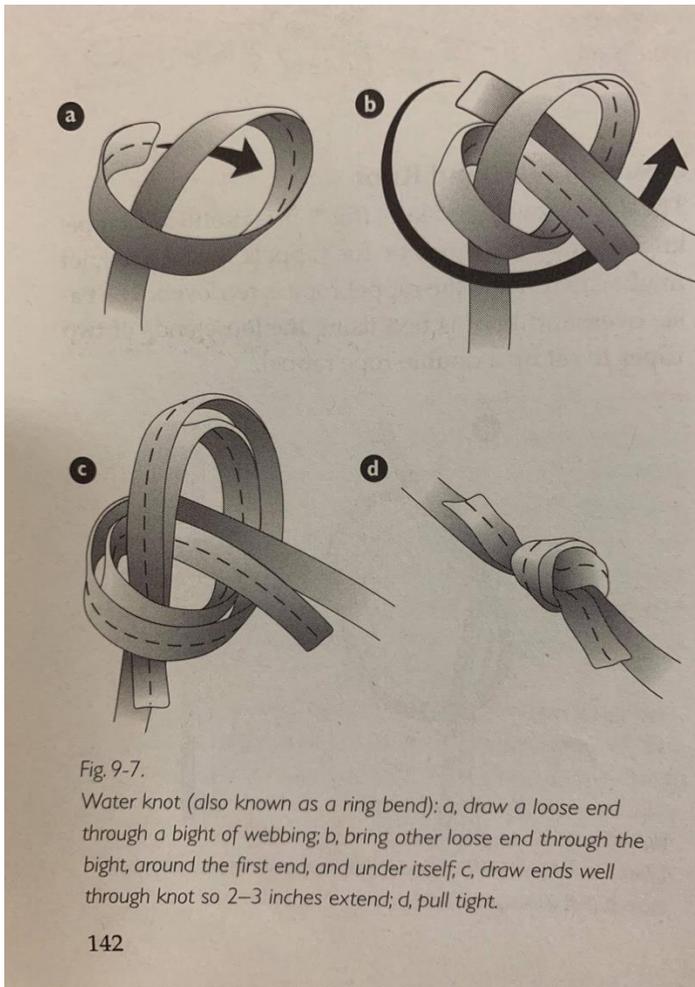


Introduction

As paddlers, we regularly use different types of knots every time we venture onto a river. Knots are important. Anyone who participates in water activities, such as kayaking, should learn and be familiar with several knots. This guide provides a 'how to' using descriptions, pictures and videos for knots commonly used in water safety situations: water knots, girth hitches, clove hitches, figure of eight, single bowlines, fisherman's knots and prusik loops. The final section covers making an anchor using a tree.

Water Knot



Typical use: The water knot¹ is frequently used in climbing for joining two ends of webbing together, for instance, when making a sling.

Kayaking use: Tubular webbing is used to make an anchor for securing your boat, or yourself during a rescue.

Click on the [link](#)² to access a 'how-to tie the water knot' video.

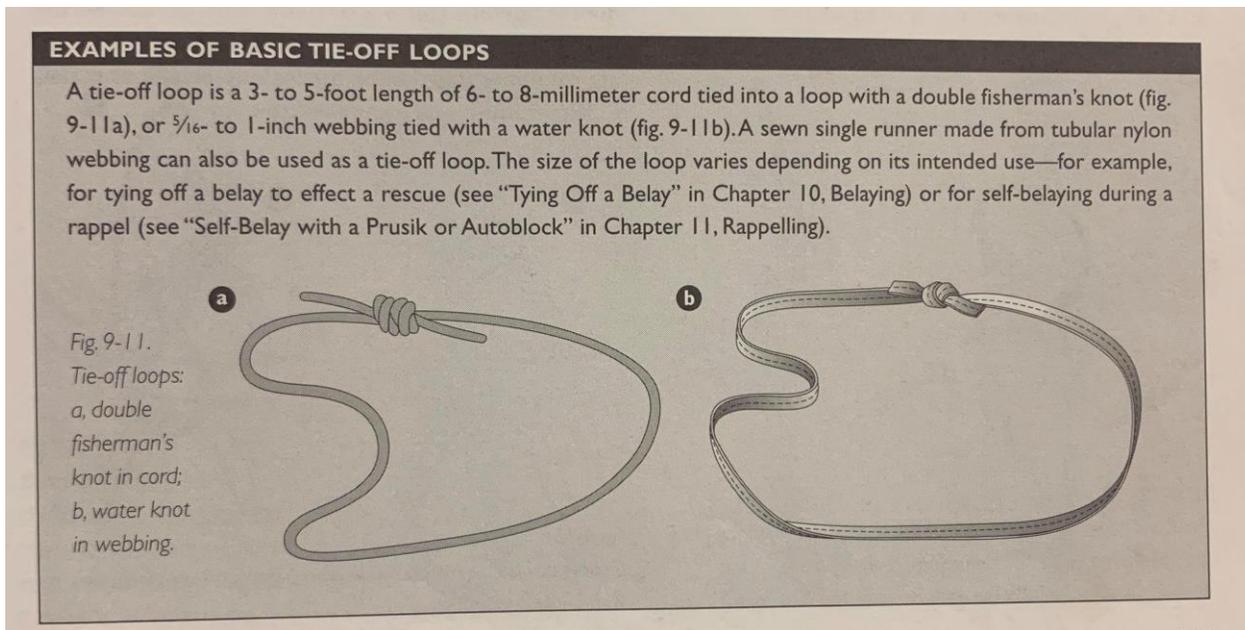
Picture 1, example of tying a water knot³.

