advantage boating

Section III: Part A – Safety

Personal Safety

Sail Canada Basic Cruising Standard

Lesson Outline

- Lesson Objectives
- Introduction
- Personal safety and survival
- Fuel safety
- Diver safety
- Summary
- Quiz

Lesson Objectives

- In this lesson you will learn how to sail safely by understanding personal safety guidelines.
- You will learn about potential hazards and how to avoid them.
- You will learn critical safety procedures to help you prepare in advance to avoid catastrophe and injury.

Introduction

- Sailing is a wonderful activity which is safe and enjoyable when regulations and safety guidelines, combined with common sense are followed.
- However, like any activity you need to know the potential risks and understand your responsibilities so that you can minimize your risk and maximize your enjoyment.
- This module provides new sailors with enough information and guidance to sail safely.

Keeping safe!

- In Section II, you reviewed the gear and equipment required to help keep you safe as well as the regulations you must follow.
- Before you start to apply your learning on the water, you need to also be aware of how to avoid hazards.
- This module focuses on how to sail safely!

So let's begin*!*

Personal Safety

When participating in any sport or recreational activity, you need to be aware of potential personal safety hazards and how to avoid them.

When sailing, there are a few critical personal hazards that you need to be aware of:

- Hypothermia
- Cold water survival
- General safety and handling of equipment
- Handing fuel and re-fuelling

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Personal Safety - Hypothermia

- What is hypothermia? It is a lowering of the bodies core temperature. For a full description checkout: https://en.wikipedia.org/wiki/Hypothermia

- Main areas of heat loss are head, sides of chest/underarms, and groin area.

- Hypothermia is a very real hazard in Canada and in northern waters.

Personal Safety - Hypothermia

Preventing Hypothermia:

1. Carry enough suitable clothing changes for worst conditions expected.
2. Keep dry. Wet clothing causes body to give off heat faster.
3. Eat well and drink non-alcoholic hot beverages.
4. Watch yourself and fellow crew members for signs of impending hypothermia.
5. Wear your safety harness in conditions where working on deck is hazardous.
6. Wear your PFD. It helps keep you warm and higher above surface if you should go in the water.

Personal Safety - Hypothermia

- **IMPORTANT!**

Hypothermia can also occur without someone going into the water.

Getting damp from rain/wash or from doing extreme activity causing perspiration followed by inactivity can also cause hypothermia.

Skippers should be cognizant of these common causes and take action to prevent rather than react.

Personal Safety – Mild Hypothermia

Symptoms	Treatment - If the person is conscious, talking clearly	Don'ts
✓ Uncontrollable shivering ✓ Feeling of intense coldness. ✓ Judgment may be impaired. ✓ Fatigue, weakness, loss of coordination.	✓ Get the person into the cabin with care (gently) ✓ Remove all wet clothing, handling gently. ✓ Put on layers of dry clothing and cover the head and neck with hat and scarf. ✓ Apply lukewarm objects(40-45°C, 110-120°F) ✓ Give them a **warm,** nonalcoholic drinks (milk/soup) and a sweet, high energy snack.	**X** Do not jolt -- jolting can affect heart function. **X** Do not rub the surface of the body as it leads to **afterdrop** and might damage surface tissues and nerve endings. **X** Do not give **hot** caffeinated drinks: coffee, tea, or cocoa. **X Do not give alcohol! It causes additional heat loss.**

Personal Safety – Severe Hypothermia

➲**Severe hypothermia is a LIFE THREATENING SITUATION AND MUST BE DEALT WITH QUICKLY**

Signs and symptoms of severe hypothermia:

- ***Shivering is reduced or absent. This may be the result of the person becoming stiff and either becoming unconscious or showing signs of clouded consciousness, for example, slurred speech.***
- ***Apathy, exhaustion, drowsiness.***
- ***May appear dead, with little or no apparent breathing; dilated pupils; cold, waxy skin.***

