



BOAT SAFETY WORKBOOK

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PART OF THE
AHEIA "O.W.L. SERIES"

OUTDOOR WILDLIFE LEARNING

MODULE #7





Boat Safety Workbook

As avid outdoors people, safety must be our first priority when undertaking any outdoor activity. No activity requires a safe mind-set more than being in or on the water. This workbook looks at some of the equipment, the rules, and the regulations that keep us safe while on the water. As you go through this workbook, think about some examples of times when you or someone you know did something that might not have been very safe in or around the water and what you or they might have done differently. See if it is addressed in this workbook.

Let's start off by looking at the different types of boats out there on the water!

TYPES OF BOATS

There are four basic classifications of boats. Their classification is based on how they are moved through the water. There is one exception, however, that we will talk about as we go through this workbook. Each of these categories has specific requirements for safety equipment both for the people on board and for the vessel itself. As we go through the workbook, think about why the different vessels have different requirements.



Human-Powered

Canoes, kayaks, Stand-up paddleboards and row boats are called human powered vessels because they don't have any kind of motor and can only move when propelled by a person. Of course, wind and currents could move them, but that doesn't count! These vessels are slow moving and are not as easily seen as larger, engine powered craft. If you are in or on a human powered vessel, you need to be very aware of the other boats around you and you need to keep a close eye on the weather. Make sure you are highly visible by wearing a brightly coloured life jacket with a loud whistle attached and make sure someone knows where you are and when you expect to return.



Think About It #1: Why would you want to attach a whistle to your life jacket?

Wind-Powered

Wind powered vessels include sailboards and kiteboards. These are surfboard-like vessels that are powered by the wind using either a sail or a kite. Both of them can be much quicker than a person-powered vessel, but only when there is a good breeze blowing. They are not as easy to control as a motorboat, but a good rider can easily stay out of danger when necessary. Like any other vessel, injuries can happen on wind-powered craft, so it's a good idea to travel in groups of two or more and make sure you are skilled enough to make it back to where you

started. Notice that we didn't include sailboats in this category. Do you know why?



Engine-Powered Vessels

This category is obvious in that everything has (or should have) an engine. This category includes sailboats because they should have an engine as a back-up for if the wind dies down and they need to get back to safety. Both gas, which includes inboard and outboard engines, and electric engine propelled vessels are included in this category. We will discuss this further to help you understand how these different boats work.

As mentioned, a gas engine on a boat can be either an inboard or an outboard engine. The difference is in where the engine is located. You can see outboard motors of many different sizes hanging off the back of boats of many different sizes. Sometimes the larger boats will have two or even three outboard engines hanging there. They may all be the same size or you may see a rather small engine off to the side and a larger engine in the middle. Usually outboard engines get their gas from removeable tanks that are taken out of the boat for refueling and storage.



Inboard (left) and Outboard (right) engines

An inboard engine is mounted inside the boat near the back and usually can't be seen from any distance. When you get up close to the boat, you will be able to see the engine compartment, or in some cases might even be able to see the engine itself. The inboard engine usually looks like a car engine, and in some cases where someone has built it themselves, it may be! An inboard engine will be fed by built-in fuel tank or tanks which are refueled when the boat is either on the water or on the boat trailer.

Think About It #2: Why would a boat with a large outboard engine have a smaller engine as well?

Personal Watercraft

Personal watercraft (PWC) are often referred to as Sea-doo's. This was the name of the first personal watercraft and the name has stuck through the years. There are many manufacturers of personal watercraft now and the choices are many. Although PWCs are engine powered they are in a category by themselves because there are rules and laws written specifically for them and do not apply to other engine equipped boats. PWCs can carry up to three people who sit on the craft

rather than in it. Think of it like a snowmobile or even a motorcycle and you get the idea of how they are ridden.



BOATING RESTRICTIONS

Of course, anytime people are involved in anything we need to develop rules to make sure everyone is safe and can enjoy themselves. Boating is no different. There are many rules and laws that regulate the use of watercraft in Canada. These are put in place by the Federal government and are the same right across Canada for the most part. There are some waterways that have rules specific to those individual locations, but not all waterways have their own rules.

Think About It #3: Why do some areas have certain rules and others don't?

