

8

TOWING

Experienced coxswains will testify that a towing situation can turn from boring and uneventful into treacherous and deadly in the space of seconds. A SAR crew may have to fly into action and react in order to save the vessel being towed or even their own rescue vessel. These situations can be simple or extremely complex and only competent and effective teamwork will lead a SAR crew through the hazards of towing.

The purpose of this chapter is to enable new CCGA crew to become familiar with the operations and communications involved in towing. As a new crewmember one should be familiar with all of the emergency procedures as well as the commands and signals of the captain/coxswain. Each crewmember should be able to recognise dangers and participate in an effective response to those dangers.

TOWING

CONTENTS

Introduction	181
8.1 (STOP & ASSESS) Tow Assessment and Safety	181
8.1.1 Safety on Board Your Tow	181
8.1.2 Towing SAP (Stop Assess Plan)	181
8.2(The Plan) Pre-Tow Briefing	183
8.2.1 Towline Safety	184
8.3 Positions	186
8.3.1 Line Handler: Set up and Passing the line	186
8.3.2 Crewmembers On-board the Tow	188
8.3.3 Tow Watch	188
8.3.4 Helm	189
8.3.4 Towline length	190
8.4 Towing Log Entries	191
8.4.1 Taking notes	191
8.4.2 JRCC SITREPS.....	191
8.5 Towing Alongside	191
8.6 Handling a Sinking tow	194

Hard Aground on Harwood

Story By Daniel Reid (Canadian Coast Guard)

“Mayday...Mayday...Mayday, this is the sailing vessel *Nellie* (name changed). We are hard aground on Harwood Spit, Northeast Harwood Island. We have three people on board including one small child. Any vessels in the area please help!”

Torn from our seats by the urgent distress call, Tom Joyce, Traci Murphy and myself, Daniel Reid went into the familiar motions of preparing for a late-night call. As members of the Inshore Rescue Team stationed at Cortes Bay we were ready day or night to assist boaters in distress. The sound of the mayday call and the subsequent bleating of the auto-tone generated by the Coast Guard radio station at Comox had us moving with an extra sense of urgency. As Coxswain Tom Joyce started gathering further information, Murphy gathered gear relevant to a night call while I went down the hill to warm up our Zodiac Hurricane 733 and to rig spotlights for our transit southbound.

“Comox Coast Guard Radio...Coast Guard 509, channel 61 alpha... We are underway to assist the sailboat aground on Harwood spit...ETA two-zero minutes.”

With a strong Northwest wind whipping us on from behind, we began the dark transit southbound towards Harwood Island. With Tom Joyce at the helm and Murphy on navigation we threaded our way in between islands and reefs, while I recorded information from Comox Coast Guard Radio and a commercial fishing vessel that had responded and was now on scene monitoring the situation.

As we rounded Mace Point on Savary Island we could make out the long flat shadow of Harwood Island ahead. We asked the fishing vessel to illuminate the stricken sailboat with their spotlight so as to guide us in. Now on scene, we alerted Comox and began our approach. Stopping about a hundred feet from the breaking surf we assessed the situation. Everything we saw was reported to the coxswain so that he could formulate an effective plan. The sailboat was hard aground on the sand bar. Heeled over on its port side, the boat rose and fell, slamming down on the bar with each breaking wave. The sails were furled and the rigging clear of the water; the vessel looked safe to approach.

Clearly outlining our duties, the coxswain laid out our plan of action.

“Dan, you get up forward and pass a messenger line and we’ll get the tow-line on her. Traci you start peeling off some towline...we are going to need lots up on the foredeck so hustle. Danny, once we get in there we are only going to get one shot at this so make it quick and make it good.”

With the situation assessed and our plan in place we made the transition from observing a situation gone bad, to throwing ourselves into the middle of it.

“Slack... more slack!” I hollered from the foredeck. The first attempt at passing an EZ-toss bag had been aborted when the bag was blown from my hands and I now needed to send our towline directly. Instructing the master of the stricken vessel to pass the line around a strong point and then back to me I made the throw as Tom brought us in to secure the tow. On our pitching foredeck I made fast a long bowline and shouted “Secure”. With the line secured Tom threw the throttles astern and we backed out of the pounding surf. As we came into deeper water Tom called “Coming around” and smoothly swung the Zodiac around 180 degrees into the wind and the two stern drives dug in for the pull. With a roar we came tight on the towline that Murphy had made fast on the rear tow-post...and nothing happened! Slowly we felt the sand bar slowly loosen its stubborn grip on the sailboats hull and we were on our way.

“Comox...509...61...we have the sailboat in tow at this time.” As we pulled away from the submerged bar we arranged to hand the tow off to the crew of the Mallard I who had arrived just in time to watch us recover the sailing vessel from their own front doorstep.

When we later came alongside the Coast Guard Cutter Mallard, Coxswain Ray Barnes said to Tom “Wow, I have never heard such clear communication on a rescue boat. We were sitting several hundred feet off and we knew absolutely everything that was happening on your boat. At first we thought that you were mad, Tom, and then we figured out that you were all just letting each other know what was going on. Good job out there.”

Introduction

Towing is an operation that often includes long hours of tedious routine interspersed by short periods of intense activity and excitement. In order to reduce the risk of accidents everyone must be ready to act. The crew must be diligent and cautious because the slightest lapse in attention or effort will result in accidents and mishaps. Everyone must be alert and watching out for their teammates. Everyone must be supporting the captain/coxswain and contributing towards the successful completion of the mission.



photo by Boomer

Three Primary Positions in towing are:

1. Line handler
The line handler prepares, and passes the towline. He then controls the line during the tow following the coxswain or captain's instructions.
2. Tow Watch
The tow watch position must watch the tow at all times and cannot perform duties that will distract from the watch.
3. Helm
The driver, usually the coxswain, must control the vessel safely during the approach and while towing.