Personal Safety – Severe Hypothermia

Symptoms	Treatment	Don'ts
✓ Shivering is reduced or absent ✓ Apathy, exhaustion, drowsiness. ✓ May appear dead, with little or no apparent breathing; dilated pupils; cold, waxy skin.. ✓ Fatigue, weakness, loss of coordination.	✓ Remove all wet clothing, handling gently and wrap the torso, naked, in a sleeping bag or blanket with another naked person ✓ Apply warm (40-45°C, 110-120°F) objects as for mild hypothermia. ✓ Direct steam from a kettle carefully under a makeshift hood over the person's head. ✓ **Call the Coast Guard on the VHF radio** ✓ **Head for the nearest medical aid** ✓ **Perform rescue breathing if necessary** ✓ **Perform CPR if the heart has stopped**.	**X** Do not jolt -- jolting can affect heart function. **X** Do not rub the surface of the body as it leads to **afterdrop** and might damage surface tissues and nerve endings. **X** Do not give **hot** caffeinated drinks: coffee, tea, or cocoa. **X Do not give alcohol! It causes additional heat loss.**

Personal Safety – Cold Water Survival

If you end up in the water you need to know how to increase your odds of survival!

Key steps to surviving in the water are:

- ✓ **Keep calm and consciously control your breathing as much as you can. Don't panic!**
- ✓ **Keep your clothes, hat and shoes on**
- ✓ **Stay as still as possible. Do not swim!**
- ✓ **Float in the HELP position**
- ✓ **Get out of the water if you can**
- ✓ **If you are not wearing a PFD, tread water**
- ✓ **If you are in a small vessel and it capsizes STAY WITH THE VESSEL!**

Personal Safety – Cold Water Survival

- When a person is immersed in cold water, heat is conducted away from the body much faster than heat loss in an equivalent air temperature.
- Survival time varies depending on:
  - clothing,
  - activity,
  - body mass,
  - body fat,
  - age, state of health,
  - injury, and
  - the will to live

Personal Safety – Cold Water Survival

If you find yourself in cold water there are a number of actions you can take to buy survival time.

- Keep calm and consciously control your breathing as much as you can.

  Response to the initial shock of cold water is usually hyperventilation (over-breathing). This can lead to uncontrolled aspiration of sea water as well as depleted carbon dioxide levels in the blood which could cause fainting and subsequent drowning. This phase will soon pass.

Personal Safety – Cold Water Survival

- ***Float and Stay in the HELP position***

  (Heat Escape Lessening Position), with elbows close to your sides and arms crossed in front, lower legs crossed, thighs together, knees bent, and head out of the water where its high rate of heat loss, especially in water, will be minimized.

Personal Safety – Cold Water Survival

- Keep your clothes, hat and shoes on.

  They will provide some insulation and air trapped inside your clothing will offer some flotation. Make sure your PFD is secured snugly about your chest.

- Stay as still as possible. Do not swim.

  Swimming generates heat but more heat is lost than can be generated by the body.

Personal Safety – Cold Water Survival

- Get out of the water if you can and as much as you can!

  Even if you can climb only partly out of the water onto a floating object you will reduce the rate of heat loss. Do this as soon as possible before you lose the strength to help yourself.

Personal Safety – Cold Water Survival

- If you are not wearing a PFD, the best you can do is tread water.

  This keeps your head out of the water, though cooling is still about 35% faster than keeping still in a PFD (**which is an excellent reason for wearing your PFD!**)

Personal Safety – Cold Water Survival

- ***Do not use*** the drownproofing technique. It is the express route to fatal hypothermia, though it does allow non-swimmers without flotation to escape drowning at least for some time.

Note: Drownproofing, taught about 30 years ago, involves restful floating with lungs full of air which is interrupted every 10-15 seconds to raise the head out of the water to breathe. This increases heat loss to areas of the body especially the head.

Personal Safety – Rules for Keeping Safe

- ***Don't drink or do drugs and drive*** – you are "driving the boat" and the same rules apply.
- **STAY WITH THE BOAT** Every year victims drown when trying to swim ashore while those who stay with the boat are rescued.
- ***Watch and be aware of weather*** and its effects. Weather changes can come up quickly and have disastrous impact if you aren't prepared. Check the weather before heading out and monitor continuously.

