

Preparation for Cold Weather Sailing at DC Sail



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This document contains information considered vital for cold weather sailing. After reading this document the sailor will:

- Understand the concepts of the “Scoop” method of capsize recovery for dinghy sailing.
- Be able to describe proper procedures by both skipper and crew in recovering from a capsize.
- Understand and be able to identify signs of concussion.
- Understand hypothermia and its attendant risks.
- Be able to identify signs and symptoms of hypothermia.
- Understand and be able to describe proper procedures in the event of hypothermia
- Understand and be able to describe the signs and symptoms of frostbite.
- Be able to describe proper procedures in the event of frostbite.

1. Introduction

As we move forward with winter sailing it is vital that all participants understand the unique risks involved in this activity. This document will first describe the proper method for recovering from a capsize. Capsizing is the single most likely reason that a cold weather sailor will be put at risk for illness and injury. Here at DC Sail we follow the standards laid out by US Sailing. In accordance, we use the “red book” standards for small boat sailing certification. To comply with this standard, sailors must be able to demonstrate, on the water, a proper scoop method capsize recovery, two separate times. On one attempt the sailor must serve as “skipper” and on the other as “crew.” Once both sailors are back on board each should be aware of and look for signs of hypothermia and concussion. In extreme weather, it is also advisable to be aware of the signs and treatments for frostbite. It is unlikely that we will be sailing in conditions that severe, but it is best to be prepared.

All of this is with the understanding that the sailor will be properly outfitted for cold weather sailing. This means that each sailor will be wearing the following:

- **DO NOT WEAR COTTON.** Cotton, unlike synthetic fibers or wool, does not wick moisture (including sweat) away from the body and does increase heat transfer out of the body. Even if you don’t get wet, your sweat in cotton will carry body heat away and increase your risk for hypothermia. The adage among sailors is, “Cotton kills.” So make sure that your base layers, mid-layers and outers are all synthetic or wool.

- Wet suit; if wearing a “spring” wet suit (a suit rated for temperatures above 55-60 degrees Fahrenheit) it is recommended that a waterproof layer (pants and top) be worn on top of the wet suit.
- Drysuit; in lieu of a wet suit a dry suit may be worn. Drysuits provide very little insulation so appropriate layering is important.
- Properly fitted life vest; the vest should be snug at all points. If worn properly a vest will not only keep you afloat, but it will also provide insulation and allow rescuers to pull you onto a safety boat without you slipping out of your vest.
- Safety knife; a safety knife for sailing includes either a very sharp blade formed as a hook that can cut through webbing material (life vest straps) with ease, or a serrated blade with a blunt tip (sheep’s footed blade) which can also cut through lines and webbing quickly. Please note: straight blades will not cut modern cordage and webbing materials. Safety knives may be purchased inexpensively at any marine store or REI. Please contact us for recommendations.
- A whistle. In the event that a sailor needs assistance having a whistle attached to your life vest is crucial. It signals quickly that you are in distress and will decrease the time it takes for the safety boat to reach you and contact any other help that is needed. Every sailor participating must have a whistle attached to their life vest.
- Proper gear for extremities. A great deal of heat is lost via the head, hands and feet. These are also the most likely to show signs of frostbite. Warm and preferably waterproof hats, gloves and socks are necessary. If you have any questions or would like recommendations on gear, please contact us.

2. The Scoop Method of Capsize Recovery

When a two person dinghy capsizes the concerns are first for the crew (skipper and trimmer) and only then for the boat. Capsizes happen relatively quickly and can include injury from falling onto spars or having spars fall on you. Recent events have reinforced the vital necessity to **check on your sailing partner before doing anything else.** The steps that

follow include additional steps, added after recent reports were released following tragedies on the water.

In the event that you are unable to prevent the capsize by dry-righting the boat follow these steps:

- i. **Crew immediately calls out to make sure sailing partner is okay.** This means conscious, coherent, head above water and not tangled in lines in any way.
 - ***DO NOT TRY TO RIGHT THE BOAT WITHOUT FIRST ASCERTAINING THE CONDITION OF YOUR SAILING PARTNER.***
 - If this is not the case, blow on the safety whistle immediately and then find your sailing partner. Use a safety knife to cut them free of any cordage and bring them to the surface. A safety boat will be on the way.
- ii. Assuming both sailing partners are accounted for and safe (although in the water), the **skipper swims to the centerboard side of the boat. Crew remains on the cockpit side holding the mast up to prevent the boat from turtling** (turning completely upside down).
 - A common mistake of skippers and trimmers is to try to prevent themselves going into the water by holding on to the upper (farthest from the water) portion of the boat or hiking straps. Once a boat is capsizing and is at or near horizontal to the waterline line, this only accelerates capsize and causes the boat to turtle.
 - Turtling is VERY bad. The water levels in which we sail are low enough that the mast can get stuck in the mud at the bottom of the channel. This would make recovering the boat much more difficult and increases the likelihood of damaging the mast and standing rigging.
- iii. While the skipper swims to the bottom (centerboard side) of the boat, crew makes sure that lines are not caught or tangled and also unties any stopper knots on the jib and main sheets. (If these sheets are not free to run, they may prevent the sails from easing and increase the water pressure holding the boat down).
- iv. Once the skipper is on the centerboard side s/he calls out to see if crew is ready. At this time, crew answers and throws the upper jib sheet (still run through the block) over the boat to the skipper.