Picture 2, example (b) below shows a webbing loop using a water knot.

¹ https://en.wikipedia.org/wiki/Water_knot

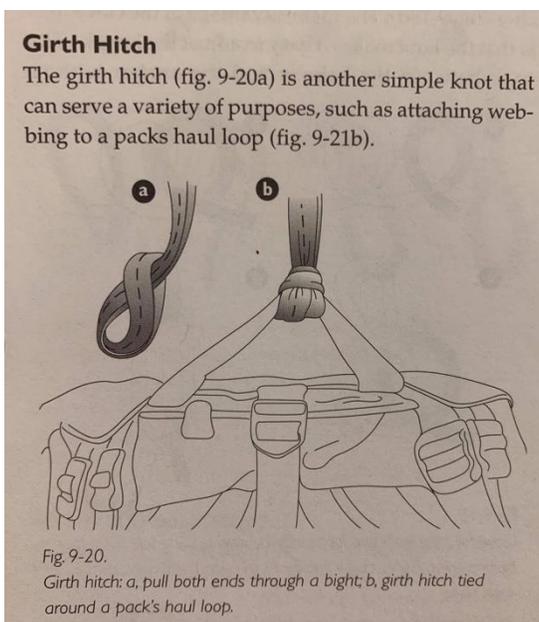
² <https://www.youtube.com/watch?v=mWKfGmA3M48>

³ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers



Picture 2, examples of basic tie-off loops⁴

Girth Hitch



Picture 3, example of girth hitch

The [girth hitch](#)⁵ (cow hitch), is a *knot* commonly tied using a webbing sling, although rope can also be used.

Typical use: To attach a sling loop made of webbing, or rope to a harness, or to create an anchor point.

Kayaking use: To create anchors around trees (or similar structure) to secure your boat, or yourself during a rescue.

See [video link](#)⁶ for an example of using a girth hitch.

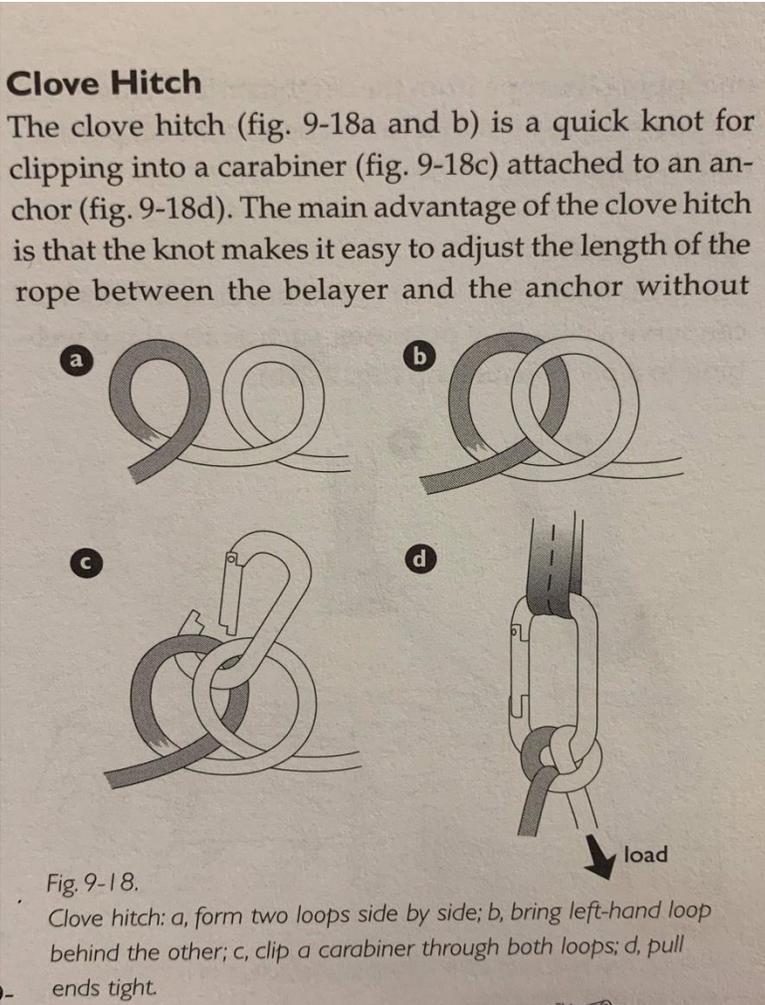
⁴ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