Personal Safety – Rules for Keeping Safe

- ***Be prepared!*** Prepare a float plan and leave it with a responsible person, do a pre-departure checklist.
- **Wear life jackets/PFDs**. They are of no use if not worn or if they come off in the water due to incorrect sizing or maintenance.

✓ **Have the correct size approved PFD or lifejacket. Wear your lifejacket!**

In 86 % of boater drownings they weren't wearing a lifejacket

Personal Safety – Rules for Keeping Safe

- ***Balance the load.*** Understanding of the principle of balanced loading and keeping heavy items including passengers low and close to the centre of the vessel is important.

- ***Know how to deploy distress signals.*** Read the manufacturer's instructions!

Personal Safety – Rules for Keeping Safe

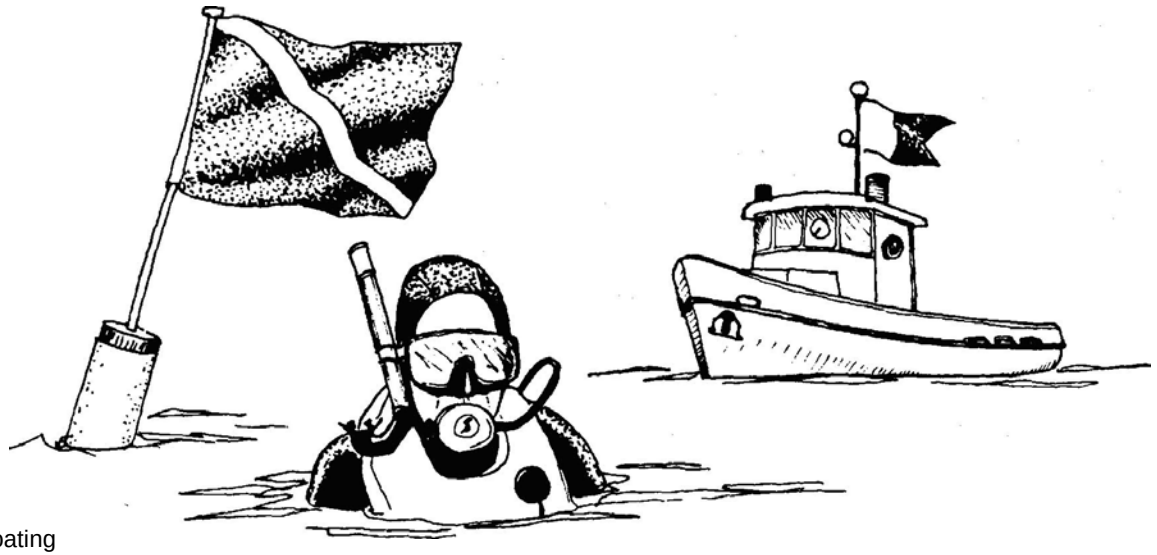
- *DO NOT use arms/legs (aka body parts) to fend off collisions!*

Even in small boats severe injury can result. Never underestimate the forces of an impact!

Keep hands & feet inside the boat when casting off or approaching the dock or another vessel.