- v. Skipper begins to apply downward force on the end of the centerboard. If possible, use the jib sheet to climb onto the centerboard. Pushing down on the end of the centerboard and leaning away from the boat will increase the leverage to right the boat. Righting a boat will seem very slow at first. Once the boat gets past horizontal to the waterline it will come over relatively quickly.
 - Do NOT jump up and down on the centerboard. This does not increase the ability to right the boat and does increase the risk of breaking the centerboard. Instead, move to the end of the centerboard and, if standing on the board, hold the rail of the boat or the near jib sheet (still run through its block) and lean outward. It will happen slowly at first, but the boat will start to right itself. If you are unable to climb onto the board, use your feet to push the submerged rail away, helping to torque the boat upright.
 - In the event that the boat is turtled, do not stand on the center of the hull. This will drive the mast into the mud. Instead, hold on to the centerboard's tip and stand on the underside of the rail. Lean back and this will begin to break the suction of the boat cockpit and the water. It may take both crewmembers to break the suction. Once the boat begins to come upright, crew should swim to the cockpit side of the boat and prepare to be scooped.
- vi. While the skipper is righting the boat, crew should not hold onto anything that would counteract the skipper's efforts. Once the hull of the boat begins to tip towards the skipper, the crew should take hold of the near hiking strap (the one in the water) or bench (thwart) and allow themselves to be pulled up and halfway into the boat as it continues to right. This is the "scoop" in the scoop method.
- vii. Once the boat is upright, crew should get the rest of their body into the boat and make sure the boat is head to wind and not sailing away. Then, help the skipper back into the boat. It is easiest for skippers to come back in by going to the transom and being pulled in over the transom. When hauling a person on board grab the shoulder straps of their life vest to pull them up.
- viii. Once in the boat, skipper can begin to bail the boat while crew makes sure all running rigging is back in order and ready to use.
- ix. At this time make sure your sailing partner is okay and prepared to continue.

3. Concussion, signs and symptoms

A concussion, or mild traumatic brain injury, can be caused by a blow to the head or acceleration/deceleration forces. If a person has had a loss of consciousness OR transient confusion, then they may have had a concussion. Concussion symptoms can be physical, cognitive, or behavioral.

Physical Symptoms	Cognitive Symptoms	Behavioral Symptoms
<ul style="list-style-type: none"> • Dizziness/Vertigo • Nausea • Low grade Headache • Blurred vision/double vision • Light sensitivity • Nystagmus (involuntary eye movement) • Motor control- specifically delayed responses 	<ul style="list-style-type: none"> • Attention – inability to hold attention • Memory deficits • Difficulty with Executive Functioning (decision making, judgment, organization, safety, problem solving, etc). • Language problems 	<ul style="list-style-type: none"> • Impulsivity • Mood disturbances • Mental Health problems • Emotionally labile • Motivation • Irritable/agitated

Anyone with a loss of consciousness or neurological deficit should be brought to the emergency room for further management. Doctors will need to do a head CT scan and education on managing the symptoms of concussion. Further testing can be done with patient’s orientation, attention, memory, auditory recall, sequencing, general intellectual functioning, judgment, and problem solving as well.

All sailors should familiarize yourselves with these signs and symptoms and watch for them in your sailing partner after any capsize or head strike (i.e. - boom striking head during gybe).

In addition, if you have any concern that concussion may have taken place, you may ask a few questions to assess their functioning. The Appendix to this document is the Short Blessed Test, developed at Washington University Medical Center. The Short Blessed Test is made up of 6 simple questions as follows:

1. What year is it now?
2. What month is it now?

Please repeat this name and address after me:

John Brown, 42 Market Street, Chicago

John Brown, 42 Market Street, Chicago

John Brown, 42 Market Street, Chicago

Good, now remember that name and address for a few minutes.

3. Without looking at your watch or clock, tell me about what time it is.
4. Count aloud backwards from 20 to 1
5. Say the months of the year in reverse order
6. Repeat the name and address I asked you to remember.

