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Educating Boaters Online

BOATING IN MINNESOTA

Rental Course Manual

DEPARTMENT OF NATURAL RESOURCES

2025 Edition

CONTENTS

1.1 AIDS TO NAVIGATION

1.1.1 Aids to Navigation System (ATON)

The U.S. Aids to Navigation System (ATON) is a set of signs, symbols, colors and lights that tell you where it is safe for you to navigate your boat; it's a bit like the system of traffic signals used by cars on the road, except on the water.

Each of the aids in the ATON has a specific purpose in telling you where to go on the water. For example, by staying on the correct side of the red and green lateral markers we'll learn about next, you'll stay in the middle of a safe navigable channel.

Okay, now let's find out what to do when you encounter different Aids to Navigation.

1.1.2 Lateral Aids

Green Lateral Marker

Keep this marker on your left (port) side when proceeding in the upstream (returning from sea) direction. Odd numbers will be displayed and will increase as you head upstream.

Red Lateral Marker

Keep this marker on your right (starboard) side when proceeding in the upstream (returning from sea) direction. Even numbers will be displayed and will increase as you head upstream.

Red and Green Lateral Marker

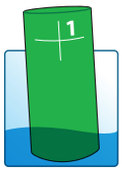
You may pass this marker on either side when proceeding in the upstream direction, but the main or preferred channel is indicated by the color of the topmost band. For example: the marker in this illustration indicates the preferred channel is to the right.

Nun Buoys

Cone-shaped markers that are always red in color, with even numbers. Keep this marker on your right (starboard) side when proceeding in the upstream (returning from sea) direction.

Can Buoys

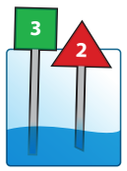
Cylindrical-shaped markers that are always green in color, with odd numbers. Keep this marker on your left (port) side when proceeding in the upstream (returning from sea) direction.



Daymarks

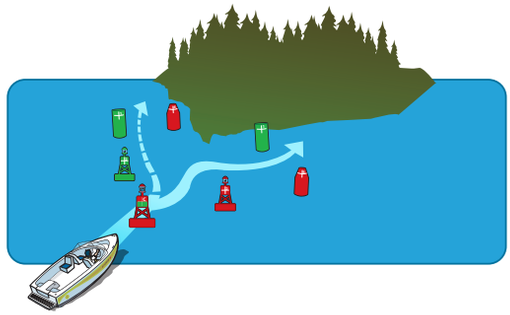
Red triangles with even numbers are the equivalent of nun buoys: keep this marker on your right side.

Green squares with odd numbers are the equivalent of can buoys: keep this marker on your left side. Both red triangles and green squares can be lighted as well.



General Rule of Thumb

Red-Right-Returning - Keep the red markers on your right side when returning upstream from sea.



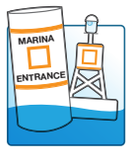
1.1.3 Non-Lateral Informational and Regulatory Markers

Non-lateral markers give you important information about the area in which you are boating. The most common non-lateral markers are regulatory markers that are white with orange markings and black lettering. Here are some examples.

White Buoys/Orange Markings

- **Information (square)**

Provides information such as food, fuel, etc.

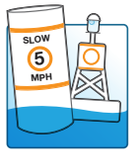


- **Hazard (diamond)**

Warns of danger such as rocks, shoals, etc.

- **Control (circle)**

Indicates speed limits, wash restrictions, etc. Obey the restrictions illustrated within the orange circle.



- **Keep-Out (diamond with crossing lines)**

Indicates areas where boats are prohibited, such as swimming areas, dams and spillways.

1.1.4 Other Non-Lateral Markers

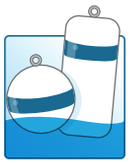
Here are some other types of non-lateral markers.

Obstruction Marker

Indicates an obstruction to navigation. Do not pass between this marker and the shoreline.

Mooring Marker

Used for mooring or securing boats; be aware that a boat may be secured to such a marker.



Safe Water Marker

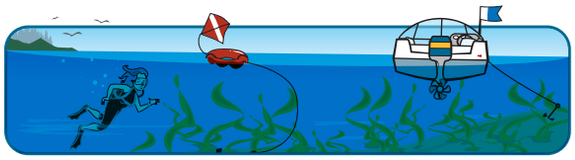
Indicates safe water. This marker is used to indicate land falls, channel entrances, or channel centers. It may be passed on either side.