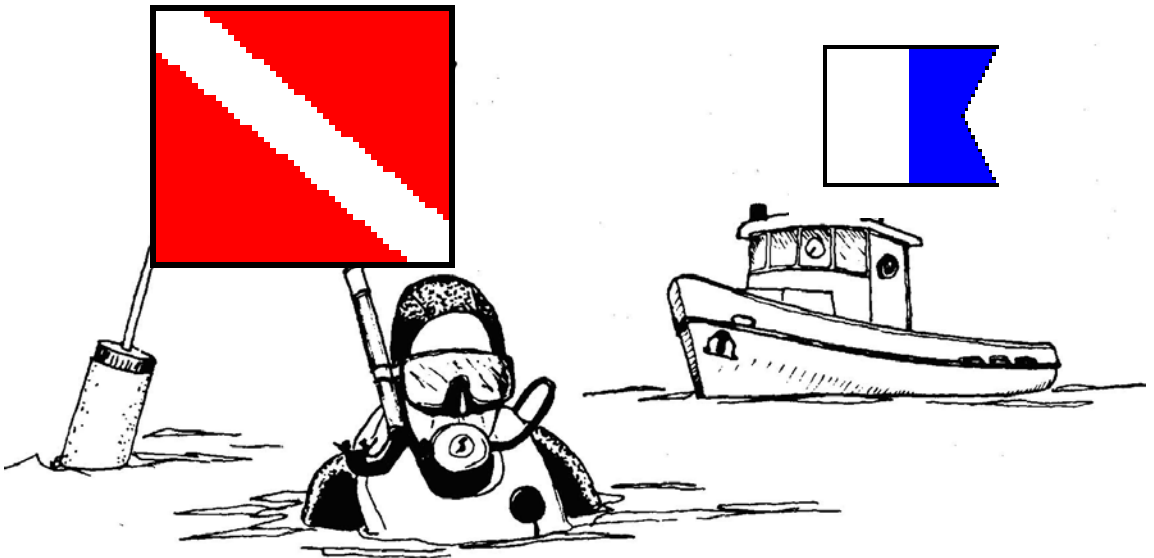
Personal Safety – Diver Safety

- Boating in areas with Divers requires extra caution.
- You need to SLOW DOWN and give the diving area a WIDE BERTH.



Personal Safety – Diver Safety

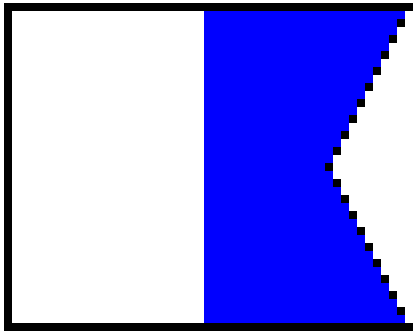
- Diving activity is identified by the use of two types of flags.
- A red flag with a white diagonal stripe indicates diver in the water
- A white and blue flag indicates a vessel with divers in the area.



Personal Safety – Diver Safety

Precautions

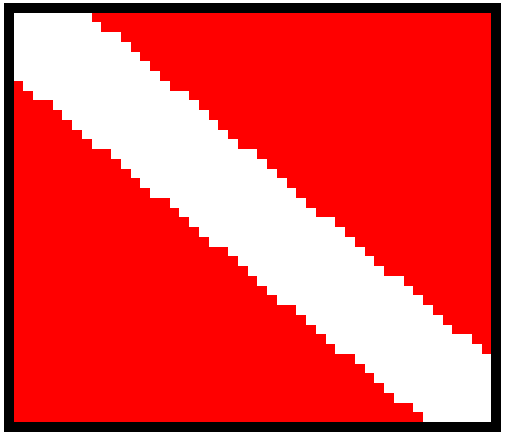
- The blue and white International Code Flag "A" means "I have a diver down; keep well clear at slow speed."
- It is required by the Collision Regulations to be shown on vessels engaged in diving operations.



