



U.S. COAST GUARD

U.S. AIDS TO NAVIGATION SYSTEM

What You Need to Know About the Markers on the Water



A Handy Guide from the United States Coast Guard



STOP Read This Booklet. Stay Safe on the Water.

INTRODUCTION

AIDS TO NAVIGATION ARE THE WATERWAYS' ROAD SIGNS

Aids to Navigation can provide a boater with information similar to that which drivers get from street signs, stop signals, road barriers, detours, and traffic lights.

This booklet will give you, the recreational boater, the basic information you need about the U.S. Aids to Navigation System (USATONS). This information will help you recognize, understand, and navigate by the colors, shapes, numbers, and lights you will encounter on the water. It will also give you the basic tools you need to read a nautical chart. In addition, you will find information on safety, the proper way to interact with other vessels, tips on boating at night, and how to handle special situations you might encounter, like bridges and locks.

Take some time to review this booklet, and keep it onboard your boat as a quick reference. Your understanding of the markers you see on the water will help ensure that you, your family, and your friends have fun – and safe – boating trips.

Best Regards,

United States Coast Guard Boating Safety Division

Most boating accidents are preventable! Be sure to:



- Always wear your life jacket and require the same of your passengers
- Never boat under the influence
- Take a boating safety course
- Get a free Vessel Safety Check

1. NAVIGATION RULES (RULES OF THE ROAD)

Boaters call navigation rules – the basic laws governing the steering or sailing of a boat – “The Rules of the Road.” The Rules of the Road define the roles and responsibilities of vessel operators. If all operators obeyed these rules, most accidents could be avoided.

One of the reasons the Rules of the Road exist is to keep boats from colliding with each other and with other objects. Since collisions are the number one type of accident on the water, boaters should remember the following Rules of the Road.



*The Rules vary slightly depending on whether you are boating on inland or on international waters. As an example, when operating on inland waters, sound signals are signals of **intent**; when operating on international waters, they are signals of **action**.*

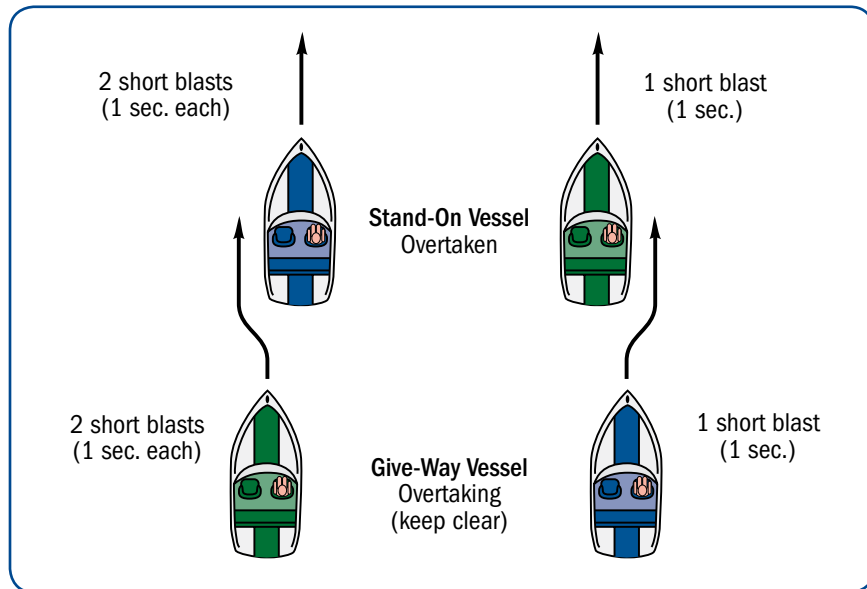
Post a lookout. Designate someone to watch for dangers that may come from any direction.

Maintain a safe speed. Except where speed is restricted by regulation or the waterway is marked by a “No Wake” or “Slow Speed” Aid, you must judge “safe speed” for yourself, taking into account visibility, vessel traffic, your boat’s ability to maneuver, and the weather conditions.

Avoid a collision. The Rules of the Road include the actions to take when encountering another vessel on the water. Some of the most common situations you may encounter are: overtaking, meeting head on, and crossing the bow of another vessel. In each case, the boat designated as the “give-way” vessel is required to yield to the other boat, while the boat designated as the “stand-on” vessel should maintain its course and speed.



Overtaking Situation (Navigation Rule 13)



Action(s): The give-way vessel (bottom) can pass on either side of the stand-on vessel (top).

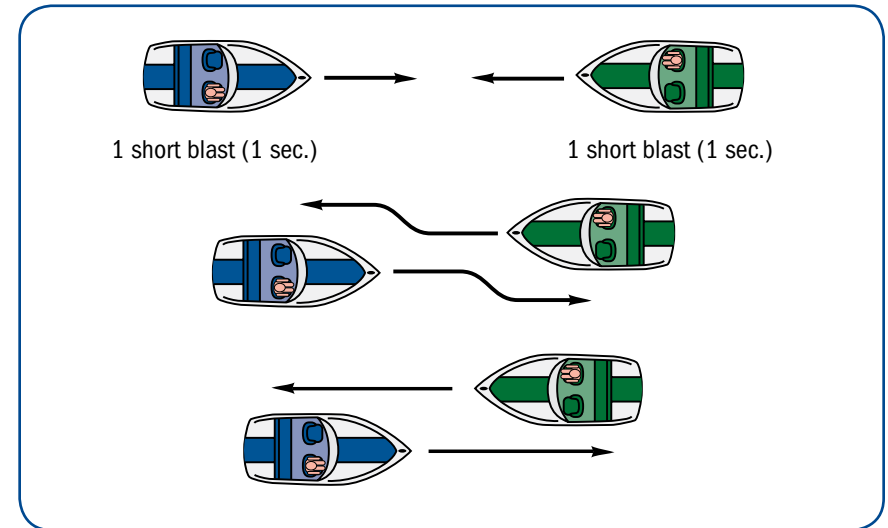
Sound signals, inland: Passing portside requires two short (1-second) blasts on the horn signaling the overtaking boat's intention, and two short blasts for the stand-on vessel's agreement. Passing to starboard requires one short blast for intent and agreement.

Sound signals, international: Passing portside requires two prolonged (4-6 seconds) and two short blasts for the overtaking boat's intention, two short blasts for the stand-on vessel's agreement. Passing to starboard requires two prolonged and one short blast for intention. An agreement signal is only required when operating in a narrow channel or fairway; then the following blast pattern signals your agreement: one prolonged/one short/one prolonged/one short.

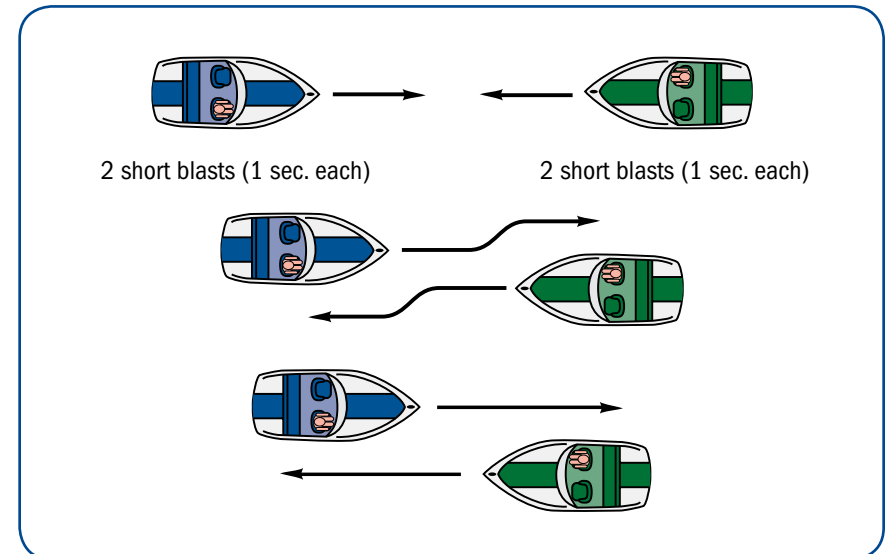


Head-On Situation (Navigation Rule 14)

Port-to-Port Passing (preferred)



Starboard-to-Starboard Passing

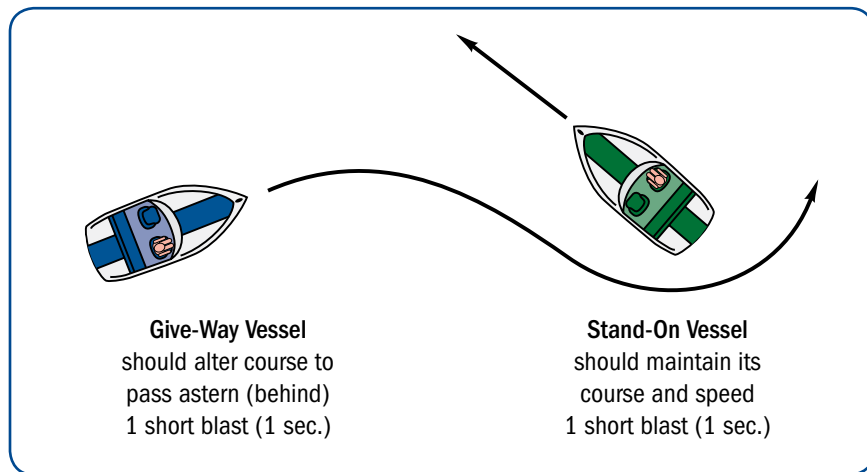


Action(s): When meeting another vessel head on, a port-to-port passing is preferred. Passing starboard-to-starboard is acceptable when necessary.