⁵ https://en.wikipedia.org/wiki/Cow_hitch

⁶ <https://www.youtube.com/watch?v=FhFmIKxW4lw>

Clove Hitch

The [clove hitch](#)⁷ is easy to tie and is a highly versatile knot. A clove hitch comprises two successive half hitches around an object, typically a carabiner.



Typical use: Particularly useful where the length of the running end needs to be adjustable. The rope can be fed from either direction to loosen the knot and be tightened at a new position. With certain types of cord, the clove hitch can slip when loaded. With smaller diameter cords, after being heavily weighted it may become difficult to untie. It is also unreliable when used on a square or rectangular post; round posts are optimal. When tied around a carabiner, the load should pull on the end closest to its spine.

Kayaking use: To secure a kayak where you want to be able to easily adjust the length of the rope. It can also be used to lower a kayak on steep terrain.

See [video link](#)⁸ for a guide on to how to tie a clove hitch.

Picture 4, example of clove hitch⁹

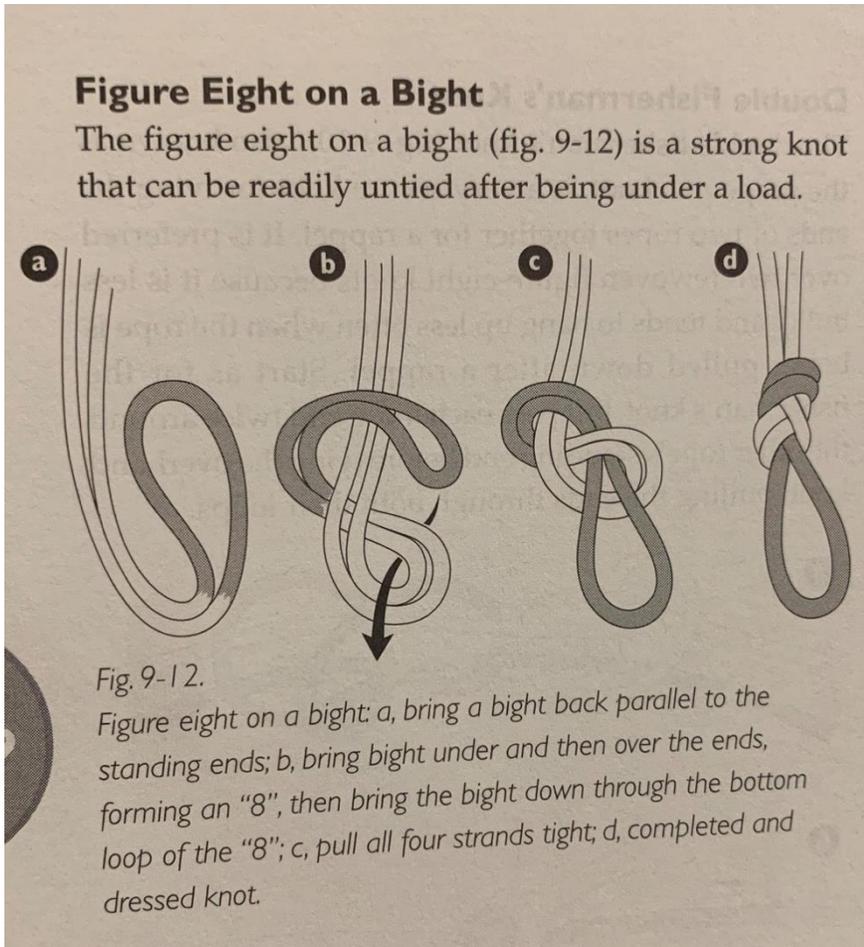
⁷ https://en.wikipedia.org/wiki/Sheet_bend

⁸ <https://www.youtube.com/watch?v=a58xEj9EG4c>

⁹ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

Figure-eight knot

The [figure-eight knot](#)¹⁰ (figure-of-eight knot) is a type of stopper knot.