8.1 (STOP & ASSESS) Tow Assessment and Safety

8.1.1 Safety on Board Your Tow

- ◉ Remove all personnel from the disabled vessel if the situation warrants it
- ◉ Establish and maintain communications with the disabled vessel
- ◉ Establish a communications schedule on a mutual working frequency

Summary of the National Guidelines for Towing

Coast Guard Auxiliary units may provide towing assistance in accordance with National SAR Program, as stated under Section 1 of this policy provided it imperilling the assisting vessel, or tow, or persons on board. If in the judgement of the JRCC/MRSC or the Commanding Officer on scene, the conditions for a distress or potential distress are not present, and if suitable commercial assistance is readily available, then the provision of a tow by Coast Guard Auxiliary resources may be denied.

Towing assistance will be provided only with the understanding that the vessel requiring assistance can be towed, with minimum risk, to the nearest appropriate safe haven or to a "rendezvous" position where the tow can be safely transferred. On arrival at the safe haven, it is not the responsibility of the Coast Guard Auxiliary unit to secure the towed vessel, however, the Commanding Officer may take such action as is necessary, having due regard to the circumstances of the case, to see the towed vessel is safely secured or anchored. Coast Guard Auxiliary units will not provide a tow to disabled vessels for the sole purpose of getting from one safe haven to another.

In non-life threatening situations, and if requested, the Coast Guard Auxiliary will aid in establishing direct communication between commercial services, other private vessels, and the operator of the disabled craft will be responsible for the cost.



- ◉ When underway ensure that the people on board the disabled vessel stay clear of towline
- ◉ Keep the towline attachment point as low and as close to the centreline of the tow as possible

8.1.2 Towing SAP (Stop Assess Plan)

The coxswain or captain will usually stop the vessel and slowly circle the tow, the captain will then ask the crew to perform a SAP assessment and you will look for major factors or clues to any immediate dangers. It is important to communicate constantly and clearly during towing operations. Remember the principles of two-way communications.



Visual Towing Assessment

Obvious dangers and Primary Factors to look for and be reported during the assessment are:

Vessel State

- ◆ Objects or people in the water
- ◆ Rigging or lines in the water
- ◆ Oil or fuel slick



NEVER attach the towline to lifelines, stanchions, grab rails, or ladders

NEVER attach the towline to cleats or bits that are only screwed onto the disabled vessel's deck

NEVER use knots to join towlines, unless there is no alternative

Steps to Two-Way Communications

- 1 Look
- 2 Name
- 3 Say Message
- 4 Repeat
- 5 Confirm

- ◆ Is the vessel listing to one side or fore and aft (bow and stern).
- ◆ Water level on hull compared to bootline or loadlines
- ◆ General state and condition of the hull and cabin works (obvious damage or disrepair)
- ◆ Hull type, planing or displacement and estimate of hull speed
- ◆ What gear or cargo is onboard and is it stowed and secure?
- ◆ Motion (quick or slow wallowing)
- ◆ Bilge pumps and over board discharges (regular discharges?)

People on Board

- ◆ Number of people that are visible
- ◆ Ensure all are wearing safety gear or life jackets/PFDs
- ◆ Are people moving and responding normally?
- ◆ Obvious signs of deception
- ◆ Unusual actions and behaviours are normal or abnormal

Environmental Factors

- ◆ Proximity to shore
- ◆ Depth of water and land features (lee shore?)
- ◆ Visual clues on-scene current and its effect over time (1-2 minutes)
- ◆ Wind and the profile of the vessel
- ◆ Forecasted weather for duration of tow
- ◆ Wave size and character
- ◆ Visibility
- ◆ Darkness
- ◆ Stricken vessel's set and rate of drift

The interview

After any obvious dangers and primary factors have been identified the pre-towing interview will commence either by radio or by voice. If the vessel has VHF, the CCGA vessel can contact the vessel on VHF 16 and move them to a working channel that they can remain on for the duration of the tow. If they do not respond on the working channel return to VHF 16 and try another channel. The people on board should be asked the following questions and then given the following information and instructions:

Questions to Ask

1. Is everyone all right and accounted for?
2. Does anyone have injuries or need medical assistance?
3. How many people are on-board?
4. What is the nature of your problem?
5. Are you taking on any water in any part of your vessel?
6. Is your vessel stable and secure for towing?
7. Do have a working searchlight or flashlight?
8. Are all of your hatches and watertight doors closed and dogged?
9. What is your hull speed?
10. Where do you wish to go?
11. What VHF channel are you monitoring?
12. Do you have a shaft brake?
13. What kind of securing points do you have?
14. Are you able to receive and secure a towline?

Information and Instructions to Give

1. We will tow you to (the nearest safe haven with facilities)
2. Verbal or written towing waiver given and consented (coxswain or captain will do this)
3. Please have everyone don his or her life jacket
4. Please inspect all of your vessels' voidspaces, bilges and compartments for damage or water
5. Please close and secure all of your deck hatches and watertight doors
6. Please maintain the designated radio channel and notify us if you change the channel for any reason
7. Please check in with us regularly on the designated VHF channel
8. If you cannot reach us for some reason, wave your arms up and down or signal us with a flashlight/searchlight
9. Please turn on your port and starboard lights and stern light
10. Please secure the rudder amidships or steer for our stern (coxswain /captains decision)
11. Please secure your propeller shaft if appropriate to do so
12. Are you able to secure the towline to (designated securing point) using this line and gear?

13. Prepare to take the towline. We will pass it to your bow (or designated spot)
14. Secure the line to (best securing point) and advise us when the line is tied on
15. Please ask all of your crew to stay inboard and keep their weight low
16. Life jackets will be worn at all times

8.2 (The Plan) Pre-Tow Briefing

After the assessment is complete, and all members have had a chance to point out details of the vessel and the surroundings, it is time for the coxswain/captain to ask for suggestions regarding a towing plan.

The crew can offer ideas regarding the best way to tow this vessel. After careful consideration, the coxswain/captain will brief the crew on the details of the chosen plan and the jobs given to crewmembers. Each crewmember will confirm that they understand their role and ask any clarification questions before they commence. At this point the only challenges or criticisms made by crew should be regarding an imminent danger.