Sound signals: Passing port-to-port requires one short horn blast to signal intention and one short blast for agreement. Passing to starboard requires two short blasts from each vessel.



Crossing Situation (Navigation Rule 15)



Action(s): In a crossing situation, the give-way vessel must act to avoid a collision. This may include altering its course to pass astern of the stand-on vessel or slowing down. The stand-on vessel should maintain its course and speed.



Sound signals, inland: The give-way vessel signals the stand-on vessel with one short horn blast. The stand-on vessel agrees with one short horn blast.

Sound signals, international: The give-way vessel signals the stand-on vessel with one short horn blast. No agreement signal by the stand-on vessel is required.

When meeting another boat, make early and substantial changes to your course. This helps the other operator understand your intentions.



There is much more to the Navigation Rules than can be covered here. For more information, go to www.uscgboating.org or www.navcen.uscg.gov.

2. THE ESSENTIAL MARKERS: On the Water and On the Charts

The two main types of Aids to Navigation are buoys and beacons.

Buoys are Aids that float on top of the water, but are moored to the bottom of the body of water. Some have a light affixed to the top; some do not. A buoy with a cylindrical shape and a conical top is referred to as a "nun." A buoy with a cylindrical shape and a flat top is called a "can."

Beacons are Aids that are permanently fixed, most commonly to the bottom of a

body of water. A beacon that has a light attached is simply referred to as a "light"; a beacon without a light attached is called a "daybeacon."

Both buoys and beacons can provide a variety of navigation information via shape, color, light, and/or audible signal.

Dayboards are informational signboards. The term **topmark** refers to a non-lighting element, such as a sphere, that may be affixed to the top of an Aid.

RED LIGHTED BUOY

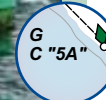


RED LIGHT



Red: always even numbers

GREEN CAN BUOY



GREEN LIGHT



Green: always odd numbers

RED/GREEN NUN BUOY

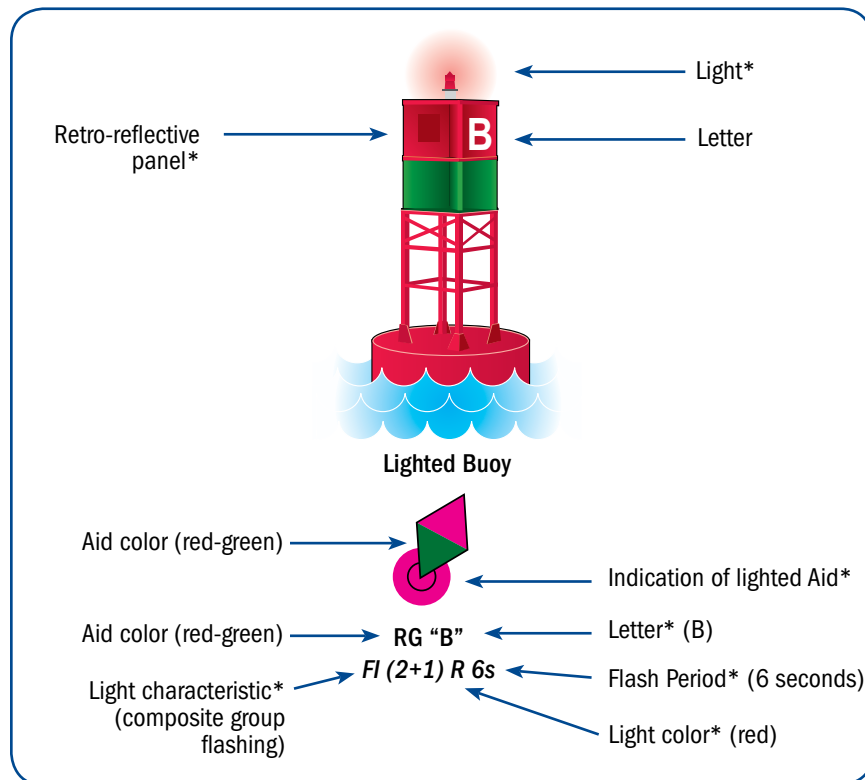
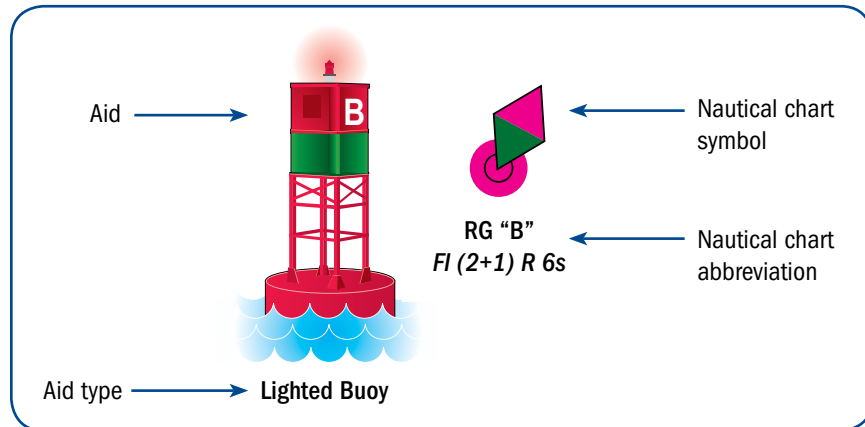


RED DAYBEACON



Understanding the Symbols in This Booklet

Buoys, beacons, and all other Aids have a corresponding symbol used on nautical charts. In this booklet, you will see representations of Aids, each alongside its nautical chart symbol:



* Not on all Aids

Nautical Charts

It is critical to know where you are going, what routes to take, and which areas to avoid before you begin your boating trip. Nautical charts are the boating equivalent of road maps. A nautical chart provides boaters with an aerial view of a waterway with its Aids to Navigation, landmarks, and bridges, as well as information on water depth, latitude and longitude, and a variety of other important navigational information.



- Always use a current navigation chart and be sure to check www.navcen.uscg.gov for any relevant Notices to Mariners before your trip.
- While electronic chart systems (ECS) can provide boaters with excellent information, keep relevant paper charts on board. Should your ECS or GPS malfunction, you will be very glad to have a backup.
- Remember that most accidents are caused by human error. Do not let an electronic navigation device take the place of knowing and adhering to the Navigation Rules.

What You See Depends on Where You Boat

The Aids to Navigation system used on the majority of American waterways is referred to as the U.S. Aids to Navigation System or IALA-B. A description of USATONS follows.

The Mississippi River and its tributaries follow a variation of USATONS called the Western Rivers Marking System. An explanation of this system begins on page 23.

The system used exclusively on the Intracoastal Waterway, which runs along the United States coast from New Jersey through Texas, is described beginning on page 25.

Another system, called the Uniform State Waterway Marking System, has mostly been phased out. However, these Aids are shown on page 26 as you may occasionally encounter them.



There are also private Aids to Navigation, which are Aids that are neither owned nor maintained by the U.S. Coast Guard. These typically look similar to those in the systems described in this booklet and are represented by the same nautical chart symbols, with the addition of "Priv," or "Priv maintd."