Here are some of the most common, general boating restriction laws in Canada:

Age Restrictions

It is important to remember that anyone who is in control of any engine powered vessel must have a Pleasure Craft Operator Card (PCOC) or some other sort of proof of competency. These cards can be obtained online or through classroom courses. However, that does not mean that anyone who has a PCOC can operate



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any boat they choose. These laws are in place because it would be unsafe to let a 10 year old kid drive a boat with a 150hp engine on the back all by himself! So there are restrictions and here they are:

Personal Watercraft – no one under 16 years old may drive a PWC. It doesn't matter if they are supervised and/or have their PCOC, no one under 16 can drive one. Anyone that age has to ride behind the driver.

Any other vessel – If you are 16 or older you can operate any watercraft as long as you have your valid PCOC. You don't need to be supervised and in fact, you can supervise younger people to drive any boat except a PWC.

Any vessel with an engine up to 40 hp or 30 kw. – Anyone over the age of 12 can operate this vessel unsupervised as long as they have a valid PCOC.

Any vessel with an engine up to 10 hp or 7.5 kw – Anyone including kids under 12 can operate this vessel unsupervised as long as they have a valid PCOC.

Speed Restrictions

Did you know there are speed limits on the water? Well there are! Most waterways don't have a speed limit, but in areas there might be lots of boats or people, or where lots of waves from speeding boats might damage the shore and possibly bird nests, there might be a speed limit. Look for large white signs with a red border and a big number on them as you are getting close to a busy area. These will be speed limit signs.



The other speed limit most common to Canada is called a “Universal Shoreline Speed Limit”. This is in place in most areas and it means that all vessels are restricted to 10km per hour within 30 meters of shore. There won’t be signs and there are some exceptions, like dropping off a water skier, but the shoreline speed limit is in effect in Alberta.

Think About It #4: Can you think of another reason for an exemption to the Universal Shoreline Speed Limit?

No Boating Allowed

Some lakes and rivers are closed to any kind of boating activity. Others might restrict all vessels to a certain speed or to a certain maximum horsepower on their engine. These restrictions are for safety reasons or to avoid doing damage to fragile shorelines. These boating restrictions will be posted at each boat ramp or any other location where people can access the water.



No motorized vessels sign



Power Limit sign

PERSONAL SAFETY EQUIPMENT

Safety should be the first priority on any adventure and going out on a boat is no different. By law there are somethings that every boat must have and as you get into bigger and bigger boats, the equipment requirements change.

Here are some of the basic safety equipment you will want on board your boat:

Flashlight

- Useful for signaling passing boats if you are in need of assistance, or just to tell them that you are there. A must-have if you are travelling on water after sunset or during poor visibility (fog)
- Be sure to put batteries in the flashlight or it is neither legal nor useful.



Sound Signalling Device

- A noise making device that can let other boaters know that you are in trouble. It's best to at least have one of these attached to each lifejacket or personal floatation device, and another louder device like a horn on the boat itself.



Buoyant Heaving Line

- Not so much for yourself, but to help bring someone who may have fallen overboard closer to your boat so you can help them. Throw the line past the person and drag it back towards them.



Bailing Bucket

- Any pail can be used to bail unwanted water out of your boat.
- If it is red you can wave it around in the air to signal other boats that you need some help.



Life Jacket/Personal Floatation Device (PFD)

- By law, there must be a properly fitting life jacket or personal floatation device for each person onboard a vessel of any kind. We recommend everyone wear it at all times. There are three legal requirements to keep in mind:
 - Must fit properly
 - Must be in good repair
 - Must be approved by Transport Canada or any other Canadian accredited body.
- Dry them out and store out of the sun.



Marine Safety Kit

Each kit contains:

- Sound Signaling Device
(Pealess Whistle)
- 15m Buoyant Heaving Line with Float
- Watertight Flashlight
(Batteries not included)
- Bailing Bucket with Lid

Pleasure Craft Operator Training

BOATING SAFETY INSTRUCTION PRESENTED BY

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VESSEL SAFETY EQUIPMENT

Along with your personal safety equipment, most vessels must carry other equipment to keep the boat safe. The type and amount of the various vessel safety equipment changes with the size and type of boat. Larger boats require more and bigger or better equipment. Here are some basic pieces of vessel safety equipment required on most vessels:

Re-boarding device

- Required on larger boats
- Used to help someone in the water get back into the boat
- Most commonly a small ladder, but can be a rope or a specialized lifting harness
- Do not use any part of the engine to climb back onboard



Fire Extinguisher

- Required on any boat that has an internal combustion motor.
- Make sure it's checked annually
- Make sure it is rated for electrical and for oil-based fires. Look for an ABC rating and depending on the size of your boat you will need either a 5 pound or 10 pound extinguisher.