Weather conditions and the distressed vessel's position to the weather will generally warrant modification of your standard approach. Through a clear briefing the basis of the towing approach has been established in everyone's mind, making those inevitable last minute modifications much less confusing.

The coxswain may communicate a few points to the crew when you decide on a final approach. When events or circumstances and factors that were assumed when you began the evolution are actually different, the towing plan should be re-evaluated. (i.e., no suitable strong point available to tow from, very poor seamanship skills on the vessel to be towed.) It's the crew's responsibility to inform the coxswain of any deviation or deficiency that they become aware of.

A coxswain that briefs the crew prior to each towing evolution will help the crew to work together and establish a mood of communication which reduces the possibility of error.

Points to consider during the Planning Stage

- ◉ Sending situation reports (SITREPs) to the Joint Rescue Co-ordination Centre at regular intervals
- ◉ Assign one of your crew to monitor the towline and stricken vessel at all times
- ◉ Keep stricken vessel in step with towing vessel to prevent shock loading – catenary

- ◉ Weather, visibility, sea conditions
- ◉ All necessary equipment made ready before approach
- ◉ Possibility of broaching in heavy seas (stricken vessel may have to tow a drogue).
- ◉ Monitor the degree of roll when towing in heavy seas
- ◉ Towing in current (watch for eddies, whirlpools, etc.) Keep towline fairly short to maintain control
- ◉ Some line should be kept on the drum in reserve – it's easier to let towline out than to pull it in

Plan Briefing Points

- ✓ Have a Man Overboard manoeuvre practised and ready
- ✓ Set up of tow rig
- ✓ What type of approach you are going to make
- ✓ When to pass the lines
- ✓ How/who is tending the lines
- ✓ Who is working the tow bitt
- ✓ When/how to secure towline
- ✓ How much towline you might pay out
- ✓ The crew should be prepared to brief you on the following information once the towing evolution begins
- ✓ When hook-up is complete
- ✓ Number of turns on tow bitt
- ✓ The direction and strain on the line
- ✓ How well the line is feeding out; too slow or too fast?
- ✓ Amount of towline paid out

Vessel to vessel communications



photo by Boomer

Before commencing the tow, set up a method of communication between the vessel being towed and you. If VHF is available, pick a frequency and time of



Vessels engaged in SAR should never carry less than 100 m (330 ft.) of towline.

contact; establish with the vessel that any kind of significant change in circumstance should be communicated immediately. If the vessel fails to respond to a regular check-in then the towing vessel must take action by reducing speed and attempting to get the people's attention.

If sufficient crew is available, placing a crewmember on-board the vessel you are towing with a portable radio is preferred for first-hand communication with a knowledgeable seaman.

8.2.1 Towline Safety

The Towline can be a deadly killer and many forget how quickly things can go wrong when a line is under load. (see p. 92) The crew must ensure all gear (lines, shackles, messenger, drogues, tow bits, chafing gear, fairleads, etc.) have been checked for wear and tear.



- ➔ Never wear gloves when handling a rope towline.
- ➔ Always ensure that the way is taken off the vessel while crewman is securing line to the tow post.
- ➔ Always stay out of the bight, especially around tow posts
- ➔ Always stay out of the path of recoil in case the line parts
- ➔ Always use your own towline if possible
- ➔ Ensure all crew on both vessels are wearing a PFD (at minimum)
- ➔ When underway keep personnel on board both boats clear of the towline
- ➔ Attach the towline to designated strong points only. Never secure the line to stanchions, grab rails, ladders or bitts/cleats that are screwed to deck only
- ➔ Never use half hitches to secure the towline to the bit. The line will bind and have to be cut off.
- ➔ Avoid adjusting the length of the towline while underway
- ➔ Stop to adjust the towline

Inspection of Towing Gear

The line handler and crew shall regularly inspect the fittings and equipment used for towing. These fittings should be checked for cracks, fractures, rust, corrosion, wood rot, fibreglass core softening, or delamination. Crew should inspect surfaces that are normally hidden from view, particularly backing plates and under deck fasteners. Tow bars are subject to high vibration and may loosen or cause stress fractures around their foundations. Keep working surfaces free from paint and relieve any surface roughness. A smooth working surface reduces wear, friction and chafing on lines.



Inspection of Towlines

The towline should be clean of tar, algae or mould and be loose and flexible. If there are signs of deterioration, rot or damage then that line should be replaced immediately. Towline length, type and size will depend on the towing vessel's construction, power, size and fittings. Vessels engaged in SAR should never carry less than 100 m (330 ft.) of towline, especially if the SAR unit is required to operate in heavy weather or offshore.



Inspect your lines before use.
(Note the frayed strands)

Heaving Lines

Steps to throwing a line

- ◆ Split the line into two coils, a throwing coil and a following coil. The throwing coil should be a small, tight coil approximately the diameter of a basketball. The throwing end should hang about 6 to 10 inches below the coil.
- ◆ With the line in front of you, place the throwing coil in your throwing hand and the following coil in the other hand.
- ◆ Wait until everyone is ready.
- ◆ Check behind you to see if you have enough space to swing.



- ◆ Keep your eyes on your target and throw directly at it.
- ◆ Swing your throwing arm around (outstretched, like a discus thrower) and let the following coil fly out of your hand.



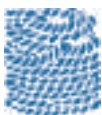
Drogue

A drogue is a device that acts in the water the way a parachute works in the air. The drogue is deployed from the stern of the towed vessel to help control the disabled vessel's motion. You must familiarise yourself with the operating characteristics and effectiveness of drogues under differing conditions. The time to learn about a drogue is before you need to deploy one. While trailing a drogue from the towed vessel is an acceptable practice, and may be useful when the disabled vessel has lost rudder control, normally it is not deployed well offshore.