Personal Safety – Diver Safety

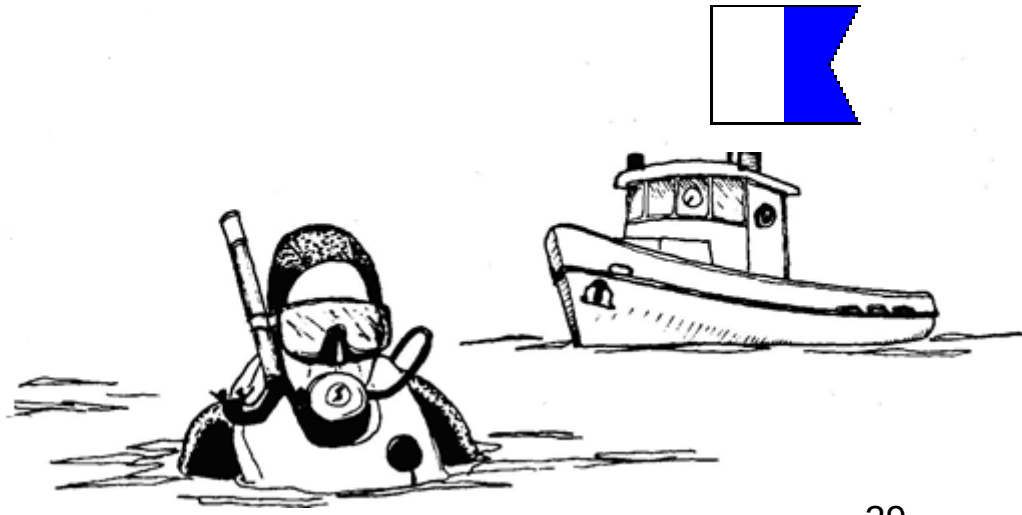
Precautions

- The red flag with the white diagonal stripe is required to be carried on a buoy marking an area where scuba diving is in progress.
- In actual practice in North America the red and white flag is in general use on both diving boats and floating markers.
- Should you see either flag, give it a wide berth and reduce speed.



Personal Safety – Safe Diving

- BEWARE! Often in recreational diving only one flag may be in use and that may be on the boat which could be hundreds of feet from were the actual diving is being conducted.
- Always slow down and give a wide berth!



Fuel Safety

- *FUEL Safety is critical!*
- You need to follow fuel safety procedures to avoid situations like this (which are all too common).

Fuel Safety - Precautions

- Ventilate! Any enclosed space that contains fuel burning engines or appliances should be well ventilated.

- Certify all equipment for marine use: The fuel-burning engines or appliances should also be certified or designed for marine use.

Fuel Safety – Carbon Monoxide

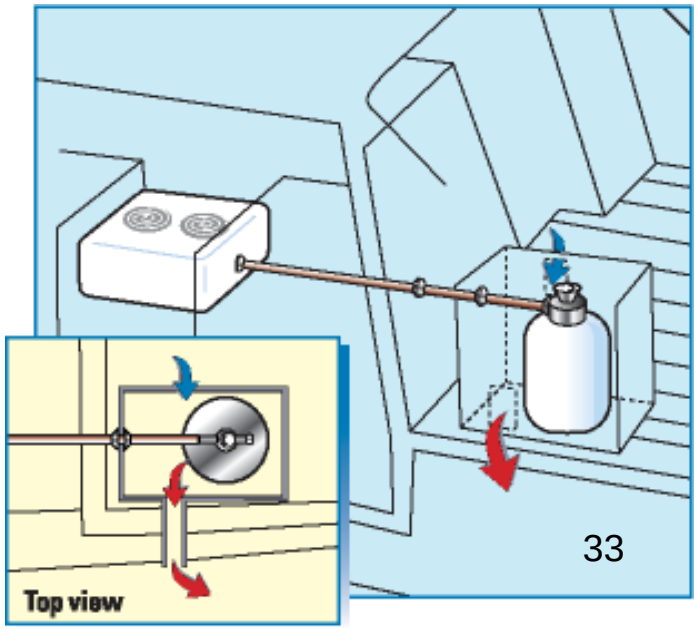
- Carbon Monoxide (CO) is an inflammable colourless, odourless, tasteless toxic gas produced during the incomplete combustion of fuel.
- By replacing oxygen with carbon monoxide in our blood, our bodies poison themselves by cutting off the needed oxygen to our organs — resulting in unconsciousness or death.
- Cooking, heating, or even leaving a motor running can cause a buildup of deadly fumes.

Fuel Safety - Precautions

- **Be aware of explosive hazards!** Everyone is familiar with fuel and propane risks but hardly anyone thinks about how explosive hydrogen and methane are.