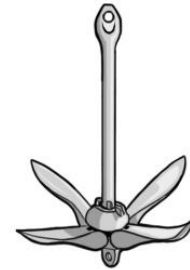
Flares

- Flares are required on some boats but are a good idea for anyone travelling on the water.
- Can be used to signal help from a long distance away
- Must be replaced every four years.



Anchor or Paddle

- If your motor conks out you must have a way of either moving or staying put, preferably at least one of each.
- There are several types of anchors and each is best for specific lake bottom types. Know what type of lake bottom you are travelling over before heading out and make sure you have the correct anchor.



Think About It #5: Can you think of some safety equipment that you would see on a large yacht that you probably wouldn't see on a small fishing boat?

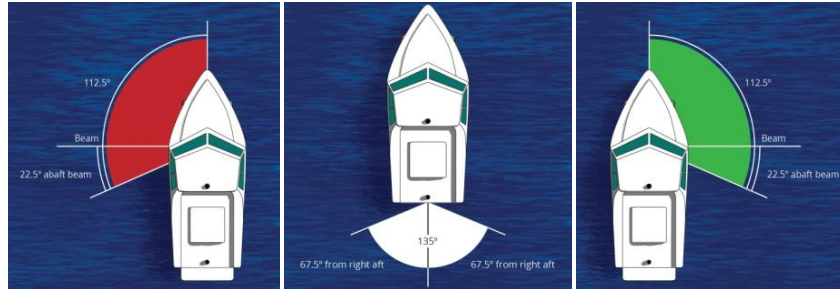
NAVIGATION SAFETY EQUIPMENT

Navigation safety equipment ensures that you can get to and from where you are going as safely as possible without getting lost or getting into a crash with other boats. We will discuss some “Rules of the Road” towards the end of this booklet, but first you need to know a couple things.

Navigation Lights

- Every vessel travelling at night or in poor visibility must have working navigational lights.
- Specific requirements differ depending on the type and size of boat.
- Be sure your lights are working and that you have the right kind.

- Minimum requirement for powered vessels at night or in poor visibility is a red light showing to the left (port) of your boat, a green light showing to the right (starboard) of your boat and a white light showing to the back (stern) of your boat or showing all around your boat.



Navigation lights on port side (left), stern (centre) and starboard (right)

Map and Compass

- The only 100% reliable way to navigate.
- Always carry a map and compass when on the water, especially in areas you are unfamiliar with.
- Be sure you know how to use them.



Think About It #6: Why is a map and compass considered more reliable than a GPS or a cell phone when navigating on the water? Can you think of another place where a map and compass would be better than a GPS or cell phone?

RULES FOR SAFE NAVIGATION

Driving a boat is no different than driving a car in that there are going to be times when two or more boats could collide by both trying to be in exactly the same place at exactly the same time. This is why the rules for safe navigation were developed. The ones we are going to look at here are pretty basic but will give you an idea of some of the basics. The first terms you will need to know are:

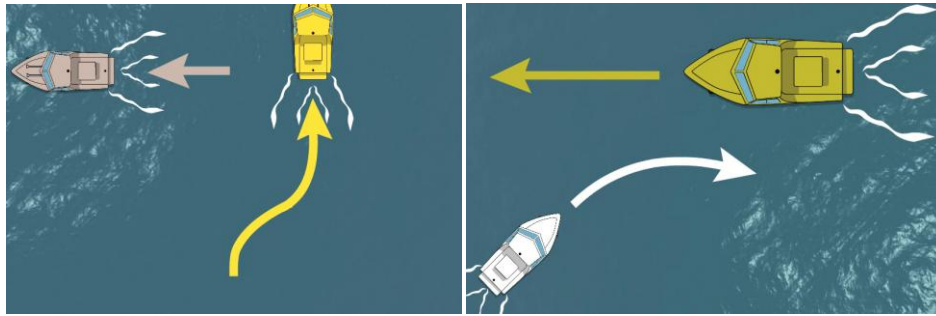
- Stand-on Vessel – this is the vessel that has the right-of-way and does not need to alter their path. Note however, that unless the other boat yields, the stand-on boat does not have the right-of-way!
- Give-way Vessel – This is the vessel that must alter their course to avoid a collision. If you are driving a vessel in the give-way position, you must do all you can to safely avoid the other vessel.