We will keep copies of this test with the full instructions, and the scoring sheet on the houseboat. While this test will be administered by our staff or authorized representative on the houseboat, sailors can administer this test on the water to get a quick assessment of their sailing partner. If there is ANY question at all of the condition of the sailor, the sailor will be taken off the water and have the test administered. If a concussion is indicated, an ambulance will be called to transport the sailor to the ER.

We do not take this lightly. In the past year we have had two sailors diagnosed with concussion symptoms and a third diagnosed while sailing elsewhere. In two cases the symptoms were delayed and did not appear until after leaving the waterfront. However, risk for concussion increases with each concussion, so we will be paying close attention to this.

4. Hypothermia, signs symptoms and treatment

- i. Hypothermia is a loss of core body temperature caused by exposure. Even a few degrees of lost heat can have significant effects on the body and threaten long term health. It is defined as a body temperature below 95° F. The risk of hypothermia increases dramatically when water temperatures and air temperatures combined add up to 120° F or less. Typical water temperatures in the upper Potomac during late autumn and winter are 51°F or less. So, any air temperature below 70°F places sailors in our region at risk for hypothermia. However, it should be noted that people with compromised systems can get hypothermia in conditions that would be considered safe for

other individuals. Additionally, while 120°F is used as a guideline, even healthy individuals can experience hypothermia at higher temperatures. Hypothermia's effects upon the body range from mild to very severe and can escalate quickly when untreated. Hypothermia can become life threatening very quickly, so no time should be lost in getting someone at risk to safety.

ii. Symptoms and stages of hypothermia are the following:

Mild Hypothermia	<ul style="list-style-type: none"> • Shivering, • fast breathing, • difficulty speaking, • confusion, • lack of coordination, • fatigue, • high blood pressure, • increased heart rate
Moderate and Severe Hypothermia	<p>More pronounced evidence of the above.</p> <ul style="list-style-type: none"> • Shivering becomes violent, • speech becomes slurred and/or mumbling, • clumsiness becomes significant, • confusion becomes severe and the ability to think at all is compromised, • “paradoxical undressing” – the victim begins removing clothing, • fatigue becomes drowsiness and lack of energy, • apathy, including for personal safety • progressive loss of consciousness • pulse weakens • breaths become shallow and short

iii. Treatment

Re-warming a person with hypothermia falls into three categories, for mild hypothermia passive re-warming, for moderate, active external re-warming and for severe, active internal re-warming is necessary. The following guidelines can be used.

1. Gently move the person to a warm area. Minimize movements and avoid jarring the person. If it is not possible to move the person to a warm area, shield the person as much as is possible from wind and cold.
2. In mild hypothermia you can passively re-warm the person by sharing body heat (hugging them). **DO NOT RUB OR MASSAGE** the person. In moderate to severe hypothermia this may cause cardiac arrest.
3. Remove wet clothing. If necessary cut wet clothing away to avoid making the person move.
4. Cover the person with blankets or coats, leaving only the face exposed.
5. Monitor breathing, if the person appears not to be breathing or seems to be dangerously low, begin CPR.
6. If moderate to severe, share body heat by removing your clothes as well as theirs and covering both with blankets.
7. Provide warm (not hot) beverages that do not contain alcohol or caffeine (both of these increase blood flow away from the core).
8. Apply warm, dry compresses, such as those found in first aid kits. These should be applied to the armpits, back of the neck and groin for best results. These are areas of high heat loss.
9. Remember to warm the body slowly. High heat applications such as heating pads can cause abnormal arrhythmias and tissue damage to a cold body.
10. Warm the core first. Warming the extremities without warming the core can cause shock.

5. Frostbite, signs symptoms and treatment.

- a. Prolonged exposure can lead to frostbite, the freezing of the skin and the tissues beneath it. This can be severe if not addressed immediately, and can lead to loss of tissue. Frost nip is the first stage of frostbite and can be treated simply.
- b. The signs of frostbite are that skin becomes progressively colder then becomes numb, hard and pale.
- c. Treatment includes:
 - i. Protect your skin from further exposure by covering it with dry warm materials. If your hands are at risk place them under your armpits.
 - ii. Get out of the cold.
 - iii. As with hypothermia, warm the skin slowly and do not use any direct heat methods.
 - iv. If feet are frostbitten, do not walk on them, as this may cause tissue damage.

6. Conclusion

All of these risks can be prevented by dressing accordingly and following the guidelines as laid out. These include proper attire (see above) and reducing exposure. This means that in the event of a capsized in very cold conditions we will require that the sailors involved go back to the dock, get inside and get warm immediately.

Our primary concern is safety and frostbiting will take place only if the RC on the day, in agreement with our staff deems it safe to do so.

APPENDIX

Short Blessed Test for Concussion Symptoms