Diving Marker

A Diving Marker indicates the presence of divers in the area, which means you need to navigate with extra care.

There are two types of diving markers:

- A red-and-white flag carried on a buoy is used to mark areas where diving is in progress, although divers may stray from the boundaries of the marked areas.
- A blue-and-white flag indicates a vessel engaged in diving activity.



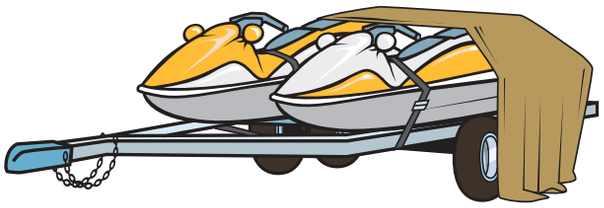
NOTE: *In Minnesota, stay at least 150 feet from any diving activity.*

1.2 PERSONAL WATERCRAFT AND OTHER JET-PROPELLED WATERCRAFT

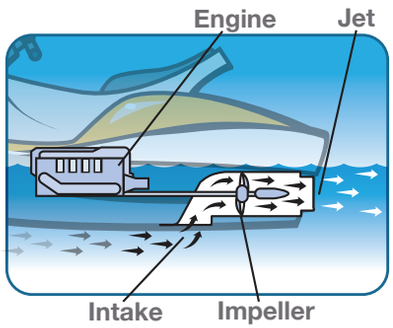
1.2.1 Operational Characteristics of Personal Watercraft (PWC)

A personal watercraft (PWC) is propelled by an inboard engine powering a water jet pump. The PWC generates its power by drawing water in through the bottom of the boat with an internal propeller (impeller) and accelerates the water through a nozzle at the back of the boat. Many PWC are designed for two, three, or even four people.

1.2.2 Off-Throttle Steering and Braking

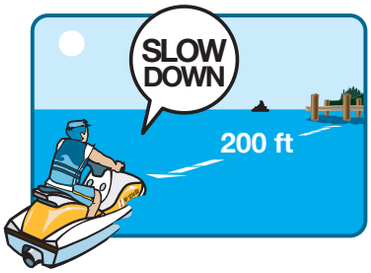


PWC generate their power by pulling water in through the impeller and pushing it out through the nozzle. The stream of accelerated water that moves through the nozzle also provides the steering ability for the boat. A PWC will continue on the same course — even if the steering wheel is turned — once the throttle is off. Unlike operating a power-driven boat — where slowing down or turning off the engine and steering through obstacles is advised — a PWC can maintain its steering ability only with the throttle applied. You must apply the throttle and steer away to avoid obstacles — once you release the throttle, you lose the ability to steer the boat.



Note: Newer PWC are equipped with off-throttle steering capabilities.

Inexperienced operators must be particularly careful when driving a PWC back to dock or in to shore, because PWC cannot stop quickly. Like other recreational boats, PWC have no brakes and have no ability to stop other than by turning around. Give yourself enough time and space to slow down; it takes most PWC a few hundred feet to come to a stop after being at full throttle.



1.2.3 PWC Load Capacities

Load capacities will vary for PWC. There are a number of different sizes of PWC: from single-person to four-person boats. Consult your user's manual to find out your PWC load capacity. Never exceed the manufacturer's recommendations, including anyone towed behind a PWC in the capacity limit. Not only is it illegal in many states, it can also put you in danger.

1.3 ENGINE CUT-OFF SWITCH (ECOS) AND PERSONAL FLOTATION DEVICE (PFD)

1.3.1 The Purpose and Use of a Lanyard

Your PWC will not start unless the lanyard is attached to the start/stop switch. The lanyard is there for your protection. PWC are fun to drive with their quick acceleration and sharp turning ability. This also means that PWC operators inevitably end up off their boat and in the water. If you fall off the PWC, the lanyard will be pulled off the start/stop switch, and the engine will stop immediately. The lanyard ensures that a "runaway" PWC does not endanger other swimmers or boaters. And, when the lanyard stops the engine, you won't have to swim so far to get back on for another ride.

1.3.2 Federal PFD Requirements for Children

Child life jacket laws vary from state to state; however, federal law requires that all children under the age of 13 wear a life jacket on a moving boat.

