By Meagan Pryke

# TOW ROPES






## The sea kayaker's version of complex string theory

**INTRODUCTION**
Choosing the right tow rope system can be somewhat daunting. Thankfully, the club guidelines are a good starting point, based on experience of use at sea. The club standard tow rope is 15 metres in length with suitable bag and fittings for quick deployment. But that leaves a lot of room for variation. Personal preferences and perhaps the lack of experience can make it all somewhat confusing.

This article focuses on tow systems for longer hauls, i.e. longer lines. Whether you make your own or purchase a commercial line it is good to understand the advantages and disadvantages of tow line attributes. No system is perfect. It is important that you practice, preferably at sea, with your own line to be familiar with its good and bad points.

**LENGTH** As effective towing length is reduced by the knots at each end, your overall line will need to be longer than 15metres. Another metre should be plenty.

**ROPE DIAMETER**
Thinner lines are more compact so multiple lines can be carried such as a spare in a PFD pocket. Dyeema or spectra is particularly strong and some kayakers have use line down to 2mm thick. However, thinner lines tangle more easily and can cause serious damage if fingers and hands are trapped in them.. Making a loom between little finger and thumb is a common way to pack thin line.

Thicker lines are easier to stuff away in handfuls, less likely to tangle and can handle a bit of rock abrasion thus can double up as a rescue line. Thicker lines will create more drag, and extra energy expended in a long distance haul can add up. The thicker the line, the bulkier the tow system which may reduce the paddler's willingness to bring along a tow line.

A short survey on the sea kayak forum indicated that most sea kayakers tend to use 3mm to 4mm cord for a tow line, with a few going up to 6mm.

So how strong does a tow line need to be? In general, thicker ropes of the same material or construction are stronger and thinner lines may need to be replaced more often due to wear, however modern rope materials mean that your choice of weight probably has more to do with rope handling than strength.

Some nylon rope will have natural stretchiness which might be desirable – see the comments about shock loading below.

Luckily a broken tow line usually does not have dire consequences unlike a broken abseiling or climbing rope, although it is still not desirable. I asked our trip leaders and instructors to relate any experience with broken tow lines - most have had none, but hollow polytwine line, similar to supermarket washing line, has broken in towing use. The most common situation for a tow system to break is a kayak being towed by a yacht or power boat rather than a kayak to kayak tow. Fixtures on the kayak have broken rather than the rope.

**SHOCK ABSORPTION**
I don't know of any testing of shock loads on a kayak tow line when in use and I assume that the drag through water reduces the shock incurred. However, shock loading is what is likely to break rope or your kayak and minimising it minimises potential damage. Keeping the line as taut and straight when towing will help, often the towee can help with monitoring this.

Some commercially made systems incorporate shock cord, usually thick, often about a metre. Thin shock cord is potentially too stretchy. Adding a section of shock cord and twisting the tow line around it is a method used by some kayakers.

**FITTINGS** Some tow lines are sold without fittings for attaching the rope. The most common attachment is karabiner style clips. Various stainless steel, brass and aluminium clips can be purchased at marine supply and outdoor gear shops.

As stainless steel is heavy, paddlers preferring larger clips sometimes use aluminium (climbing style) karabiners. However the combination of an alloy karabiner (anode) with its steel gate spring (cathode) means that it will inevitably corrode. One member has had a tow line failure due to aluminium karabiner corrosion. If you choose aluminium you need to rinse, dry and possibly lubricate the gate spring, and even then expect to replace these karabiners occasionally - and don't use them for climbing!

There are a few plastic karabiners out there, but unfortunately not many and their strength may be insufficient.

Small clips can be fiddly in rough conditions and low visibility, especially if combined with cold and wet fingers. Carabiners with a notch inside the gate can be fiddly to hook on and off thus filing it smooth is a good idea. This also reduces the risk of injury to water-softened fingers.

**FLOATATION AND VISIBILITY**
A float is used so that an unattached line does not

get lost in our oceans. A float can be at either end. Some people have the float as part of or at the tow bag end. This allows the line to sink with the weight of the clip and thus reduces surface tangle hazard. Others have a float part way along the line or at the towees end.

A specific floating rope will not get as water-logged as other lines and reduces the risk of catching on the bottom.

A high visibility colour such as red or yellow is desirable. Seeing the rope makes it easier to keep it taut and limits the risk of getting a paddle caught up on it.

**BAG** Tow line storage is important. You want it to deploy easily and be prepared to put away your tow line whilst at sea. Mesh bags are a good idea as you can rinse the whole bag in fresh water after use and set aside to dry without taking the rope out.

Storing the bag on the front deck has the advantage that you can access it easily. Storing on the rear deck with the tow line set up ready to deploy saves time but it is a bit tricky to put the line back behind you.

Waist belt systems are often favoured by commercial guides who use different kayaks but are a popular option for everyday sea kayakers too. Adding an extension which transfers the towing load from the body to the kayak for a long distance tow is useful. When stuffing rope away a waist bag can be easily moved to the front of your body.

**QUICK RELEASE SYSTEM**

Some members have a release system which allows the tower to escape the system under load. A few of our most experienced members have successfully dumped a complete towing system. Options include yachting cleats installed on the rear deck or a spinnaker release clip and waist tow belt systems usually have quick release.

How easy it is to release a stainless spinnaker clip depends on the spring strength. Attaching a small plastic ball, float or extra string to the clip can make it easier. Some kayakers prefer the Ronstan brand.

A carefully applied knife can also be an effective quick release system.

**TOW POINTS** You need to be ready to tow, and to be towed.

Tow points on the towee boat should allow the towee to look forwards. The best place to hook onto a towees sea kayak is close to the bow tip and to a strong attachment point. For most sea kayaks the strongest point is the deckline. In some sea kayaks the front toggle is mounted in thick resin and may in this case be preferable, however it may be worn due to being used for carrying the kayak and there have been cases of the toggle breaking on a towed kayak. My preference is to use decklines unless there is time to consider the towee's preference for their kayak.

When attaching a carabiner onto a deckline it's best is to clip upwards as it minimise the risk of the gate being pushed open by pressure on the kayak hull.

Towers kayak: Immediately behind the kayakers back is a good place for an attachment because if the attachment point is in front of the paddler, the towers kayak will tend to be pulled sideways and be hard to handle. However, it can be tricky to access as we don't have eyes in the back of our head.

A towline offset from centre may reduce the risk of the towline catching on equipment strapped to the back or rudder system.

Decklines are again an option. Utilising existing bolt points is a popular way to create tow points. The bolts should have large washers to spread the load. If they are recessed into the deck, strong cord like spectra or dyeema can be looped through the fitting. Many sea kayakers have utilised seat bolts just outside the cockpit rim as a place to attach webbing or cord that then makes a tow point attachment on the side of the kayak near the hip. A stainless steel ring, either O or D shaped in addition to some cord will allow easier clip in and clip off.

**SUMMARY**

Tow ropes need to be checked for wear, maintained and ideally be ready for use when paddling.

Whatever you use, it is important that you practice with your system to be truly aware of its limitations and good points. You may find that a thin line creates birds nest tangles so often that you decide to get a different line; no matter, having a spare is always handy so experiment.

Thanks for the following members for their responses that has helped me broaden the experience base behind this article being Mark Alchin, Steve Bell, Owen Kimberly, Rob Mercer, Tony Murphy and David Page. ■


Being towed by a vessel can put strain on your equipment and you may want to escape very quickly; think carefully before accepting a lift like Fer did here.