3. U.S. AIDS TO NAVIGATION SYSTEM (IALA-B)

Lateral Aids to Navigation

Lateral Aids to Navigation are generally used for well-defined channels to indicate the route to be followed. These Aids show the sides of a navigable channel, mark junctions and forks or splits in the channel, indicate the safe side to pass a hazard to navigation, and mark the safe centerline on wide bodies of water.

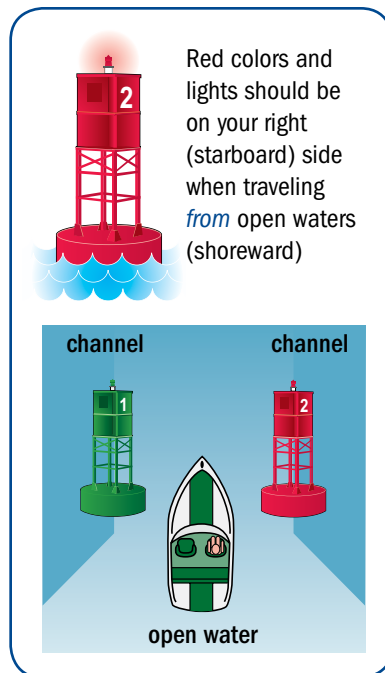
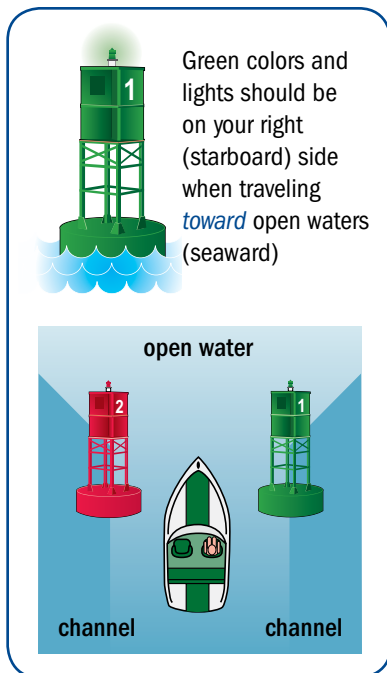
They are used in conjunction with a conventional direction of buoyage (a local direction of buoyage when approaching a harbor, river estuary, or other waterway from seaward).

"Red, Right, Returning"

You may have heard the phrase, "Red, Right, Returning." This expression refers to the fact that when returning (entering a channel from the open sea or proceeding upstream), a boater must keep the red Aids on the right (starboard) side of the boat. These Aids have even numbers, and the numbers should increase as you proceed inland.

When proceeding toward open water (seaward), navigate so that the green Aids are to starboard. In this instance, you will see odd numbers on the Aids and the numbers should decrease as you proceed toward open water (seaward).

If there is no route marked, navigate clockwise around landmasses.



Proceeding Upstream			
Green Aids: Odd Numbers Square dayboards, buoys, and cans		Red Aids: Even Numbers Red, Right, Returning: when proceeding upstream, keep the red Aids to starboard	
 G "7"	 Daybeacon	 Daybeacon	 R "8"
 "5" Fl G 6s	 Light	 Light	 "6" Fl R 6s
 G C "3"	 Can	 Nun	 R N "4"
 G "1" Fl G 4s	 Lighted Buoy	 Lighted Buoy	 R "2" Fl R 4s
		Open Water (seaward)	
Characteristics - Beacons may have green odd numbers. - Buoys may have white odd numbers. - If lit, the light will be green and is likely to flash in one of the following patterns:		Characteristics - Beacons may have red even numbers. - Buoys may have white even numbers. - If lit, the light will be red and is likely to flash in one of the following patterns:	
Flashing (2) Flashing Occulting Quick Flashing Isophase		Flashing (2) Flashing Occulting Quick Flashing Isophase	

(see page 22 for more on lights)



Preferred-Channel Aids

Beacons and buoys that have horizontal bands of both red and green mark the junction of navigable channels. The top-most color indicates the direction of the preferred, or primary, channel.



When returning (entering a channel from the open sea or proceeding upstream), keeping the Aids with red as the top-most color on the right (starboard) side of the boat will place the boater in the preferred channel, while keeping those Aids on the port side will place the boater in the secondary channel. When proceeding toward open water (seaward), keeping the Aids with green as the top-most color on the right (starboard) side of the boat will place the boater in the preferred channel, while keeping those Aids on the port side will place the boater in the secondary channel.

 GR "U"	 Daybeacon		 RG "G"
 GR C "S"	 Can Buoy		 RG N "C"
 GR "A" Fl (2+1) G 6s	 Lighted Buoy		 RG "B" Fl (2+1) R 6s
Characteristics - Green on top. - Have a letter designation. - Buoys will feature a white letter. - If lit: COMPOSITE GROUP FLASHING (2+1)		Characteristics - Red on top. - Have a letter designation. - Buoys will feature a white letter. - If lit: COMPOSITE GROUP FLASHING (2+1)	

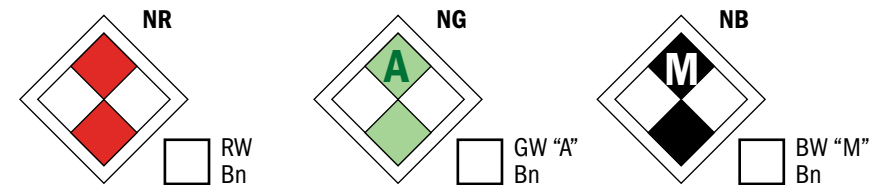
(see page 22 for more on lights)

Non-Lateral Aids to Navigation

Non-lateral Aids are the on-the-water versions of the informational, regulatory, and warning signs encountered on the road.

Diamond-Shaped Dayboards

Diamond shaped dayboards are used to help determine location. They are the nautical equivalent of "You Are Here" markers. An appropriate nautical chart must be consulted to determine your exact position.

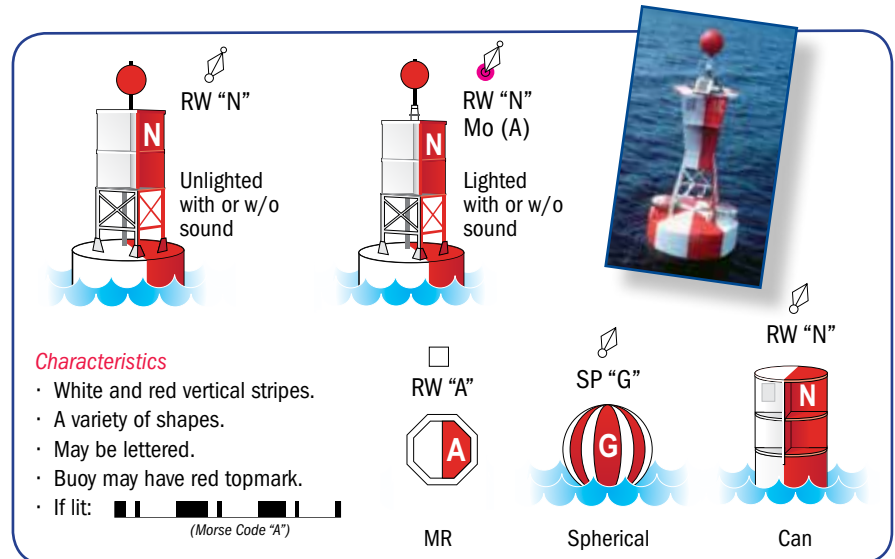


Characteristics

- White with red, green, or black diamonds.
- Usually lettered (the letter can be matched to a nautical chart to check position).
- In the illustrations above, "NR," "NG," and "NB" indicate non-lateral red, green, and black. The chart symbol is to the lower right of each illustration (e.g., "RW Bn" indicates a red-and-white beacon).

Safe Water Marks

These Aids are used to mark fairways, mid-channels, and offshore approach points. They have unobstructed water on all sides. A buoy, lighted or unlighted, may show a red topmark. An appropriate nautical chart must be consulted to determine exact position.

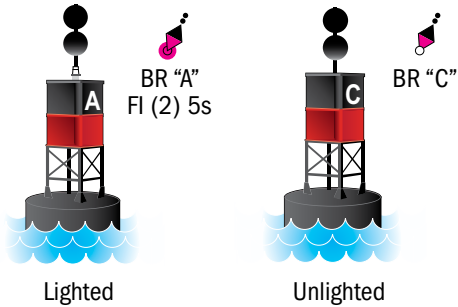


Characteristics

- White and red vertical stripes.
- A variety of shapes.
- May be lettered.
- Buoy may have red topmark.
- If lit: (Morse Code "A")

Isolated Danger Marks

These Aids indicate an isolated danger that may be passed on all sides. Use caution when approaching.