The only exceptions to this rule are if the child is below deck, in an enclosed cabin, or if the boat is not underway.

Remember that there are state-specific regulations that remain applicable. So, check the regulations for your area before going boating with a child on board. Here are some tips for selecting a child's PFD:

- First, take into account the child's swimming ability. Children who are not swimmers should wear a Type 2 child vest, which has greater buoyancy than a Type 3 PFD.
- Consider the child's age and experience level around the water.
- Teach the child how to relax and float in the water wearing a PFD.
- Choose the right type of PFD for the activity.
- And, always check to make sure that the size is appropriate for the child's weight.

Remember, *that a child's PFD or life jacket is never a substitute for proper adult supervision.*

1.3.3 Additional PFD Requirements

Here are a few more important rules to remember when it comes to PFDs.

- First, if you're operating or riding on a PWC, you need to be wearing an approved PFD.
- Second, if you're being towed behind a vessel, you are considered to be "on board." Four people in the boat and one on waterski? You'll need five approved PFDs on board.
- Lastly, inflatable PFDs are not approved for use by wearers under 16 years of age. They are also not approved for high-impact activities such as waterskiing or operating a PWC.

Remember *to always make sure you have one properly fitted PFD on board for each passenger.*

1.4 AVOIDING WATERCRAFT ACCIDENTS

1.4.1 Accident Prevention

Many of the regulations simply entail common sense and use of respect on the waterways. PWC ride low in the water. As a result, they are difficult to spot and are often shielded from view by other boats.

Here are some other guidelines to help you prevent being involved in an accident:

- Keep your distance from other boats to avoid blind spots and to respect boaters' space.
- Keep a safe distance from other PWC. Because PWC can turn so quickly and accelerate rapidly, it is even more important to leave yourself enough time and space to react to other PWC operators.
- Take a look behind you before you make a turn, and please be mindful of your wake. A PWC can send a powerful stream of water from the nozzle that could distract, annoy or even harm other operators.
- Be careful that your spray does not affect other boaters or swimmers or cause injury to passengers who have fallen off a PWC during a quick acceleration.

NOTE: *Have fun out there, but remember to always be respectful of other boaters, swimmers, and property owners so that everyone can have a fun and safe experience on the water.*

1.5 SAFE BOAT OPERATION

1.5.1 Influence of Drugs and Alcohol on Boat Operation

Because of the fatiguing effects of the sun and wind and the motion of the boat, one drink on board is like three on shore! This means if you are drinking at all, then you should not be operating a boat or PWC. Do not jeopardize your safety or the safety of other boaters or the passengers in your care. Your balance, vision, coordination and judgment are all affected adversely by the consumption of even one alcoholic drink. Coupled with environmental elements (sun, glare, wind, motion), alcohol can have very serious consequences on the water. Please be responsible when operating your boat. If you are operating a boat, you should avoid alcohol consumption.

WATER AND ALCOHOL: MYTHS AND REALITIES

"A few beers won't hurt."

Reality: Even in small amounts, alcohol affects coordination and judgment. A bottle of beer, a glass of wine, or a drink of liquor all produce the same effect.

"Most drowning accidents result from swimming."

Reality: More than 60% of drowning accidents occur after the victim accidentally falls off a dock, shoreline or boat into the water. Autopsies show that more than one-third of the victims of such falls (mostly men) were impaired by alcohol at the time of the accident.

"Drinking alcohol while operating a boat is not a serious offense."

Reality: Operating a boat while intoxicated is just as dangerous as operating a car in that condition. The marine authorities are equipped with breathalyzers. If the results are positive, the police may file charges.

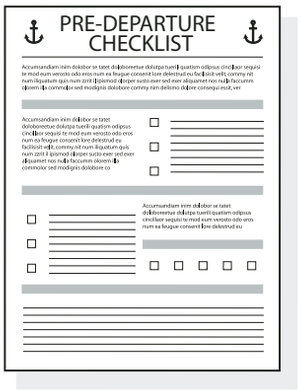
"There's no harm in drinking alcohol on the beach before swimming."

Reality: Alcohol affects judgment. The person drinking can easily overestimate their abilities or misjudge a risk they would not take under normal circumstances. Furthermore, it is illegal to drink in some public places, such as a beach or a dock.