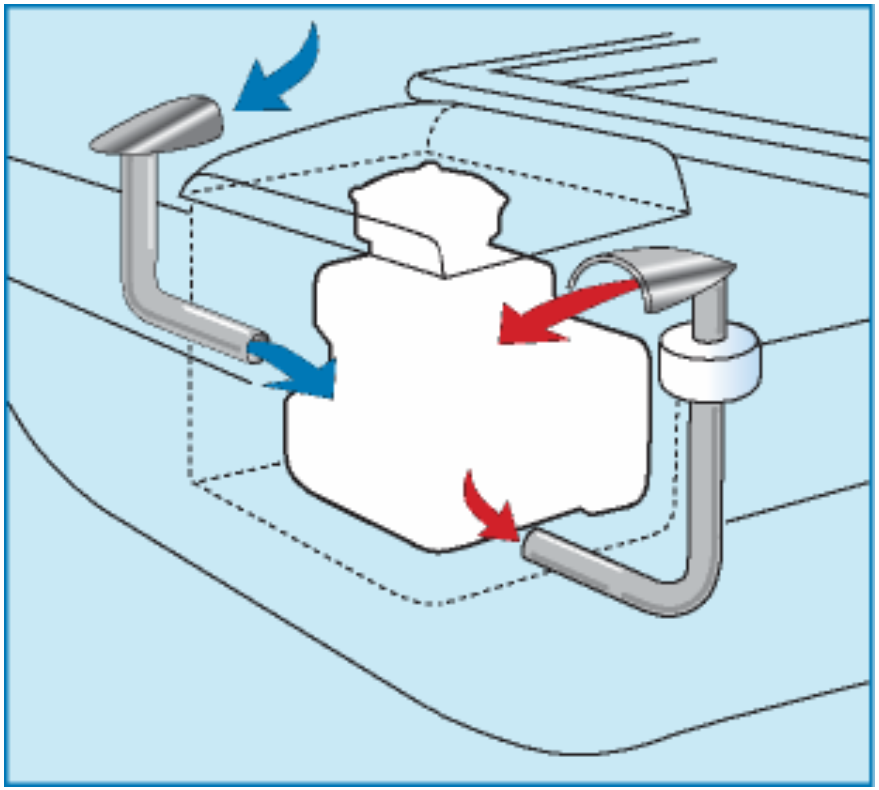
- **Four explosion hazards are:**

  - ✓ Hydrogen from battery charging
  - ✓ Methane from holding tank
  - ✓ Propane in bilge area
  - ✓ Gasoline or Diesel fuel



Fuel Safety – Fuelling Procedures

- Raw fuel is extremely harmful to the marine environment and the vapours create a fire hazard.
- You need to know how to fuel safely…and follow the legal regulations to avoid disaster.



Fuel Safety – Fuelling Procedures

- **When refueling follow this, step-by-step, procedure. It not only makes good sense, it's the law:**

1. Moor the boat securely to prevent spillage.
2. Shut off all engines.
3. Insist that all passengers go ashore.
4. Extinguish all open flames.
5. Do not smoke while refueling.

Fuel Safety – Re-fueling Procedures

6. Turn off electrical switches and batteries, and refrain from operating electrical devices.
7. Close all windows, portholes, hatches and cabin doors.
8. Remove portable tanks from the boat before refueling.
9. Ground the nozzle against the filler pipe.
10. Know the capacity of your fuel tank and don't overfill it; you have a duty to prevent leakage or spillage of fuel into the hull or water.

Fuel Safety – Fueling Procedures

11. Wipe up any spillage and properly dispose of the cloth or towel used.
12. Operate the engine compartment blower for at **least 4 minutes** immediately before starting up the gasoline engine.
13. Check the air from the blower vent for vapour and odours before starting up the engine.

Summary

- In this lesson, you learned how to sail safely by understanding and following safety regulations and guidelines.
- You also learned about potential hazards and how to avoid them.

Summary

- By knowing critical safety guidelines, you can be prepared and take the necessary precautions to avoid catastrophe and injury.
- Above all, you learned that safety is your responsibility – you need to take rules and regulations seriously.

Next Steps!

- In the next lesson, Section IV, you learn more in-depth rules and regulations that dictate how to operate your vessel safely on the water.

Quiz

- How many minutes should you operate the engine compartment blower before starting up the gasoline engine?
- Name four explosion hazards.
- Test yourself! Take five minutes and see if you can list the steps in the procedure for safe-refueling.