Now with those terms in your back pocket, let's look at a couple of the specific rules:

Crossing Other Vessels

When the vessel you are driving looks like it is going to cross closely in front of another vessel, you must act like the waterway has suddenly become an uncontrolled intersection and you are driving a car. You must give-way to any vessel on your right, and any vessel on your left must give way to you. Now this is where those red and green lights on your boat come in handy. If you are intersecting another boat and as you look at it you see a red marker light on the front, you must avoid that boat. Red = danger! However if you look at it and see a green light (which means it is on your left or port side) you are now the stand-on vessel and have the right-of-way. Remember though, the other operator may not see you, so you have to be sure that you are ready to give-way if necessary.

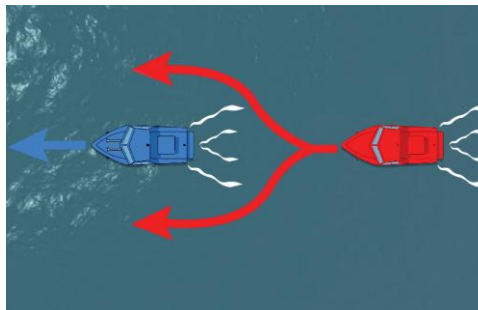




Examples of how to safely cross other vessels

Overtaking Other Vessels

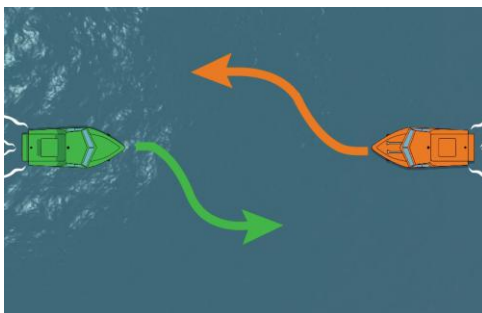
When overtaking another boat from behind, you are the give-way vessel and the other is the stand-on vessel. This means that you must manoeuvre your boat around that other boat without causing it any grief. Be sure to give enough room so your wake (the waves that your boat is making) don't wash over the side of the other boat or doesn't flip them over. You can go around either side of the other vessel, but if one is safer than the other, pick that one.



Example of how to safely overtake other vessel

Head-On Situation

When two boats are coming at each other head-on, it is both drivers' responsibility to give-way. As with driving a car, the safest and best method is to make your move as soon as possible and in one large movement so the other driver can clearly see what you are doing. They can then react and give-way as well.



Example of how to safely navigate a head-on situation

Think About It #7: If a motorboat and a canoe are operating close together, which boat has the right-of-way and why?

BEFORE YOU LEAVE

There are a few things you want to do before you head out on your boat. You can use this page as a basic check list for your next adventure on the water.

File a trip plan

- Just be sure someone knows where are going and when you plan to return. Describe your boat and let them know how many people are with you.
- Be sure to close the trip plan (tell them that you are back) upon return

Check weather and water conditions

- Weather can change quickly, be prepared or stay home
- If water is higher or lower than normal, there will be new hazards

Fuel your boat safely

- Always fill portable fuel tanks on shore, not in the boat
- Only one person should be in the boat if refueling built-in tanks while still on the water



Load safely

- Keep gear evenly distributed and as low as possible
- Check the capacity plate (found on the inside of the boat where the driver can easily see it) to ensure you are not overloading

Think About It #8: What other things might you want to do before heading out onto the water?

Well done! You have completed AHEIA's Boating Safety Workbook. On the following pages you will find some answers to the "Think About It" questions in the workbook as well as some more questions you can use to check your knowledge!