Source: "Water and alcohol-myths and realities." Red Cross Society

1.5.2 Operator Responsibilities

Ultimately, the boat operator is responsible for the safety and activity of all passengers. Additionally, the boat operator must respect other boaters and property. Before casting off, the operator should:



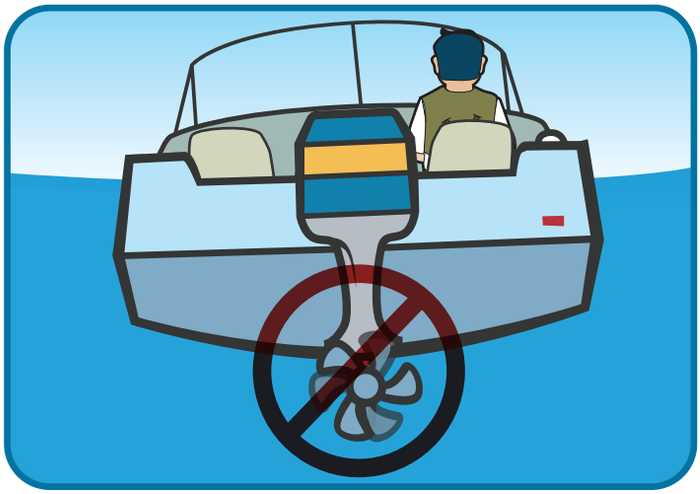
- Complete a pre-departure checklist to avoid emergencies later.
- Ensure the boat is cared for, is in good working order, and is seaworthy.
- Ensure all passengers are properly seated and comfortable with the safety equipment and procedures in case of emergency.
- File a float plan, particularly for lengthy trips or those in unfamiliar waters.
- Check local hazards.
- Check local weather forecast and conditions.
- Ensure all passengers are wearing properly fitted life jackets.

1.5.3 Boat Handling

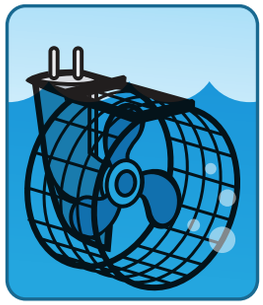
All boats handle differently, and inexperienced operators need hands-on practice with a capable teacher to become proficient in handling their boat. A motorboat is most easily maneuvered going against the current or wind. When moving with the current, the boat must be going faster than the speed of the current in order to maintain control and maneuverability. Boats do not have brakes, so to quickly reduce speed, the motor should be put in reverse and power applied. Stopping in this manner requires practice. Consult the owner's manual for the boat and motor for proper procedures.

1.5.4 Propeller Intervention

Rotating at great speeds and with a lot of power, the potential danger posed by boat engine propellers should not be overlooked. Each year, hundreds of Americans accidentally come into contact with moving propeller blades. The U.S. Coast Guard reports an average of 47 persons struck by the propeller a year.



Since the propeller is located below the waterline and may be difficult to see, it is important that people are at all times aware of the propeller. This is most important when in the water near the rear of a boat or on the swim platform.

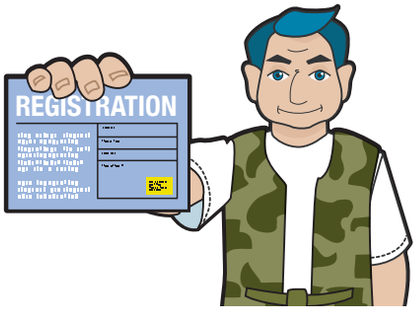


As a precaution, operators should shut off the engine whenever a person is in the water within close proximity to their boat. Safety equipment is available and when used properly, can significantly decrease the probability of a propeller strike. Common examples of equipment are:

- Propeller guards
- Ladder interlock kill switches
- Man overboard cut-off switches
- Lanyard engine kill/stop switches

The best precaution is to stay aware and away from the propeller, and make sure your passengers do the same.

2.1 MINNESOTA REGISTRATION REQUIREMENTS



The **Minnesota Department of Natural Resources (DNR)** is responsible for regulating the state boating laws in Minnesota.

All motorized watercraft regardless of length and nonmotorized watercraft over 10 feet, principally operated on Minnesota waters, must be registered and issued a Minnesota Watercraft License (Registration) by the Minnesota DNR. The following watercraft do not require registration:

- Nonmotorized watercraft 10 feet in length or less;
- Watercraft currently registered in another state and not kept in Minnesota for more than 90 consecutive days;
- Watercraft from a country other than the United States and not kept in Minnesota for more than 90 consecutive days;
- Boats owned by the federal or state government, or a political subdivision thereof (does not include boats used for recreational purposes);
- U.S. Coast Guard (USCG)-documented watercraft;
- A ship's lifeboat;
- Waterfowl boats used during the waterfowl hunting season, rice boats used during the harvest season and seaplanes.