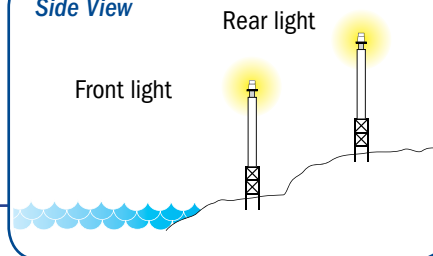
Characteristics

- Buoy with black and red horizontal bands.
- May be lettered.
- Black double-sphere topmark.
- If lit:  Fl (2) 5s

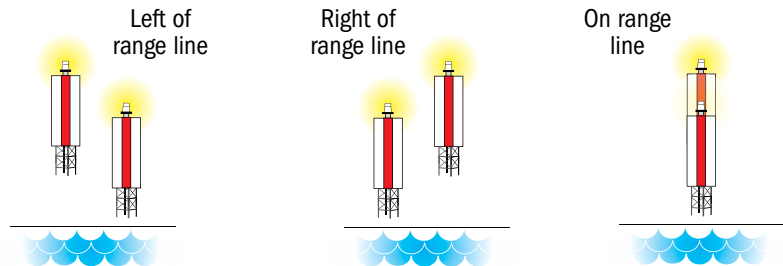
Range Dayboards

These Aids, which are usually shore-mounted, come in pairs to help the vessel operator maintain a straight and safe course within a navigable channel. Each member of the pair is separated from the next in distance and elevation, with the one in front shorter than the one behind it. When the two appear to be vertically stacked, the vessel is on the range line.

Side View



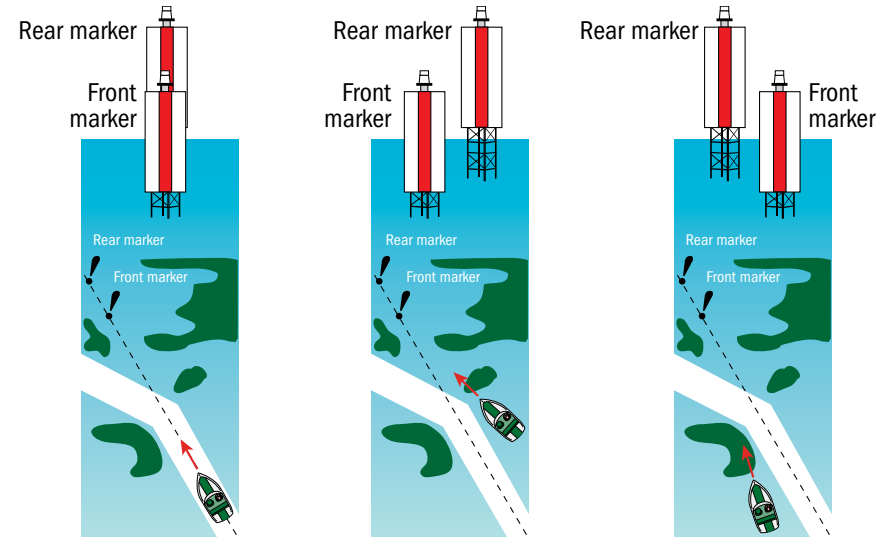
Front View



When the front (bottom) marker is to the right of the rear (top) one, you are to the left of the range. You should turn right (starboard) to get onto the range line.

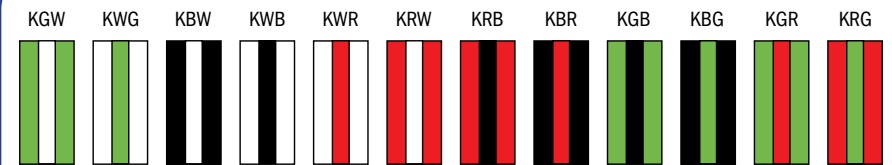
When the front (bottom) marker is to the left of the rear (top) one, you are to the right of the range. You should turn left (port) to get onto the range line.

The two range markers are in line, which indicates you are on the range line.



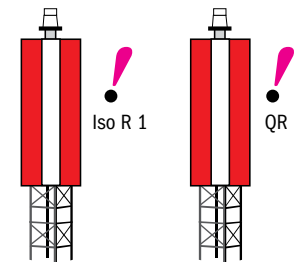
The colors of range dayboards do not impact navigation – colors are simply chosen based on how well they stand out from the background scenery.

Some combinations:



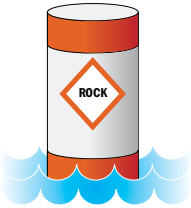
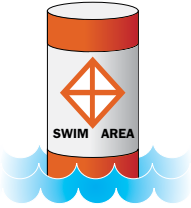
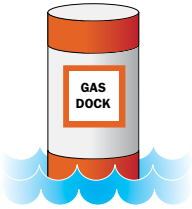
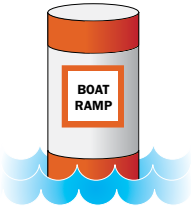
Characteristics

- Rectangular with two colors arranged as three vertical stripes.
- May be lettered.
- When lit, rear light will be higher than the front light.
- Light characteristics may vary; usually the rear (upper) light remains lit (fixed), while the front (lower) light flashes.



Information and Regulatory Marks

These orange-and-white Aids are used to alert vessel operators to various warnings and regulations.

Symbol	Meaning	Examples
	Danger A diamond shape alerts boaters to hazards	 
	Restricted Operations Marks with a circle indicate areas with regulated operations	 
	Exclusion A diamond shape with a cross means boats are prohibited from the area	 
	Information Marks with a square provide helpful information such as directions, distances, and locations	 

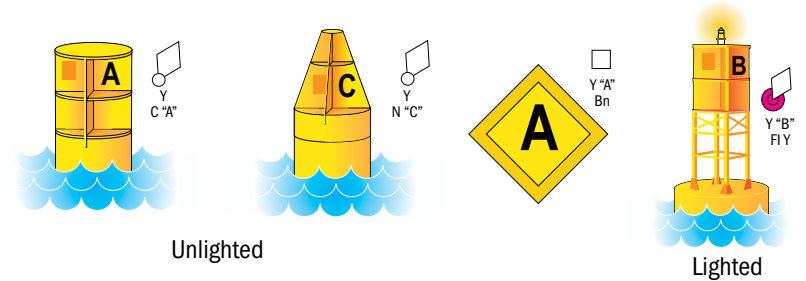
Characteristics

- White with an orange horizontal band at both top and bottom.
- Black text within or around an orange square, circle, or diamond; or black text outside a diamond with an orange cross.
- May be buoys or beacons.
- If lit, the light will be white and may have any light rhythm except quick flashing, flashing (2), or Morse code "A."
- The chart symbol for this type of buoy is:



Special Aids

These Aids indicate special areas or features such as anchoring, traffic separation, fishnet area, cables or pipelines, military exercise areas, and jetties.

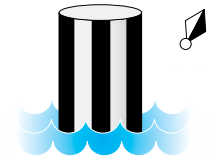


Characteristics

- All-yellow.
- Come in a variety of shapes.
- May have one black letter.
- If lit:  or 

State Waters Obstruction Mark

The State Water Obstruction Mark indicates to a vessel operator that an obstruction to navigation extends from the nearest shore to the buoy. Do not pass between the buoy and the shore.

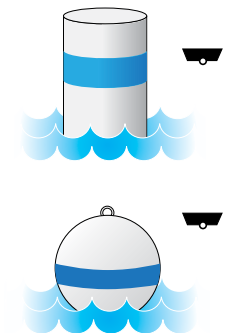


Characteristics

- Black-and-white vertically striped buoy.
- May show a white reflector or display a quick-flashing white light.

Mooring Buoys

While not a navigational Aid, mooring buoys are worth mentioning. They are the only type of buoys to which mooring is permitted. Most mooring buoys are privately owned or are rental buoys. Permission is usually needed to use them.



Characteristics

- White with blue horizontal band.
- Cylinder and sphere shapes.
- May show a white reflector or display white or yellow light.