“Think About It” Answers

1. One of the best reasons for attaching a whistle to a lifejacket or PFD is so that you will have it with you as soon as you get into a boat. If you go overboard or in trouble, you will have a way to let people know where you are and that you need help
2. Boats with large engines will often have a smaller engine as well so the boat can go slow enough to troll (go slow enough to tow a hook on a line behind the boat), or in the event of a breakdown will have a way to get the boat back to shore when paddling it may not be enough.
3. Different areas need different rules because they have different uses. For example, a narrow, busy canal may need a speed restriction because having everyone travelling at high speeds would be dangerous. Or a small lake where a lot of shorebirds nest along the waterline may want to have a “No Wake” rule so that boating activity doesn’t affect the nests. Other lakes may be designated “Electric Only” to protect the water from pollution and keep the area quiet.
4. Another reason for a “Shoreline Speed Limit Exemption” could be that the waterway is a channel or river that is less so narrow that the entire waterway is less than 30 meters from one bank or the other. The law says that a Shoreline Speed Exemption is automatically placed on any waterways less than 100 meters in width.
5. Somethings you would find on a large yacht and not a small fishing boat would be things like a permanently mounted sound device (ie: a fog horn), lifebuoys, multiple fire extinguishers and fire fighting equipment like a bucket and an axe.
6. A GPS or a cell phone can be great for getting you out of trouble...if they work. In remote areas, your cell phone may not be able to get a signal, or the batteries might die. A GPS is better because it does not rely on a cell phone signal. However a GPS battery can also die leaving you stranded.



Learning how to use a map and compass and carrying them with you on the boat will ensure that if you get lost on a large lake, you will be able to find your way back. You should also use a map and compass when hunting or hiking in the wilderness.

7. A canoe will always have the right-of-way over a motorboat because the motorboat has the ability to get out of the way of the canoe much easier than the canoe can get out of the way of a motorboat. If you are wondering who has the right-of-way in any situation consider that the boat that can maneuver the best must do so.
8. There are many things you can do before heading out on the water.
 - Be sure everyone has a life jacket or PFD that fits and is in good condition.
 - Conduct a safety briefing with your passengers to ensure they know where all the safety equipment is and how to use it.
 - Make sure you have enough fuel.
 - Make sure your boat is in good working order.



Check Your Knowledge

1. Where it is in place, the “Universal Shoreline Speed Limit” limits boats to _____ km per hour within _____ meters of shore.
2. Typical navigation lights on a vessel show _____ to your starboard (right side) and _____ to your (port) left side.
3. What is a “Stand On” vessel?

4. What is a “Give Way” vessel?

5. When two boats are meeting at a 90 degree angle (like an intersection) which vessel has the right-of-way and how do you know?

6. How many life jackets or PFDs must be on board a boat? What condition must they be in?

7. What rating should a fire extinguisher on a boat be?

8. What is a good sound-signalling device that everyone should have attached to their life jackets?

9. No one under the age of _____ is allowed to drive a PWC.

What are the exceptions?

10. Boats are classified by the way they are powered through the water, with one exception. What are the four classifications of boats?



Knowledge Check Answers

1. 10, 30
2. Green, Red
3. The vessel that has the right-of-way and can continue without altering its path.
4. The vessel that must alter its path when meeting or overtaking another vessel.
5. The vessel to the right has the right-of-way because the operator of the other boat will see its red navigation light.
6. One life jacket or PFD for each person on board. They must be of the correct size, must be in good condition and must be approved by an appropriate Canadian body.
7. ABC either 5 or 10 pounds
8. A whistle
9. 16. There are no exemptions (trick question!)
10. Human powered, wind powered, engine powered, personal watercraft



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Working to Conserve Alberta's Wilderness Resources through Education and Communication

**AHEIA offers numerous resources and training to ensure
the safe and responsible use of the great outdoors.**

Our mission is to

Make wildlife and fish part of the value system of every Albertan.

Courses, manuals, seminars and workbooks, such as this, proactively educate the user to be safe and to enjoy their wilderness experience while perpetuating Alberta's vast natural heritage.

This workbook is one in a series of informational, entertaining and proactive materials produced for Conservation Education.

For more information, or to review additional resources, please visit our website or contact us directly.

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