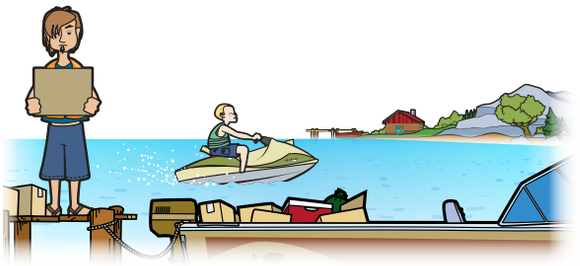
The new owner of a watercraft currently registered in Minnesota is required to apply for boat registration within the first 15 days of the transfer date. In the case of a boat transfer the application must be submitted to the DNR, or a deputy registrar along with the current registration card and title certificate, if titled.

It is against the law to operate or give permission to operate any watercraft that requires a license unless a license has been issued and is in effect for that watercraft.

2.2 OPERATOR AGE RESTRICTIONS IN MINNESOTA

Beginning July 1, 2025:

- Operators 21 years old and younger are required to possess a valid watercraft operator's permit for motorboats and personal watercraft (PWC).
- Adult operators are required to have a permit to operate a boat in Minnesota. This law will be phased in over 3 years.
  - Effective July 1, 2025, adults born on or after July 1, 2004, must hold a permit to operate motorboats and PWC.
  - Effective July 1, 2026, adults born on or after July 1, 2000, must hold a permit to operate motorboats and PWC.
  - Effective July 1, 2027, adults born on or after July 1, 1996, must hold a permit to operate motorboats and PWC.
  - Effective July 1, 2028, adults born on or after July 1, 1987, must hold a permit to operate motorboats and PWC.
- Anyone under the age of 12 may operate a motorboat with less than 75 horsepower if an accompanying operator possesses a valid watercraft operator's permit and is in the motorboat.



2.3 PERSONAL WATERCRAFT LAWS AND REGULATIONS

Do not underestimate PWC; they are very powerful for their small size and demand the same respect as any boat. In fact, PWC operators must adhere to the same rules and regulations as any other motorboat, including registration with the state and a **5-B class fire extinguisher** aboard. Plus PWC have some additional requirements:

- PWC must have the rules decal, which is available through the DNR, attached to the PWC so it may be seen by the operator.
- The operator as well as all passengers of a PWC must be wearing a USCG-approved wearable life jacket that is compatible with that activity (check the label).
- If the PWC is equipped with a lanyard-type engine cut-off switch (ECOS), the lanyard must be attached to the person, life jacket, or clothing of the operator when underway.
- If towing a person on water skis, or any other device, there must be an additional person on board the PWC to act as an observer. If the PWC is fitted with a factory-installed wide-angle rearview mirror, an observer is not necessary.
- You may not weave through congested watercraft traffic or jump the wake of another watercraft within 150 feet of the other watercraft. This includes other PWC.
- PWC must operate at slow no-wake speed, maximum 5 mph limit when:

  - ✓ Within **150 feet** of a swimmer, diving flag, dock, or swim raft;
  - ✓ Within **150 feet** of any anchored, moored or nonmotorized boat; or
  - ✓ Within **150 feet** of any shoreline.

- You may not travel through emergent or floating vegetation at greater than slow no-wake speed.
- You may not operate a PWC if any part of the spring-loaded throttle system has been removed or tampered with so it interferes with the return-to-idle system.
- You may not operate a PWC while facing backward.
- It is unlawful for the owner of the PWC to permit its operation in violation of the age restrictions.
- You may not chase or harass wildlife.

2.3.1 Engine Cut-Off Switch (ECOS)

Most powerboats and PWC come equipped by the manufacturer with an emergency engine cut-off switch (ECOS). This safety device can shut off the engine if the operator falls off the PWC or out of the powerboat, or is otherwise thrown from the proper operating position.

The ECOS works by attaching a lanyard between the operator and the switch. If the lanyard is removed from the switch, the engine will shut off.