(fictitious)



(fictitious; same circumstances as above)



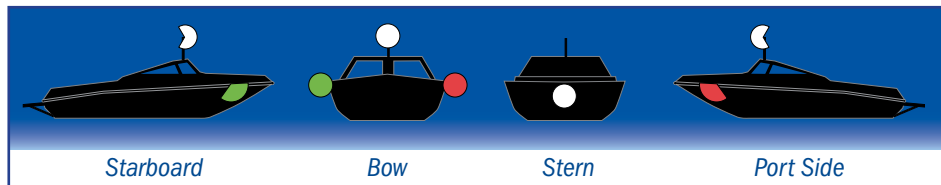
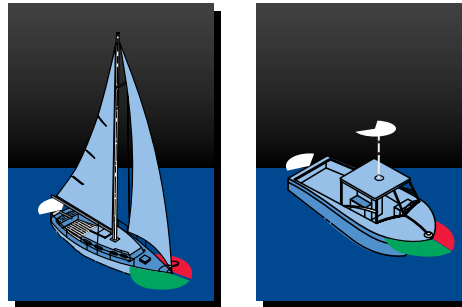
4. BOATING AT NIGHT

Boating at night can make even familiar waters unrecognizable. Visual depth perception is lessened and lights from the shore can be difficult to distinguish from those on the water. To make nighttime boating safer, keep the following in mind.

Navigation Lights

Vessels are required to show navigation lights from sunset to sunrise and during periods of restricted visibility. Understanding these light displays will provide invaluable information to the boater, as these lights can help the boater determine the length of another vessel, its orientation in relation to your boat, and the general direction in which it is headed. All operators must ensure that their vessel's navigation lights are working and that the positioning and distance from which they can be seen meet federal regulations.

It is important to know which navigation lights you will see from another boat in certain situations. This can help you determine if you are in an overtaking, meeting, or crossing situation. The following chart illustrates the navigation lights you will see from various angles:



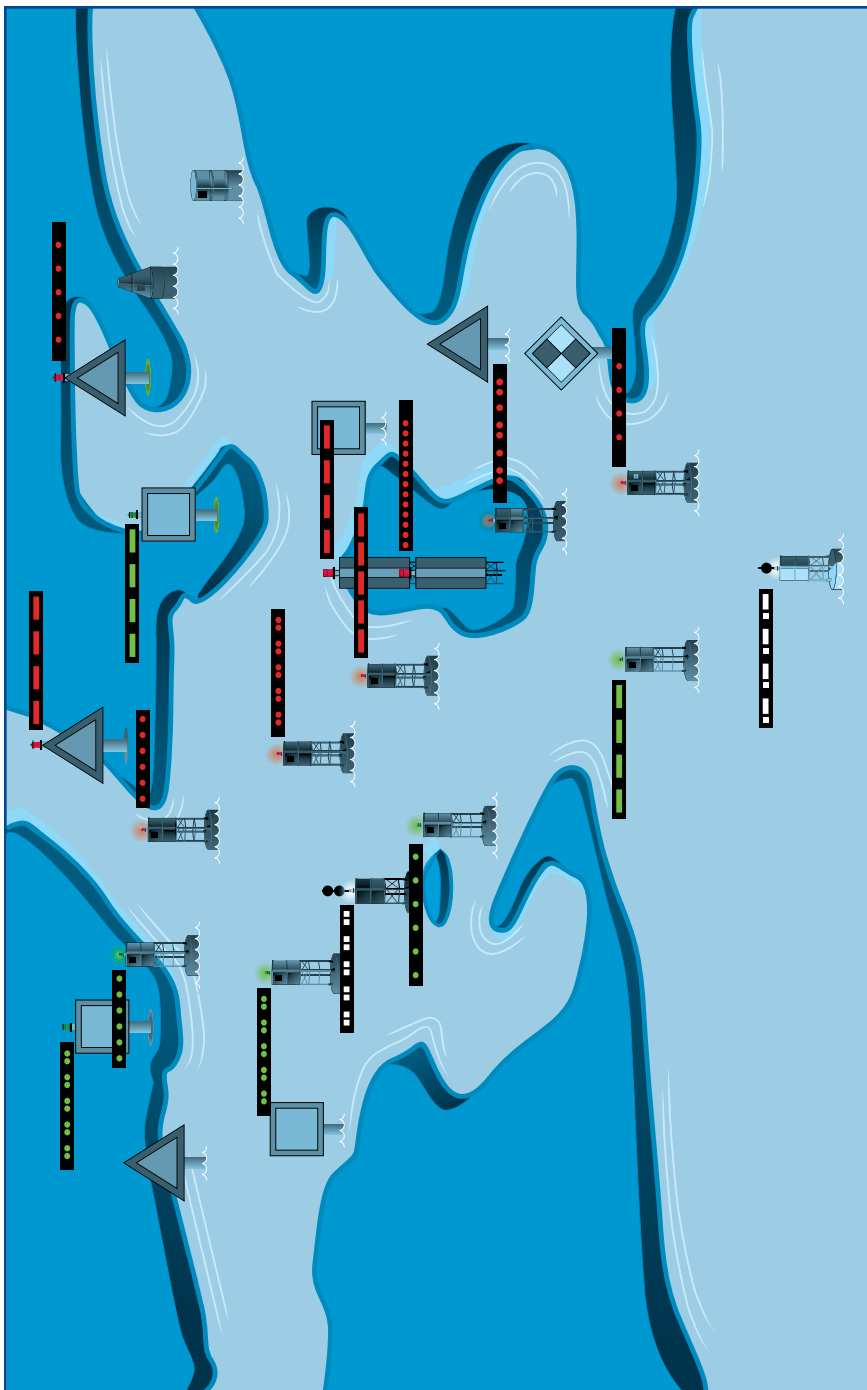
Whenever you see a red navigation light from another vessel, give way. It is the stand-on vessel. According to the Rules of the Road, it has the right of way (see page 2).

If you see both the red and green sidelights of another boat, it is coming straight toward you. You should take action to change course in order to avoid a collision.

Keep in Mind

- It is risky to rely on memory or to take shortcuts at night. Stick to the main channel. Your best bet is to navigate by the appropriate chart and identify the corresponding Aids to Navigation.
- Make sure you are familiar with the handling characteristics of your boat so you can concentrate on interpreting the Aids to Navigation.
- Slow down. Distances are more difficult to judge at night and you will need more time to distinguish the various types of lights you will see: navigation lights, lights from Aids, and lights on shore.
- Listen. You might hear certain sounds before you see the related objects or situations that require you to change course, such as another boat's engine or sound signals, an Aid's bell or gong, or noises from shore. (Note that sound travels far over water.)
- Turn on your navigation lights from sunset to sunrise and during daytime periods of reduced visibility, such as rain and fog.
- Turn off any lights that might interfere with, or be confused with, navigation lights.





Aids to Navigation at Night

At night, Aids to Navigation can only be identified by their light characteristics:

- Color (red ●, green ●, white ○, or yellow ●).
- Light display (sequence of flashes).
- Period (time it takes to go through one sequence of flashes).
- Equipped with retroreflective material.

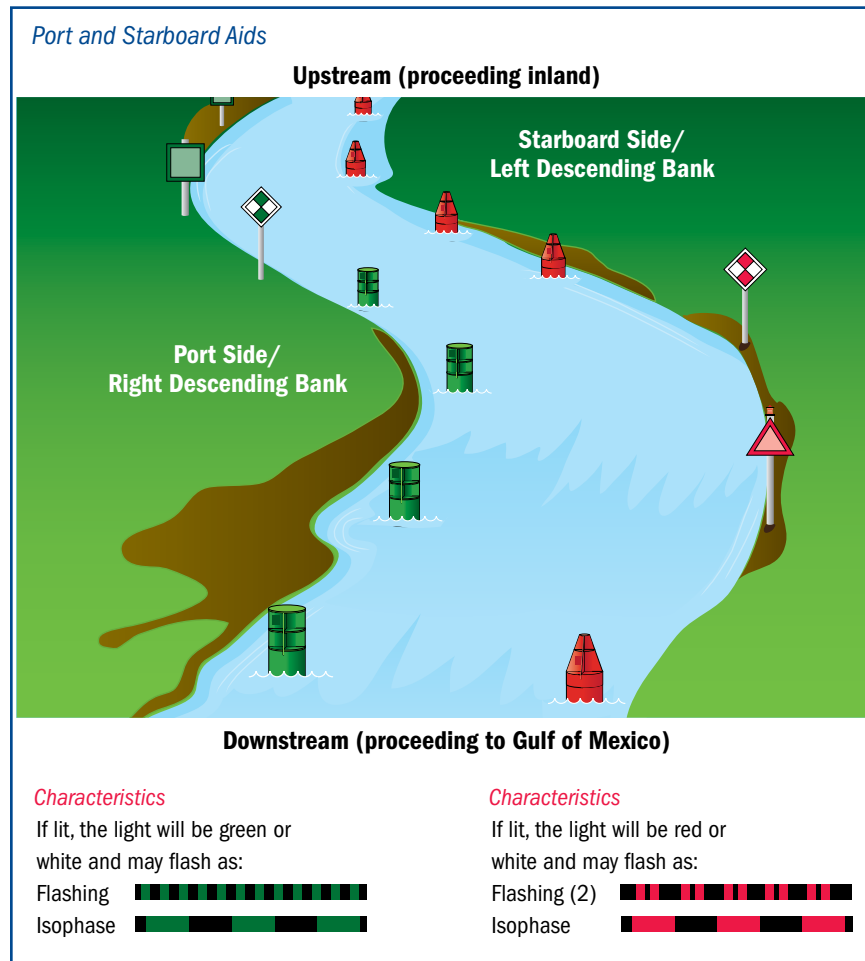
The various combinations of these characteristics enable boaters to tell one Aid from another in darkness. The following shows how common light display characteristics are illustrated and how they operate:

Illustration	Chart Abbreviation	Type/Description
	F	Fixed Shines continuously and steadily; no dark phase.
	Fl	Flashing The light goes on at regular intervals; the duration of the light phases are less than the duration of the dark phases.
	Fl (2)	Group Flashing Groups of two flashes that are repeated several times a minute.
	Fl (2+1)	Composite Group Flashing A group of two flashes followed by a single flash, the entirety repeated several times a minute.
	Iso	Isophase All durations of light and dark are equal.
	Mo (A)	Morse Code Short ("dots") and long ("dashes") flashes of light are used to represent Morse code; usually flashes the letter "A."
	Oc	Occulting The light goes on at regular intervals; the duration of the light phases is greater than the duration of the dark phases.
	Q	Quick (Flashing) Very rapid flashing (more than 60 flashes a minute).

5. AIDS TO NAVIGATION SYSTEMS

Western Rivers Marking System

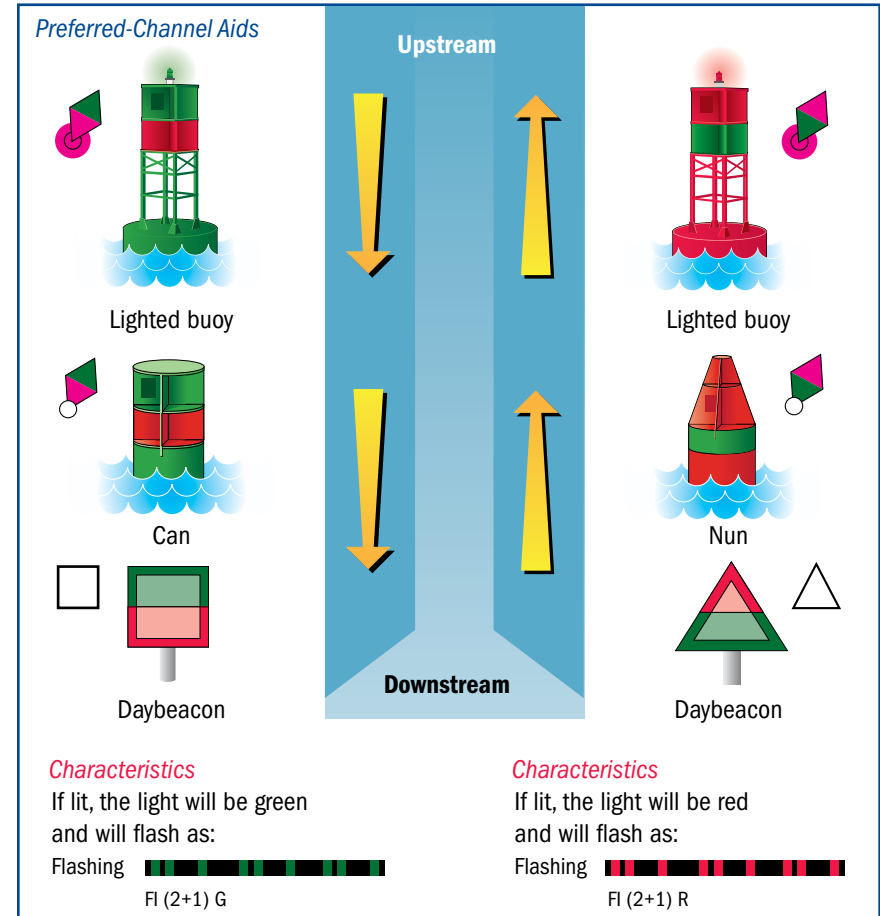
When on the Mississippi River, tributaries above Baton Rouge, and several other rivers that flow toward the Gulf of Mexico, boaters must follow a system called the Western Rivers Marking System, a variation of the U.S. Aids to Navigation System.



In the Western Rivers Marking System:

- Buoys are not numbered.
- Beacons are not numbered, but normally have a mile marker that indicates the distance in statute miles from a fixed point, typically the river's mouth.

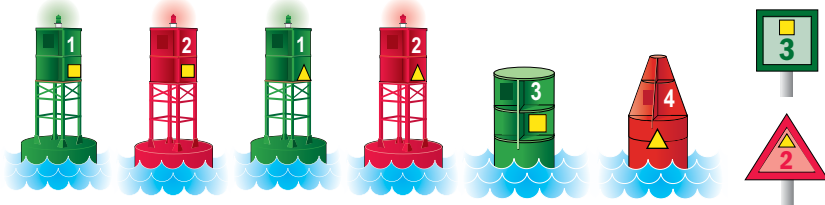
- Crossing daybeacons are used to assist river traffic by indicating where the channel has changed from one side of the river to the other; the aid that marks this channel change will be on the opposite side of the river. When encountered, a vessel operator should head for the Aid, using its color as a channel mark.
- Isolated danger marks and safe-water marks are not used.
- River banks are named based on their downstream direction: either "left bank" and "right bank" or "left descending bank" and "right descending bank."
- Because of their somewhat temporary nature, Western River buoys do not have numbers or letters and are not always marked on river charts because they tend to drift due to fluctuating water level, current speed, and shifting shoals.



Intracoastal Waterway

The Intracoastal Waterway (ICW) runs just inland and parallel to the Atlantic and Gulf coasts from Manasquan, New Jersey to the Mexican border. The Aids to Navigation of the ICW closely resemble the green and red buoys and beacons of the lateral system previously discussed.

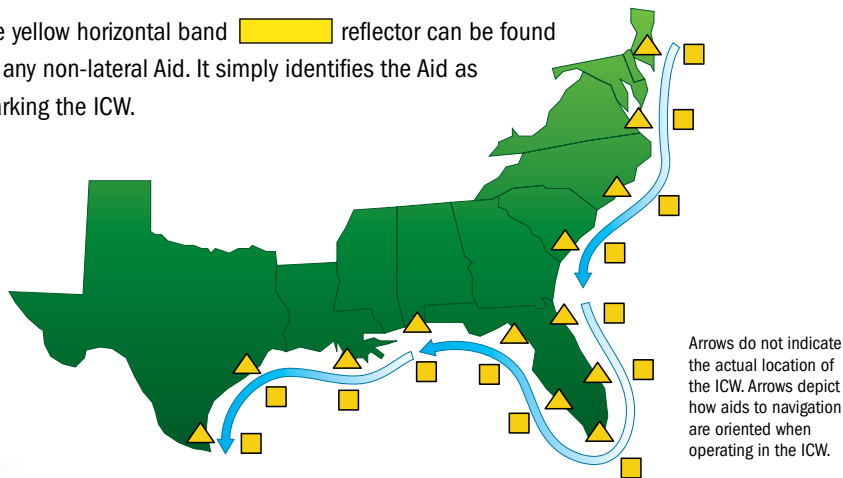
When operating in the ICW, the color of the Aids will typically correspond to the USATONS scheme (Red, Right, Returning). The yellow squares, triangles, and bands attached to the Aids are the primary ICW indicators. Boaters need to understand these markings to safely navigate the ICW. Some examples:



There are three types of symbols:

When following the ICW from New Jersey through Texas, keep yellow triangles ▲ on your starboard and yellow squares ■ on your port, regardless of the color of the Aid on which they appear.