If it is necessary to tow a vessel with large swells directly on the stern, it may be more prudent to alter course or lengthen the towline rather than deploy a drogue. Drogues are typically used when the tow is shortened, for example in preparing to tow into a bar or inlet. With a short hawser and large swells on the stern, the drogue is deployed to prevent the towed vessel from running up on the stern of the towing vessel and to keep tension on the towline to help

prevent the towed vessel from “surfing” down the face of a wave. The idea of a drogue is to provide backward pull on the stern of the towed vessel so that the wave will flow under the boat. It is important to match the size of the drogue to the towed vessel, its deck fittings and overall condition.

The larger, well-constructed cone drogues can exert a very large force on a boat's transom, so the towed vessel's stern must be carefully examined. There are numerous types, sizes and styles of drogues commercially available. A traditional drogue is a canvas or synthetic cloth cone, with the pointed end open. Drogues of this type have a ring in the base of a cone (the leading edge) to which a four-leg bridle is attached. The other end of the bridle connects to a swivel, which in turn connects to a line made fast to the stern of the towed vessel. The towed vessel “tows” the drogue.



Line Messenger

Most towlines are too heavy to cast more than a few feet. In rough weather, or if it is impossible to get close enough to throw a towline to a disabled vessel, use a messenger to reach the other vessel. A messenger is a length of line used to carry a larger line or hawser between vessels.



PARACHUTE DROGUE



FOLDING / VOSS CROSS



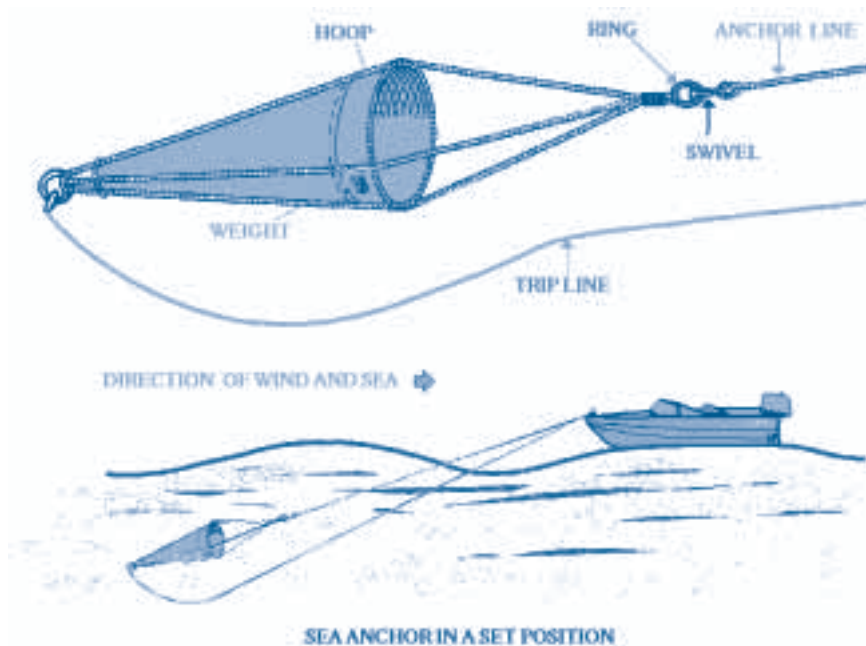
FENDER DROGUE



BUCKET



Galerider Drogue

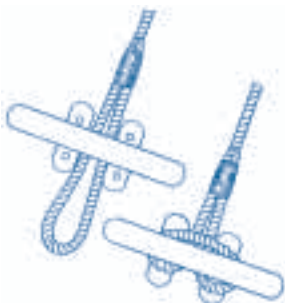
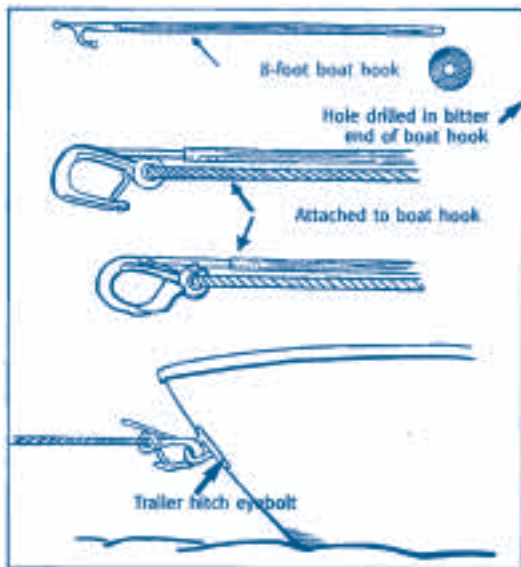


Tow Assist Hook or Kicker Hook



photo by Boomer

These devices make hooking up a tow a safer procedure by reducing the time spent alongside the vessel using a positive correction method, thereby keeping crew out of harms way. It consists of a short piece of pipe or doweling with a snap hook mounted on one end. It is important to make sure that the hook or clip's Safe Working Load (SWL) designation is greater than the towline's. The snap hook is attached to a short piece of towline with an eye spliced into it. The tow assist hook snaps into the trailer eye of a planing hull vessel. The trailer eye is always the most secure point on a planing hull.



When attaching to cleats, ensure they are securely fastened.

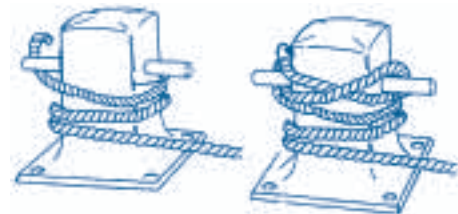
Chafing gear

Chafing gear protects towlines, bridles and pendants from wear caused by rubbing against deck edges, gunwales, bulwarks, chocks or tow bars. Tie layers of canvas or leather to the towline, bridle or wire rope at contact points to prevent chafing damage. Sections of old fire hose also work well as chafing gear. Make sure the chafing gear stays in place for the duration of the tow.