If a PWC has an ECOS, most states require the operator to attach the lanyard. However, even if attaching the lanyard is not required by law, many lives could be saved by doing so.

If your PWC or “ski craft” does not come equipped with an ECOS, you should have one installed.

Your PWC may have a self-circling feature. If the operator is thrown from the PWC, the engine idles while the PWC slowly circles so that the operator can re-board. Be sure the idle speed is set correctly.

Wireless ECOSs are also available, often called “Man Overboard Devices” (MOB). Some newer boats will have these pre-installed, otherwise these devices can be purchased and installed very easily. One part of the device attaches to the ECOS, and the other part is attached to the operator and passenger.

Having a wireless ECOS allows more freedom of movement around the boat and avoids the step of having to re-attach the lanyard each time you start your engine.

2.3.2 PWC Hours of Operation

It is illegal in the state of Minnesota to operate a PWC from one hour **before** sunset to 9:30 AM.

2.3.3 PWC Operator Age Restrictions in Minnesota (Regardless of Horsepower)

Under 12 years old

A person under 12 years old may not operate a PWC, regardless of horsepower, even if there is an adult on board the craft, except in the case of an emergency.

Age 12–21

Persons at least 12 years old but less than 21 years old may operate a PWC without an adult present, regardless of horsepower, if they have a valid watercraft operator's permit.

It is unlawful for the owner of the PWC to permit its operation in violation of the age restrictions.

2.4 NAVIGATION LIGHTS

One of the most important safety systems on your boat is your set of navigation lights.

Whenever you are operating between sunset and sunrise, or in other times of restricted visibility, such as in fog or rain, you need to display the appropriate navigation lights so that other boats can see you and take the appropriate action to avoid a collision.

In general, all navigation light systems include red and green sidelights, which indicate the port and starboard side of your boat, as well as one or more white lights.

It's also important that you have a flashlight on board, as you never know when a navigation light might burn out. The rules for what navigation lights to display depend on a number of factors including:

- The length of your boat, e.g. under or over 12 meters (39.4 feet);
- Whether your boat is being powered by an engine;
- Where you're boating, e.g. inland or international waters; and
- Whether you're at anchor.

Keep in mind, there are other vessels aside from recreational boats that require different lighting configurations, such as vessels that are restricted in their ability to maneuver, trolling, freighter and tug vessels. In this section, we'll focus on navigation lighting for recreational boats.

For now, remember that it's your responsibility to have the proper navigation lighting. Even if you just purchased a new boat, you should check to ensure that you've got the right lights for safe, and legal, boating.

2.4.1 Navigation Lights for Powered Vessels

When operating between sunset and sunrise, or in periods of restricted visibility, powered recreational boats require the following set of navigation lights. Remember, these requirements also apply to sailboats when using a motor.

For powered boats less than 39.4 feet, or 12 meters, you need to have the following set of navigation lights.

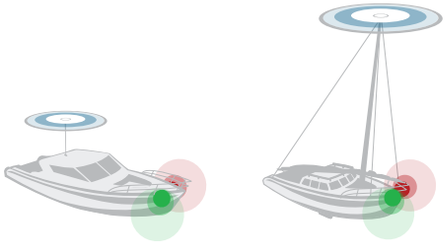
- One all-round white light that you can see from 360 degrees and from two miles away;
- And one pair of red and green sidelights that is visible at 112.5 degrees and from one mile away.

For boats of this size, the all-round white light needs to be positioned at a height of at least 39 inches above the sidelights.

Figure A shows a boat with this setup.

FIG. A

- All-round white light - 360 degrees visible from 2 miles.
- Sidelights - 112.5 degrees visible from 1 mile.



If your boat is greater than 39.4 feet but less than 65.6 feet, or 20 meters, you need the following set of navigation lights:

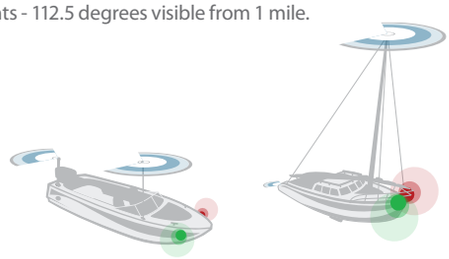
- A masthead light is a white light at the front of the boat. The masthead light needs to be visible across 225 degrees and from two miles away.
- A stern light, which is a white light at the rear of the boat. The stern light needs to be visible across 135 degrees and from two miles away. When the masthead light and the stern light are combined, that makes up 360 degrees.
- Finally, you need one pair of red and green sidelights that is visible across 112.5 degrees and from a distance of one mile.