The yellow horizontal band reflector can be found on any non-lateral Aid. It simply identifies the Aid as marking the ICW.

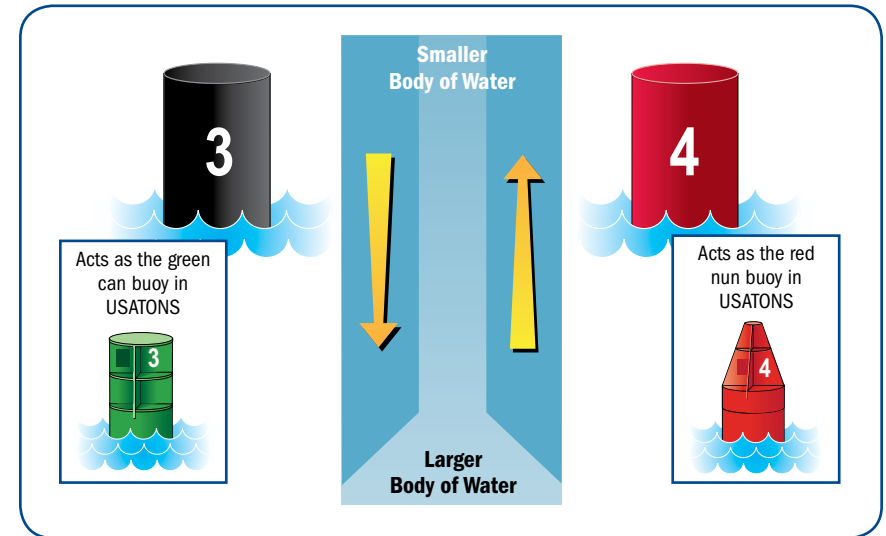


ICW beacons and buoys do not correspond to IALA-B's color system because ICW and non-ICW routes may travel next to each other in opposing directions – and share the same Aids. Thus, when following the ICW, navigate by the yellow symbols; otherwise, navigate by the color of the Aid itself.

Uniform State Waterway Marking System

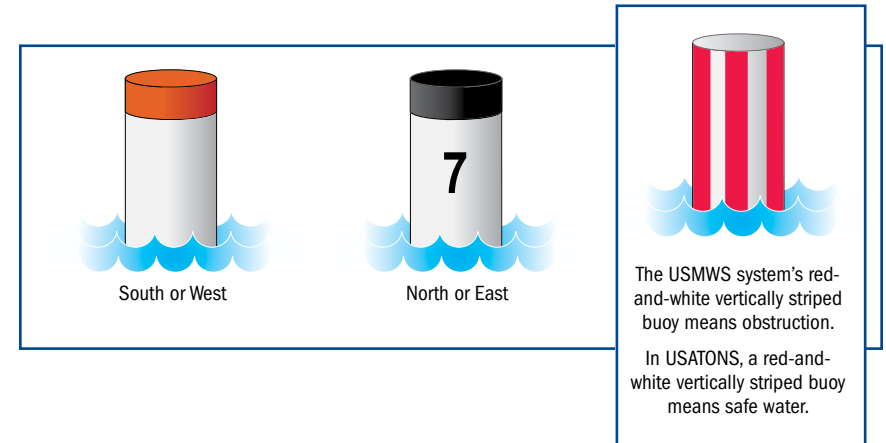
The Uniform State Waterway Marking System (USWMS) was discontinued and replaced by the U.S. Aids to Navigation System (USATONS) in 2003. Should you come across one that has not yet been replaced, a guide is provided below:

Lateral System – USWMS



Cardinal System – USWMS

Cardinal buoys serve as the USWMS version of USATONS' preferred-channel markers, as they indicate the primary route. They are named "cardinal" buoys after the cardinal points (north, south, east, and west) of the compass:

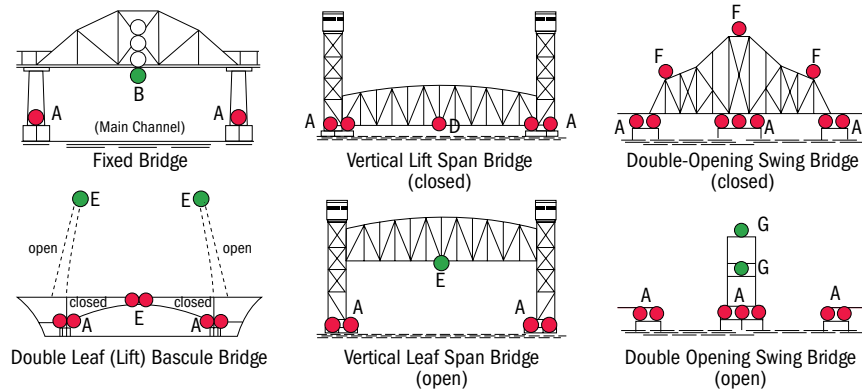


6. SPECIAL SITUATIONS

Bridges

Lighting Systems

Bridges are lit to help boaters navigate under them from sunset to sunrise and during other periods of reduced visibility. In general, red lights indicate portions of the bridge where it is unsafe to attempt passage, and green lights indicate areas of safe passage. See key below.

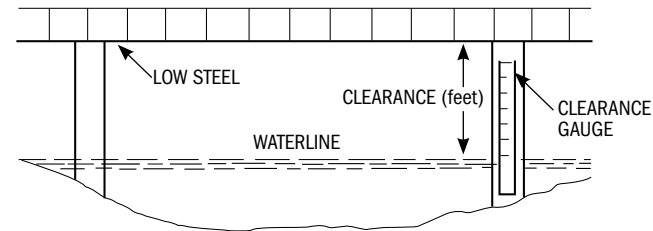


- A ● – Piers and supports.
- B ● – Centerline of navigable channel.
- C ○ – Three white lights stacked vertically show the preferred route, if there is more than one navigable channel.
- D ● – Used on some lift bridges to indicate the lift is closed.
- E ● – Lift is open to vessel traffic.
- F ● – Double-opening swing bridges show three red lights when closed.
- G ● – Double-opening swing bridges show two green lights when open.



Clearance Gauges

If it is not obvious whether or not there is enough vertical room to travel under a certain bridge, boaters should refer to its clearance gauge (affixed to the bridge's right side upon approach). This marks the distance between the “low steel” of the bridge channel span and the waterline, not the depth of the water under the bridge.



Drawbridge-Opening Protocol

When passage under an open drawbridge is required, the boater must make a request of the drawbridge operator. The bridge tender will acknowledge the signal. The most common protocols are:

VHF-FM

- Boaters may hail the drawbridge operator on channels 13 or 16. (Channel 9 should be used in Florida, Georgia, and South Carolina.)
- Always use the low-power output (1 watt) setting.

Sound Signals

Approaching a Closed Draw

- An opening signal consists of one prolonged blast (4 to 6 seconds) and one short blast (1 second); this can be from a whistle, horn, megaphone, or hailer.
- The operator will reply with the prolonged-then-short blast if the draw will be opened immediately.
- Five short blasts in rapid succession mean that the operator cannot comply at that moment.

Approaching an Open Draw

- If the draw is already open, an opening signal (prolonged blast plus short blast) must be made.
- If no reply is received within 30 seconds, you may proceed with caution.
- Five short blasts in rapid succession mean that the operator must close the draw; do not proceed.

Controlled-Access Areas

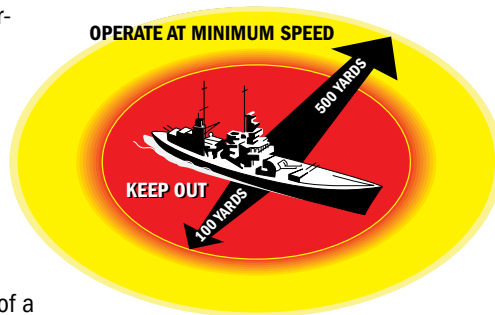
In order to ensure public safety and national security, the Coast Guard periodically establishes controlled-access areas that have special operational or navigational requirements. Safety Zones, Security Zones, and Regulated Navigation Areas might require reduced speed within a certain radius of a salvage operation, for example, or restrict access altogether near a high-profile event or a power plant. These areas should be avoided or approached with caution.

To make sure you know where the controlled-access areas are – and the specific parameters of each – always have the most current nautical chart and the latest Notices to Mariners before you head out (www.navcen.uscg.gov). Contact the local Coast Guard office or other law enforcement agency for specific details about such areas.