Typical use: Very important in rock climbing for either tying a rope into a harness, or as a method of preventing ropes from slipping out of retaining devices. The figure-eight will also jam under heavy loading, but is usually can be undone.

Kayak use: A quick method of securing a kayak using a carabiner attached to a carry handle, then use a figure of eight to attach the rope to the carabiner. The other end of the rope should be secured.

See [video link](#)¹¹ for a guide on how to tie a figure-eight knot.

Picture 5, example of figure-eight knot¹²

¹⁰ https://en.wikipedia.org/wiki/Figure-eight_knot

¹¹ <https://www.youtube.com/watch?v=GFlwrvggas0>

¹² Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

Single Bowline

The [single bowline](#)¹³ is an ancient and simple knot used to form a fixed loop at the end of a rope. It has the virtues of being both easy to tie and untie. Most notably, it is easy to untie after being subjected to a load.

Single Bowline

The single bowline (fig. 9-14a) makes a loop at the end of the climbing rope that will not slip, and it can secure the rope around a tree or other anchor. The loose end of the rope should come out on the inside of the bowline's loop (fig. 9-14b) because the knot is much weaker if the loose end finishes on the outside of the loop. Tie off the loose end with an overhand knot (fig. 9-14c and d).

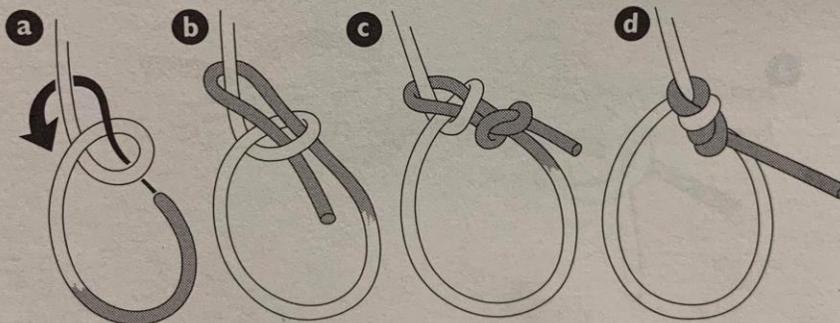


Fig. 9-14.

Single bowline: a, make a loop and pass the loose end of the rope under and through it, then around the back of the standing end; b, bring the loose end back through the loop; c, pull ends tight and tie an overhand knot; d, completed single bowline backed up with an overhand knot.

Picture 6, example of single bowline¹⁵

Typical use: Most commonly used for forming a fixed loop, large or small, at the end of a line. The knot is reliable, strong and stable. Even after severe tension is applied it is easy to untie. However, because it does untie easily it should not be trusted in a life or death situation, such as mountain climbing.

Kayak use: When you need to make a loop quickly. It can also be used in rescues to secure someone on steep ground and being belaying from above. In this scenario, an overhand knot as shown in picture (C), should always be used.

See [video link](#)¹⁴ for a guide on how to tie a single bowline.

¹³ <https://en.wikipedia.org/wiki/Bowline>

¹⁴ <https://www.youtube.com/watch?v=iqj11BERIY>

¹⁵ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

The Fisherman's Knot

The [Fisherman's knot](#)¹⁶ This **knot** is used to connect two ropes together. It is commonly used in climbing and other sports.

Fisherman's Knot

The fisherman's knot (fig. 9-9) is used to join two ropes together. Overlap a loose end of each rope and tie each end in an overhand knot around the other rope's standing end. For climbing purposes, however, this knot has been replaced to a large degree by the double fisherman's knot, and the fisherman's knot is shown here primarily to provide a clearer understanding of the double fisherman's knot.