Strong Points

Towlines shall be secured only to the safest and strongest point on the vessel. The owner of the vessel can secure the towline:

- ◆ On a small planing hull, the trailer eye can be used
- ◆ Deck cleats in Fibreglas hulls can be weak, especially if they do not have doubling plates behind them.
- ◆ Anchor windlasses are usually a safe bet, but be wary of smaller ones in fibreglass hulls since they can carry away.
- ◆ Deck bollards on larger displacement hulls are safer, but check their condition.
- ◆ Do not bridle around cabins or hatch coamings.



8.3 Positions

8.3.1 Line Handler: Set up and Passing the line

The line handler is at the greatest risk of injury in the event of an accident during the evolution. This is why the line handler must be practised and methodical in their set up and actions. The line handler should be verbalising every move he or she makes. Towing can be as boring as it is dangerous, so it is important to stay alert. The line handler is also responsible for the effective set up, inspection and readiness of the towing gear

Towing Communications

Proper and effective communications can make or break a towing evolution. When working on deck



all conversations should be loud and assertive and the recipient should acknowledge any requests.

It is critical that the crew be versed in the Coxswain's/Captain's commands and signals. All of these commands and signals should be used and practised during towing practices and exercises.

Commands and Signals

- ▶ Set up/ready the line
- ▶ Prepare to pass the line
- ▶ Stand by
- ▶ Pass the line
- ▶ Put on / take off another wrap
- ▶ Slack, surge or pay out the line
- ▶ Take in
- ▶ Bring her alongside
- ▶ Let her all go



Scripted example commands and signals during a tow. This dialogue is taken from a 44ft. Lifeboat towing procedures:

Command: "Set up the towline on the starboard/port side" (coxswain's choice)

Actions

- ▶ Repeat the order
- ▶ Free the towing spool or break out the line
- ▶ Inspect the line for damage
- ▶ Fake out appropriate length for the pass off. (Ask the coxswain for the length)
- ▶ Route the line outside of the rigging and stanchions starting at the tow bitt and working towards the pass off point
- ▶ Attach heaving line, bridles or messengers (if using)
- ▶ Coil appropriate length at pass off point
- ▶ Prepare heaving line (if using one)
- ▶ Line handler shouts when complete, "Towline ready"

Coxswains/Captain's command:
"Prepare to pass the line"

Actions

- ▶ Repeat the command
- ▶ Check the coil you are throwing or passing
- ▶ Double-check your line path to see if anyone is in the bight



photo by Boomer

- ▶ Check behind you and around you for snags and obstruction
- ▶ Sturdy your footing
- ▶ Line handler shouts to crew when ready
- ▶ "Stay clear of the line!" Crew Line handler shouts to coxswain, "Ready to pass the line!"
- ▶ Coxswain shouts to line handler "Wait for my signal" Line handler repeats back order
- ▶ Coxswain shouts "Pass the line please"
- ▶ Line handler replies "Passing the line!" Line handler throws line

Coxswain waits until the person on board the tow shouts, "The line is secure on the tow"
Coxswain shouts to line handler, "Get ready to pay out the line"

Actions

- ▶ Line handler repeats order and moves back to the tow bitt and wraps the line on the bitt.
- ▶ Line Handler controls the tension on the tow bitt and the coxswain controls throttles. The line handler pays out the line slowly until nearing the length specified.
- ▶ The captain reduces speed and shouts "make her fast there" (signal for this is a fist facing palm out)
- ▶ Line handler wraps the tow line on the bitt and secures the tail end and shouts "tow line secure"

Vessel is now under tow and a watch is established.

Onboard: Brief your crew on situation and what's expected.

On Tow: Establish mutual working frequency for entire tow.

When working onboard the tow one should follow the Solo operations guidelines



8.3.2 Crewmembers On-board the Tow

Boarding a tow

Occasionally the coxswain will decide that putting a crewmember on board the vessel is best.

Here, he or she can assess the condition of anyone onboard the tow and perform the attachment of the towline to the securing points. This crewmember may remain on board to monitor the vessel while it is being towed.



Mustang Survival

Solo Operations

You should don all foul weather gear and have your crew do a personal equipment check before you go. It is critical that you are able to stay in communication with the towing vessel and that you establish commands and signals before going on board.

Anytime one crewmember is performing a task away from the vessel they are involved in solo operations. In order to carry out tasks safely and have the boat crew able to respond in case of emergencies the lone crewmember must follow some basic procedures.

Pre-Departure

- ✓ Participate in a Stop Assess Plan briefing and verify any instructions by coxswain or captain
- ✓ Establish hand signals for the following messages (see commands and signals)
- ✓ Perform a thorough personal safety equipment check before leaving,
- ✓ Test and check all SAR gear and equipment be sure to wear full drysuit or flotation coveralls
- ✓ Test and secure a portable radio to your vest or in your PFD and establish a working channel and emergency channel (VHF 16)
- ✓ Remember a flashlight day or night

Checking the Tow During Operations

When on-board the tow, a crewmember should account for all on board and make sure all are wearing life jackets. Give them boundaries and safety guidelines for tow. Then explain to the vessel operator how to steer the vessel while under tow (steer for towing vessel stern).

Problems to watch for:

- ◆ The people on board are acting stressed or overly concerned

- ◆ The vessel is taking on water or incurring damage
- ◆ The vessel is being towed past its hull speed (vessel settles low in the water and begins to shudder and the bow wake increases exponentially)
- ◆ check towline securing points and stress at that point
- ◆ Check for chafing or shock loading
- ◆ Monitor action or motion of the towed vessel
- ◆ Towline becoming overloaded (line groaning and stretching)
- ◆ Routinely check all the spaces below decks and bilges for flooding or damage
- ◆ Establish communications and report findings
- ◆ Provide regular SITREPs (every 5-15 minutes depending on the situation) that include
- ◆ Log all pertinent information (photos if asked)

8.3.3 Tow Watch

The crewmember is responsible for the towing watch and is obliged to monitor the tow at all times. This crewmember cannot be responsible for any other duties that require attention to be directed away from the tow. The tow watch must have emergency cutting tools ready to use.