As a general rule, however, it is wise to avoid dams, power plants, and commercial port operation areas, especially those that involve the military, cruise lines, or petroleum facilities.

Naval Vessel Protection Zones

A Naval Vessel Protection Zone is a permanent controlled-access area that surrounds every U.S. naval vessel. The parameters are clear: do not come closer than 100 yards of a vessel, and operate at minimum speed within 500 yards of the vessel. Violating a Naval Vessel Protection Zone is a felony offense with the possibility of a prison sentence and/or fines of up to \$250,000.



INFO

If you feel you must enter a controlled-access area to ensure safe navigation, immediately contact the Coast Guard on VHF-FM Channel 16.

Locks

A lock is an engineered structure that enables vessels to move between waterways of differing heights. As when traveling under drawbridges, there are specific procedures in place for navigating through locks. Specifics may vary in certain regions, but in general:

- Stay between the red and green buoys that mark the river's navigable channel.
- Request an opening with a sound signal consisting of one prolonged blast (4 to 6 seconds) and one short blast (1 second) within one mile of the lock; this can be made by using the lock's pull-cord or your whistle, horn, megaphone, or hailer.

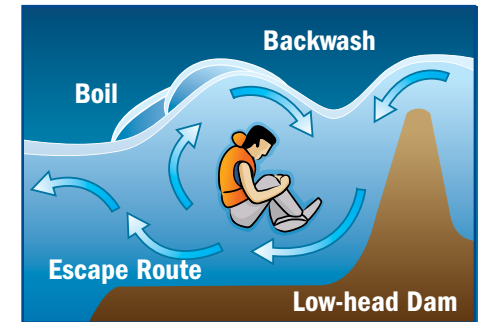
- Wait for the lock operator to signal you with horn blasts; additional signals may include traffic lights or flashing lights.
- Enter the lock at reduced speed.
- Make sure all passengers remain seated and wear their life jackets.
- Tie your craft to the mooring devices after entering; a minimum of 50 feet of line is recommended.
- Use fenders to avoid damage to your vessel and to lock walls.
- When through, wait for the lock operator's signal (horn and/or lights), then leave the lock at idle speed.

There is a specific order of lockage priority among vessels. Military and most commercial vessels have priority over recreational vessels.

Low-Head Dams

Low-head dams have been built to raise the level of rivers or streams for various reasons. They can be extremely dangerous to small boats and swimmers; so much so, they have been nicknamed “drowning machines.”

Small boats may easily become caught within the circular motion (hydraulic) of the dam's fast-moving water. The boat and its passengers may be unable to escape. Low-head dams are particularly difficult to spot on the upstream side; and from any vantage point, they can look harmless. Remember that no matter how short a drop the dam may have, it can still be deadly.



INFO

- *Always portage around low-head dams, regardless of direction of approach. Exit the water well before the dam and return well after.*
- *Not all low-head dams are marked by signage or a danger buoy. Therefore, familiarize yourself with any stream or river before traveling on it.*
- *When traveling downstream, watch for a smooth horizon line. This is a subtle but telltale sign that you are approaching a low-head dam. The scenery beyond it might have the illusion of being cut off or shortened.*

America's Waterway Watch

The U.S. Coast Guard is asking boaters to help keep America's waterways safe and secure.

The Coast Guard has developed a program called America's Waterway Watch (www.americaswaterwaywatch.org). It asks boaters to call 877-24WATCH if they notice suspicious activity or behavior on or near the water.

Things to report include:

- Someone taking pictures, video, or making sketches of facilities like bridges, tunnels, ferry transport systems, fuel docks, or power plants.
- Someone asking a series of questions about access to one of these facilities.
- Someone anchoring, fishing, or diving in an area not typically used for that activity.
- Unattended vessels in unusual locations.
- Unusual transfer of personnel or cargo while underway.
- Seeing a hole in a security fence around an industrial facility.



Do not take matters into your own hands. Call 877-24WATCH. In cases of immediate danger to life or property, call the Coast Guard on Channel 16 VHF-FM, or dial 911 for emergencies.



7. ALWAYS WEAR YOUR LIFE JACKET! (and require the same of your passengers)

The number one cause of on-the-water fatalities is drowning. The number one way to prevent drowning is to wear a life jacket.

The U.S. Coast Guard requires recreational vessels to have a wearable life jacket for each person on board.

All life jackets must be:

- U. S. Coast Guard-approved.
- The proper size for the intended wearer.
- In good and serviceable condition.
- Properly stowed (readily accessible).

Children Must Wear Life Jackets

Federal regulations require that on a recreational vessel underway, children under 13 must wear an appropriate U. S. Coast Guard-approved life jacket, unless they are below decks or in an enclosed cabin. Within a state's waters, if that state has established a child lifejacket wear requirement, that state's requirement applies.



The Coast Guard recommends **all** passengers wear a life jacket at all times when the vessel is underway.

Tips for a Proper Fit – Try It On

- Use the manufacturer's label as a guide to choosing the proper life jacket for your size and weight. It should have a comfortably snug fit.
- With all straps, zippers, and ties securely fastened, raise your arms over your head. The jacket should stay in place and not ride up.
- With your arms at your sides, have someone lift your life jacket straight up at the shoulders. If the jacket comes up more than a few inches, it is too loose.
- It is best to try on a life jacket before a boat trip.
- Life jackets designed for adults will not work for children!

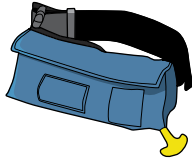
Surprisingly Comfortable

Today's life jackets are lightweight, easy to move in, and come in many sizes, styles, and shapes for every person and every sport. (There are even ones for pets!) Some examples:



Inflatable

for general recreational boating



Belt Pack Inflatable

for general recreational boating



Vest-Type Flotation Aid

for personal watercraft, waterskiing, and water sports



Child Hybrid Inflatable

for general recreational boating



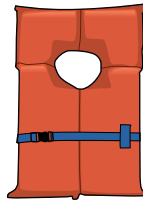
Child Life Jacket

for general recreational boating



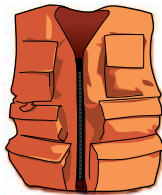
Flotation Aid

for general recreational boating



Vest Type

for general recreational boating



Inflatable Fishing Vest

for angling and hunting



Paddling Jacket

for paddlesports



Offshore Vest

for offshore boating and racing

Key to the U.S. Aids to Navigation System (IALA-B)

B – Black

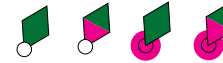
Bn – Beacon

examples:



C – Can Buoy

examples:



F – Fixed

Fl – Flashing

Fl (2) – Group Flashing



Fl (2+1) – Composite Group-Flashing

G – Green

Iso – Isophase

J – Junction (S or T Dayboard)

examples:



Position of light

M – Safe Water (Octagonal)

example:

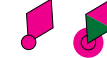


Mo (A) – Morse Code letter "A"



N – Nun Buoy

examples:



Oc – Occulting

Or – Orange

Pri – Private

Q – Quick (Flashing)

R – Red

S – Square Dayboard

examples:



s – seconds

T – Triangle Dayboard

examples:



W – White

Y – Yellow

How to Report Aids to Navigation Discrepancies to the Coast Guard

Please report discrepancies or outages to any Aid to Navigation (GPS, DGPS, buoys, lights, dayboards, etc.) to the nearest U.S. Coast Guard station. You can do this 24 hours a day, 7 days a week via radio, telephone, fax, visiting www.navcen.uscg.gov, or by e-mailing navcen@uscg.mil. To reach the U.S. Coast Guard Navigation Center by telephone, call (703) 313-5900.

Reporting can help prevent accidents caused by such defects; you will be helping other boaters stay safe.

All Aids to Navigation are Protected By Law

It is a criminal offense to cause any damage or hindrance to the proper operation of any Aid. Do not alter, deface, move, or destroy any Aid to Navigation. Never tie a vessel to a buoy, daybeacon, or light structure. Avoid anchoring so close to an Aid that the Aid is obstructed (hidden) from sight of another vessel. Report all intentional or unintentional collisions with navigation Aids to the U.S. Coast Guard.

Most boating accidents are preventable! Be sure to:

For more information please contact:



- Always wear your life jacket and require the same of your passengers
- Never boat under the influence
- Take a boating safety course
- Get a free Vessel Safety Check

www.uscgboating.org