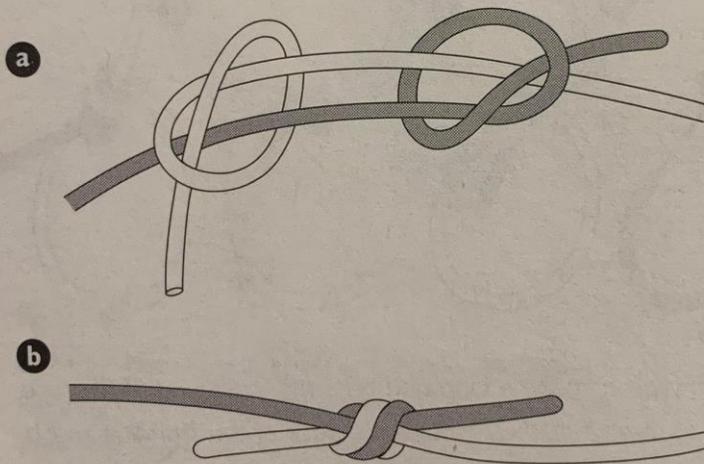


Fig. 9-9.

Fisherman's knot: a, overlay a loose end of each rope, and tie each end in an overhand knot around the other rope's standing end; b, pull the knot tight.

Picture 7, example of fisherman's knot¹⁸

Typical use: Ease of tying makes the fisherman's knot a good knot to use with small lines such as fishing line, thus the name. To complete this knot, you also need to know how to tie an overhand knot. The fisherman's knot is used to create loops, such as a prusik loop, or joining two ropes together.

Kayaking use: To create a prusik loop, and also required for a z-drag rescue kit.

See [video link](#)¹⁷ for a guide on how to tie a fisherman's knot

¹⁶ https://en.wikipedia.org/wiki/Fisherman%27s_knot

¹⁷ <https://www.youtube.com/watch?v=y7thri5DEEk>

¹⁸ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

Double Fisherman's Knot

The double fisherman's knot, or grapevine knot is a bend.

Double Fisherman's Knot

The double fisherman's knot (fig. 9-10), also known as the grapevine knot, is a very secure knot for tying the ends of two ropes together for a rappel. It is preferred over two rewoven figure-eight knots because it is less bulky and tends to hang up less often when the rope is being pulled down after a rappel. Start as for the fisherman's knot, but pass each loose end twice around the other rope's standing end before tying the overhand knot, pulling the ends through both their loops.

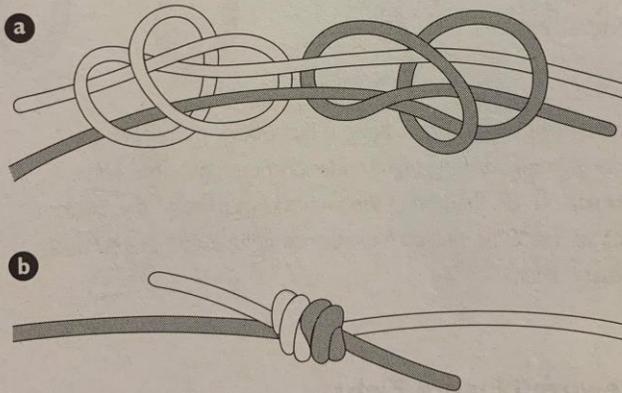


Fig. 9-10.

Double fisherman's knot: a, pass each loose end twice around the other rope's standing end and then tie an overhand knot; b, pull the knot tight.

Typical use: This and the triple fisherman's knot are variations used most often in climbing and search and rescue. The knot is formed by tying a double overhand knot in strangle knot form, with each end around the opposite line's standing part.

Kayak use: same as in the single fisherman's knot.

See [video link](#)¹⁹ for a guide on how to tie a fisherman's knot.