Roles and Responsibilities

- ◆ Constantly monitor and report the stability and state of the towed vessel
- ◆ Monitor and report the safety and activities of anyone on board the towed vessel
- ◆ Monitor the line and tow bitt for signs of shock loading or excessive strain
- ◆ Monitor the motion of the vessel and towline for signs of trouble (see list next page)
- ◆ Be prepared to cut the line on the coxswain's order
- ◆ In the event of a man overboard from the tow be prepared to act as a spotter for the recovery operation
- ◆ Watch for emergency signals from the tow
- ◆ At night the tow watch will use a spotlight to illuminate the tow and towline



Commands and Signals

Waving arms up and down: *Distress or emergency, use flash lights or flares at night*

Arms in an 'O' shape above head, Thumbs up : *OK*

Circle with a flashlight: *OK in night operations*

Holding up portable radio or microphone, or holding hand up to ear like a telephone: *Check your radio and establish contact.*

Sounding Five short with the towed vessels horn: *to alert all involved of urgent situation and establish contact*

Signs of Trouble

The watch is looking for any of the following signs of trouble.



- ➔ Persons on board the tow indicating distress
- ➔ Amount of catenary
- ➔ Angle of towline moving way from aft to abeam (danger of girding)
- ➔ Tow moving from astern to one side
- ➔ Towed vessel veering back and forth
- ➔ Towline shock loading
- ➔ Displacement hull being pulled too fast
- ➔ Towline unravelling or fraying
- ➔ Towline groaning or overloaded
- ➔ Towed vessel settling in the water or sinking
- ➔ Securing points moving or coming loose

If you see any of these occurring notify the coxswain immediately. The coxswain/captain will usually adjust the speed or adjust the tow length. If the tow is endangering the CCGA vessel then the coxswain/captain may order the line cut. Do not cut it without the coxswain's order.

8.3.4 Helm

The basic underlying principle to all manoeuvring is to keep your bow heading up into the most dominant conditions. These conditions can be wind, swell, or current. The approach should be slow but with enough speed to maintain steerage way.

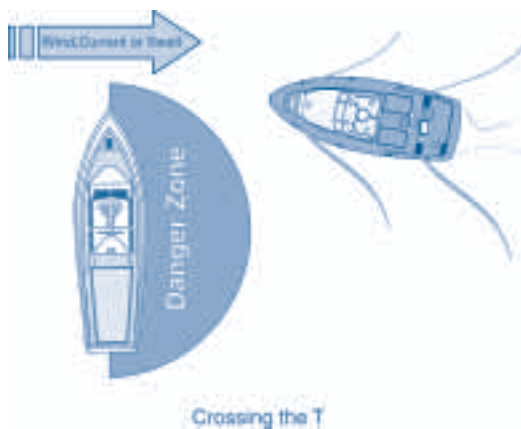
Approaching the Stricken Vessel



A stricken vessel presents a serious risk to the rescue vessel and everyone on board must be familiar with the danger zones around a vessel adrift. Anytime the SAR vessel is downwind or down swell from the stricken vessel there is a chance that the vessel may surge onto the rescue boat.

Crossing the "T"

This approach allows the boat coxswain to cross the bow of the stricken vessel and station keep in the "Safe Zone". Approaching into the wind, helps to maintain better control. Staying upwind of the other vessel's bow (in the Safe Zone) greatly reduces the danger.



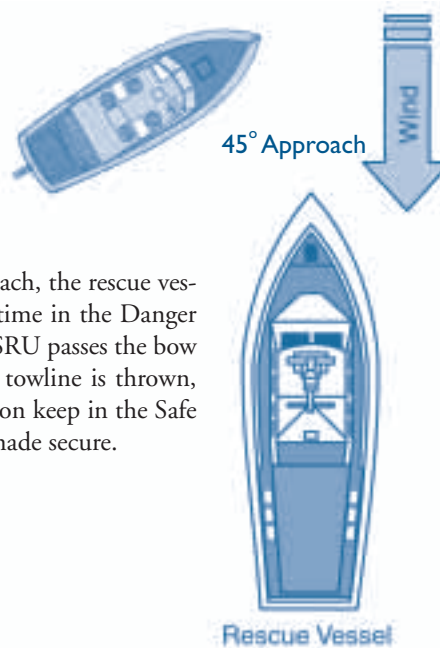
The basic underlying principle to all manoeuvring is to keep your bow heading up into the most dominant conditions.

Brief your crew on what actions are expected and when to perform them. Since this approach is the safest in light of heavy weather conditions, it is the preferred method to practice all the time; that way, your crew knows what to expect. Most vessels will lay off the tow, beam-to the wind and weather. By crossing the "T" into the wind and weather, you will be able to maintain the most control when station keeping, staying in one position relative to the other vessel.

45 Degree Approach

This approach is used in calm to moderate conditions. The rescue vessel approaches the stricken vessel at a 45-degree angle. The vessel with the most leeway must be on the downwind side.

In a 45 degree approach, the rescue vessel spends much more time in the Danger Zone. Again, once the SRU passes the bow of the other vessel, the towline is thrown, and the SRU must station keep in the Safe Zone while the line is made secure.





Parallel Approach

This approach is also used only in calm to moderate conditions. The SRU approaches from the stern of the other vessel. Obviously, with the SRU lying alongside, the risk of collision with the stricken vessel is greatly increased. Care must be taken to keep a safe distance between the two vessels. Pass the towline and station keep until secured.

8.3.4 Towline length

Catenary and Control

How much towline is enough? That depends on the sea state and the direction of the tow. If the tow is proceeding through open water, consider the following:

Possible Complications

- ◆ Vessel moves out of step.
- ◆ The towed vessel may broach in heavy following seas.
- ◆ The towed vessel may roll excessively in heavy beam seas.