For boats of this size, the masthead light must be positioned at a height of at least 8 feet above the gunnel.

Figure B shows this configuration.

FIG. B

- Masthead light (forward) - 225 degrees visible from 2 miles.
- Stern light (aft) - 135 degrees visible from 2 miles.
- Sidelights - 112.5 degrees visible from 1 mile.



2.4.2 Navigation Lights for Unpowered Vessels

We've covered the lights that you need for powered recreational vessels; now let's look at the requirements for sailboats and other unpowered boats.

If you are operating a sailboat that is over 23 feet in length, or 7 meters, you need to display the following navigation lights when operating between sunset and sunrise or in periods of restricted visibility:

- A white stern light that is visible at 135 degrees and from two miles.
- And one pair of red and green sidelights that is visible at 112.5 degrees and from one mile away.

Another option for sailboats of this size is to display an all-round light configuration, sometimes called a tricolor light, which is visible from a distance of two miles. This light configuration has three sections: red at port, green at starboard and white at the stern.

Sailing Vessels

FIG. A

- Stern light (aft) - 135 degrees visible from 2 miles.
- Sidelights - 112.5 degrees visible from 1 mile.

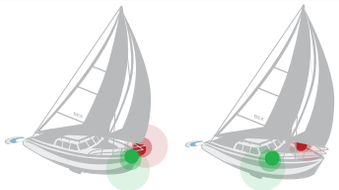


FIG. B

- → Masthead light combined in one lantern (red, green, white)
- White - 135 degrees (stern).
- Green - 112.5 degrees (starboard).
- Red - 112.5 degrees (port).

NOTE: *A tricolor light can only be displayed while underway under sails alone and must not be used when under power whether or not sails are hoisted. This light must not be used when the regular sidelights are on. Either the sidelights or the tricolor light may be displayed, but not both.*

Vessels Under Oars or Paddles and Sailboats Under 23 Feet

If you are operating a sailboat that is less than 23 feet or 7 meters in length, you are only required to display a white light, such as a lantern or a flashlight, when operating between sunset and sunrise or during periods of restricted visibility. However, it's still a good idea to display the navigation lights for larger sailboats if possible.

The requirements for small sailboats also apply to other unpowered boats under 23 feet in length, such as canoes, kayaks and rowboats. When boating between sunset and sunrise or during periods of restricted visibility, you need to display a white light so that other boats can see you in time to avoid a collision.

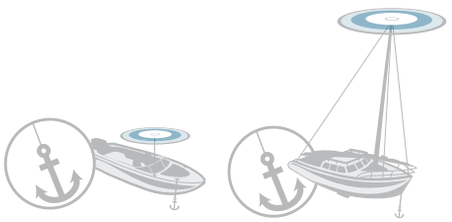
Row boats/rafts | Sailboat | Canoes/kayaks

2.4.3 Navigation Lights at Anchor

When your boat is at anchor, but you are not in a designated anchoring area, like at a marina, you need to make sure that you are visible to other boats that may be operating nearby.

When anchoring in these areas, you are required to display an all-round white light where it will be best seen by any other boats in the area.

Navigation Light Requirements for Anchored Boats



2.5 AQUATIC INVASIVE SPECIES (AIS)

Non-native aquatic species, plants, fish and animals are invading Minnesota's waters. These pests can increase dramatically under the right conditions, displacing native species, clogging waterways, and impacting navigation and recreation. Once introduced, they are nearly impossible to eliminate. Zebra mussels, spiny water flea, Eurasian watermilfoil and starry stonewort are examples of aquatic invasive species (AIS) that are affecting Minnesota's waters. Invasive species can be accidentally transported by recreational boaters when caught in propellers or intakes or attached to hulls.

YOU CAN HELP PREVENT THE INTRODUCTION AND SPREAD OF INVASIVE SPECIES FROM ONE BODY OF WATER TO ANOTHER.