Picture 8, example of double fisherman's knot²⁰

¹⁹ <https://www.youtube.com/watch?v=O6oJwedcb18>

²⁰ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

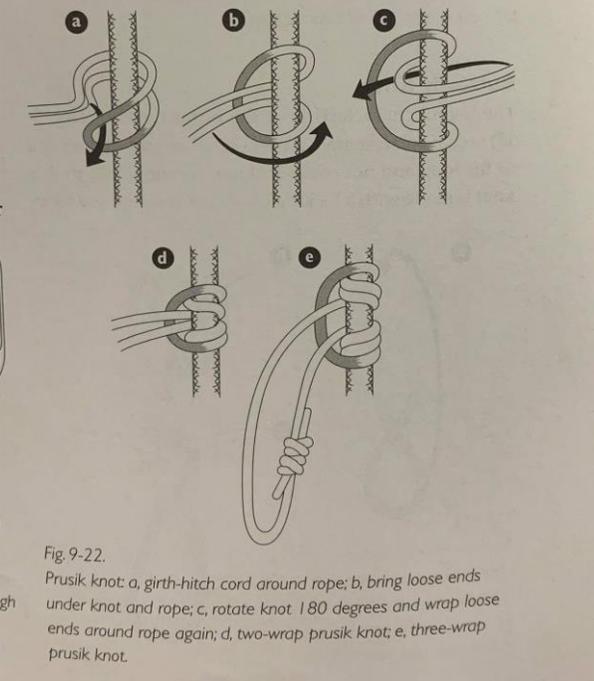
Prusik Loop

A Prusik is a friction hitch²¹. A short piece of cord that can be wrapped around your rope to add friction. The term Prusik is a name for both the loops of cord and the hitch, and the verb is "to prusik".

Prusik Knot

The prusik knot requires a girth hitch (fig. 9-22a) and a few wraps of an accessory cord around the climbing rope (fig. 9-22b and c). The cord is usually a loop of 5- to 7-millimeter perlon, wrapped two (fig. 9-22d) or three (fig. 9-22e) times around the rope. Icy ropes or heavy loads require more wraps of the prusik knot to ensure sufficient friction to hold the load.

To create the necessary friction, the accessory cord must be smaller in diameter than the climbing rope;



Typical use: There are many applications for a Prusik. In rappelling, it can act as an autoblock to hold a climber in place when he needs to use both hands, or in the event of an emergency. Climbers can use two Prusiks along a fixed rope to ascend or descend. The lower knot acts as a foot loop while the top one is controlled by the hands.

Prusik loops are designed to move freely on a line as you climb. When they are not under intense force or friction, they can slide up and down with ease. If the end of the rope is pulled suddenly, the friction of the knot will create enough tension to hold the load (you, a bag, another person, etc.) in place. Prusik loops are bidirectional, meaning they can move forward or backward along the line without any issues.

Kayaking use: A key component of the Z-Drag system. It is recommended that you carry one in your river pin kit. It is tied with a double fisherman's knot, and used on your throw rope to create part of the

Applying a prusik loop to a rope allows the pulling *tension* to be released from the rope in order to rest or reset, without the load sliding backward.

See this [video link](#)²² for how to tie a prusik loop, and this [video link](#)²³ for how to attach a prusik to a rope.

Picture 9, attaching a prusik loop to a rope²⁴

²¹ https://en.wikipedia.org/wiki/Prusik_knot

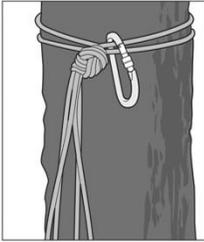
²² <https://www.youtube.com/watch?v=BD0i4GYBoVY>

²³ <https://www.youtube.com/watch?v=EFHxQ5fiUvI>

²⁴ Mountaineering The Freedom of the Hills (7th edition) by the Mountaineers

Tree Anchor

During river rescues, the only option for anchoring yourself may be a tree. A rope or sling can be used to make the anchor. Four options are below:



Use a [double-length](#)²⁵ sling or cordelette (rope loop) to create an anchor around a solid tree that's at least five inches in diameter, firmly rooted in the ground, and alive. Wrap the sling/cord around the tree, match the ends, and tie a figure eight on a bight to create a master point.

Picture 10, tree anchor 1

[Starting with one end of the rope](#)²⁶, take a few coils in your hand, and pass them around the tree trunk three or four times. This may well take more rope than you think, so start with a bit extra. Tie a loop in the end of the rope, like a figure 8 on a bight or overhand, and clip this bight onto the loaded strand to close the rope system. If you tie this correctly, the friction alone from the rope on the tree bark will support the load, and the carabiner at the end should never see any force at all.



Picture 11, tree anchor 2



In this example, a tape sling is wrapped around a tree, a locking carabiner is attached to the sling to create a secure loop. The safety rope is then attached to the carabiner using a figure of eight knot. The other end of the rope could be attached to a person or boat to secure them, or used as part of a z-drag pulley.

Picture 12, tree anchor 3

This is a similar configuration as above, but the rope is connected with a clove hitch, which allows for an adjustable anchor (refer to the clove hitch description above).



Picture 13, tree anchor 4

²⁵ <https://www.climbing.com/skills/learn-this-using-the-anchor-shelf/>

²⁶ <https://www.alpinesavvy.com/blog/using-a-rope-to-make-a-tensionless-tree-anchor>