The safety of your own vessel as the rescue vessel, and the safety of your crew are paramount.

Without catenary, if the towline went straight back to the towed vessel, every shock load would be transmitted directly through to both vessels. Enough line must be let out to ensure that this “shock-absorbing” characteristic – catenary – is present. Generally, the more line out, the more catenary there is.

When determining towline length, as well as catenary, the vessels must be kept in step. The two vessels must rise to the crest and slide into the trough at the same time. Both go up, both go down. If this doesn't happen, there will be shock loading every time the towline goes slack and then tightens up again.

When towing a vessel in heavy following seas, as the towed vessel surfs down the face of a wave, picking up speed, it may temporarily start going faster than the towing vessel. If this happens, the towed vessel will start turning beam to the seas (broaching). To prevent this, the towed vessel may have to drag a drogue. In heavy beam seas, smaller vessels

may broach, and some vessels, especially sailing vessels, may roll a lot.

Shock Loading

An SRU will rarely deal with only one force acting on the tow. The crew usually faces a combination of all forces, each making the situation more complex. Some individual forces are very large and relatively constant. Crews can usually deal with these forces safely, provided all towing force changes are made slowly and gradually. When forces are changing in an irregular manner, tension on the towline starts to vary instead of remaining steady. Given the potential dangers of shock loading, the tow vessel must use various techniques to prevent or counteract its effect.

Reducing Speed

Slowing down lowers frictional resistance from drag and wave resistance. Reducing these forces will lower the total towline tension. In head seas, reducing speed also reduces wave drag, spray drag and wind drag, lowering irregular towline loads. The total reduction in forces on the tow can be rather substantial. When encountering another vessel's wake in relatively calm conditions, reduce speed early enough so that the towed vessel loses momentum before encountering the wake. Slamming into a large wake will shock load the towline of a small towed vessel, and may even swamp it.

Get the vessels “In step”

Extreme stress is placed on the towline in heavy weather when the tow vessel and the towing vessel do not climb, crest or descend waves together. Vessels in step will gain and lose momentum at the same time, allowing the towing force to gradually overcome the towed vessel's loss of momentum, minimizing shock loading. To get the vessels in step, lengthen the towline if possible.

Lengthen the towline

A longer towline reduces the effect of shock loading in two ways. The more line out, the greater the catenary. When tension increases, energy from shock loading is spent on “straightening out” the catenary

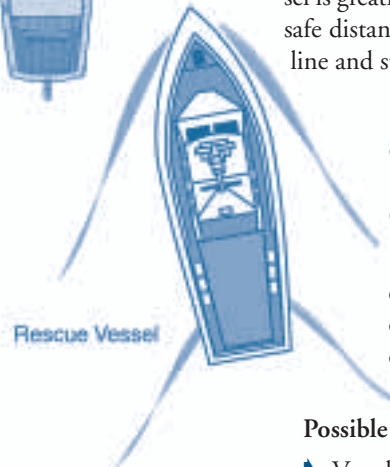




photo by Boomer

before being transferred through the rest of the towline and fittings. The second benefit of a longer towline is more stretch length. Depending on the type of towline, another 50 ft. of towline will provide another 5 to 20 ft. more stretch as a shock load absorber. Remember to lengthen the towline enough to keep the vessels in step and minimise the shock load source. Constantly adjust towing speed to match that of the towed vessel.

8.4 Towing Log Entries

Most claims against the CCG and CCGA arise from towing incidents. Log entries provide legal documents that will serve as evidence for such claims. Note the owners' consent to tow, the weather at the time, sea conditions, reasons for the tow, general condition of the vessel to be towed including any obvious damage that pre-exists with the vessel, number of POB, any medical problems that might be a factor during the duration of the tow, and your destination. Noting this kind of information now demonstrates your diligence if some unforeseen difficulty should arise.

8.4.1 Taking notes

A good rule of thumb is to note the passage of time and significant events, position every 15 minutes, significant events, ie., shortened up, change in sea state, revised ETA.

8.4.2 JRCC SITREPS

The JRCC or MRSC will want to hear from you regularly during the tow. A SITREP may only include your position, an updated ETA, and any changes in destination. The coxswain or captain may wish to contact facilities ashore to arrange for the vessel's arrival.

8.5 Towing Alongside

Once you've taken the vessel to where she's going, quite often you'll have to take her alongside a float or dock. You are not obliged to take the boat to its accustomed slip, but only to the nearest safe haven. Stop in a protected place with plenty of sea to disconnect and take her in tow alongside. Do not attempt to tow alongside for any great distance or in adverse sea conditions.

An SRU will rarely deal with only one force acting on the tow.

Note:
When operating RHIs, to prevent damage to the tubes never tie lines to the lifelines/grablines or eye holes on the tube

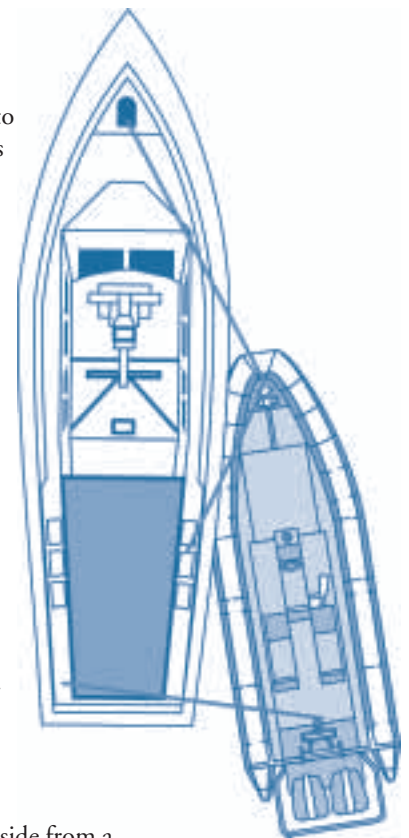
Method:

Brief or instruct the crew of the following:

- To which side of your boat, port or starboard, the tow will be secured
- Prepare lines and position lines in place
- Rig fenders if necessary
- Keep all lines clear of the water and away from the propellers
- Safety

The object of towing alongside is to make both vessels to act as one as much as possible. Normally four lines are connected as follows:

- The bow line is secured from your bow to the towed boat's bow and serves to hold the rescue boat's bow in
- The stern line is secured from your stern to the outboard of the disabled vessel's stern
- The tow strap (fwd spring) is secured from your stern to the towed vessel's stern. This is the line that takes the strain resulting from the towing vessels forward movement
- The spring lines when properly attached can reduce the amount of surging, which may occur between the boats



When preparing to take a vessel alongside from a stern tow the following steps should be followed

- Advise the vessel of your intentions
- Reduce speed gradually, and keep the tow line in view and control at all times
- Be aware of any set or drift and of any obstacles and hazards
- Heave in the slack from towline as the vessels close

R Ranger Deck Log		Crew:
Saturday, Nov 4th, 2001		Anderson
		Blake
		Rubin
Time	Events and Descriptions	Coms
2315	CGA R Ranger. Tasked by RCG to respond to a 42-ft. power vessel "Outa Luck" B/D in Nakoola Pass. Advise MCTS/RCC, ETA 35 mins. (L/L). White hull, blue house works, purple stripe on hull, red dinghy, 4 POB	
2322	CGA R Ranger departs marina and attempts to contact "Outa Luck" on VHF 16. no answer.	VHF 16 & 16A
2340	abeam Nonsuch Pt.	
2350	Alongside "outa Luck": all POB OK. MCTS/RCC advises there is no commercial assistance available.	VHF 62A
0005	Owner/Operator gives verbal waiver on VHF 62A	VHF 62A
0010	Crewmember Blake on-board tow with portable. "Outa Luck" under tow for Mercy Cove, ETA 45 mins.	VHF 62A
0020	Abeam Naughty Point, surge out tow to 300 ft.	
0042	Contact tow for SITREP, give RCC SITREP	VHF 62A
0055	Shorten tow for Mercy Cove entrance. Put "Outa Luck" alongside	
0120	Vessel secure, advise RCC and MCTS	VHF 62A L/L
V/L	"Outa Luck" 41 ft. 110 Bayliner, white hull, blue House works 110 350 gas Mercruiser. Lic* 19K 34789 Red Dinghy with 6hp Johnson O/B	4POB Dist 13nm Time 1.4 hrs
0056	Owner/Operator (PCOC 2345766) Oskar Lippots (403) 765-0989. Cell (403) 345-5673	WX pt cldy
0101	CG 509 has Spanky in tow and attempting to swing over to east side of rapids to catch an eddie	W NW 25 kts Sea 3 ft. 1 ft. chop
0145	Depart Mercy Cove RTB	VHF 62A
0235	Secure Base	VHF 62A

To secure the tow alongside, perform the steps below:

1. Lead the towline to your bow for a bow line and immediately secure the tow strap or forward spring to get control of the vessel
2. Secure the bow line, keeping the bow of the towed vessel slightly angled in towards your bow
3. Secure forward spring
4. Insure that your stern is well aft of the towed vessel to maintain the effectiveness of your screws and rudder. A good rule of thumb is that the tow post is even or slightly aft of the vessel's stern.
5. Secure stern line
6. Back down slowly and take up the slack on the tow strap and adjust if necessary,
7. Go ahead slowly and adjust and secure backing line
8. All lines are to be very taut at this time to enable control of the towed vessel the forward lines should be the tightest

Hint: Try to pass the eye end of the line back to the towing vessel. This way the control and adjustment remains on the towing vessel.

Going astern greatly increases the vessels' swing to the side. Combining lock to lock helm movements with the appropriate engine manoeuvres makes this easier. When handling larger boats, it sometimes helps to get the other vessel to assist you in steering. If this is not possible, ensure that the other vessel's rudder is amidships. With the added weight, give yourself plenty of time to stop.

The windage of the other vessel will also increase your leeway. A lookout may be required up on the bow of the other vessel to watch for opposing traffic on the blind side, and to call out distances on your final approach. When you choose which side of the stricken vessel to tie up to, bear in mind that you want to approach the dock or float into the wind for more control. Have both vessels' mooring lines and fenders ready when you come alongside to secure to the dock or float.

Docking an alongside tow

Whenever possible for control, approach against the wind or current and dock on the protected or leeward side of the berth.



When docking with a vessel in an alongside tow follow the steps below:

1. Decrease speed as slowly as possible to maintain control of the vessel.
2. Determine the following factors:
 - ▶ Wind velocity and direction
 - ▶ Current velocity and direction
 - ▶ Height of tide
 - ▶ Type of structure, dock and location of berth
 - ▶ Obstacles and obstructions around the mooring/dock
 - ▶ Availability and location of personnel and deck fittings
 - ▶ Which vessel will be placed alongside the dock or mooring
 - ▶ Does the towed vessel have the use of its rudders(s) to assist
3. Determine the angle of approach and the side of the boat to be berthed based on the evaluation of the factors listed above.
4. One of the crew members on the towed vessel can direct and call out distances if your visibility is impaired by the towed vessels cabin or house works.

A sinking vessel being towed can pull a towing boat under



Have a method of cutting the towline close at hand

8.6 Handling a Sinking tow

A sinking vessel being towed can pull a towing boat under unless all personnel pay close attention to what is happening during all phases of a towing operation. When a sinking boat is towed astern of the towing boat there is danger of the towed boat yawing, and capsizing the towing boat by pulling it sideways by the force exerted through the towline. This is called girding. Few sinking tows allow for time to ponder what actions are the best course to follow.

The following procedure is a guideline for responding to a sinking tow.

- ◆ Slip or release the towline and if necessary, cut the towline with a knife or axe (normally ordered by the coxswain or captain)
- ◆ If it is necessary to cut the tow line, the cut is to be made at the closest point to the towing bollard as possible to prevent whip back of the tow line