- **CLEAN** all visible aquatic plants, mud, and debris off your boat, trailer and other water-related equipment before leaving a water access or shoreline property. It's illegal to transport prohibited invasive plants or animals, whether dead or alive.
- **DRAIN** water-related equipment (boat, ballast tanks, portable bait container, motor) and drain bilge, livewell and baitwell by removing drain plugs before leaving a water access. Keep drain plugs out and water-draining devices open while transporting watercraft.
- **DISPOSE** of unwanted bait, including minnows, leeches, worms and fish parts in the trash. It's illegal to release live bait into a water body, dump worms on the ground or move aquatic animals or water from one water body to another.
- Wash your boat before putting it into a new body of water.
- Report any new infestation of non-native aquatic species to your local DNR AIS specialist at **1-888-646-6367** or **651-259-5100**. Visit **www.mndnr.gov/AIS** for more information.

NOTE: *Based on a University of Minnesota study regarding wakeboat operation, MN Lakes and Rivers Advocates suggest that distances of up to 500 feet from shore may be recommended to preserve shoreline stability.*

2.5.1 AIS Laws

All boaters passing the watercraft operator's examination must be able to understand how to:

- Mitigate the spread of AIS by knowing:
  - Different AIS species
  - Laws for removing and preventing the spread of AIS and the consequences for non-compliance (Note: Failure to comply or follow state laws related to the removal or transportation of AIS could result in fines and other penalties.)
  - How to report AIS sightings to authorities
  - Steps for removing AIS from boats, trailers, and other objects
- Reduce conflicts among user groups by knowing:
  - The basic Rules of the Road
  - How to operate your boat safely
  - That operational and maintenance instructions can be found in boat manufacturer's manuals
  - The speed limits required by law and operational conditions
  - That to maintain situational awareness, you must know:
    - A boat's type and how it affects its maneuverability, buoyancy, and stopping distance
    - A boat's type from a distance
    - How you operate your boat impacts others
    - How to determine a vessel's give-way and stand-on status
    - Boating terms
    - How to signal other vessels
    - How to determine a boat's movement using its navigation lights
    - Buoy identification, aids to navigation, and their purpose
    - The need for a proper lookout even when drifting, anchored, or underway
    - Where to secure accurate weather forecasts
    - The conditions you or your boat cannot handle and when you should head to safety
    - That seeing people and other floating objects in the water becomes more difficult as wave heights increase
- Limit ecological impacts of watercraft by knowing:
  - Boat wakes can:
    - Destroy aquatic flora and fauna near the shoreline habitat.
    - Erode shorelines, allowing more pollutants and sediment to enter the waterbody and thereby degrading water quality.
    - Increase lakeshore owner's cost for shoreline armoring, which impairs natural habitat.
  - Propwash can:
    - Destroy fish and other wildlife nests.
    - Uproot native plants.
    - Dismember non-native plants and increase dissemination.
    - Reintroduce sediment and sequestered pollutants into the water column increasing water turbidity and exposure to pollutants, which elevates water temperature; augments solar absorption; decreases oxygen; and hinders fish, birds, and other aquatic life's ability to feed, making the habitat inhospitable for flora and fauna.

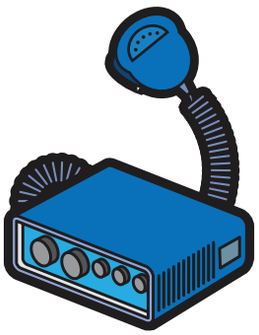
2.6 CHECK WATER AND WEATHER CONDITIONS

Before any boating trip, it is important to check short-term and long-term local weather forecasts on radio, TV or the Internet before any boating trip. You should always take the weather forecast into consideration when preparing your trip plan. For example, you'll want to avoid certain types of weather whenever possible, such as heavy fog or strong winds. You'll also want to pay particular attention to hurricane warnings; you should never go boating if there is a hurricane warning in effect.

Once on the water, tune a portable radio to a VHF-FM weather station that broadcasts the National Oceanic and Atmospheric Administration (NOAA) to get accurate, detailed and up-to-date weather information. NOAA Weather Radio is frequently updated and covers the coastal areas of continental United States, Alaska, Hawaii, and the Mariana Islands with continuous weather broadcasts. It's your best resource for weather information while on the water. You'll find the NOAA broadcasts on the following frequencies:

WX1	WX2	WX3
162.550 MHz	162.400 MHz	162.475 MHz

These broadcasts include weather information like temperature, humidity, wave conditions, barometric pressure, as well as wind speed and direction—all important factors for determining when and where to boat, and when to head for shore.



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