

## Aids to Navigation

### Nav-Aid Basics

Unlike the roads and highways that we drive on, the waterways we go boating on do not have road signs that tell us our location, the route or distance to a destination, or of hazards along the way. Instead, the waterways have AIDS TO NAVIGATION (or ATONS), which are all of those man-made objects used by mariners to determine position or a safe course.

These aids also assist mariners in making a safe landfall, mark isolated dangers, enable pilots to follow channels, and provide a continuous chain of charted marks for precise piloting in coastal waters. The U.S. Aids to Navigation System is intended for use with nautical charts, which provide valuable information regarding water depths, hazards, and other features that you will not find in an atlas or road map.

The term "aids to navigation" includes buoys, day beacons, lights, lightships, radio beacons, fog signals, marks and other devices used to provide "street" signs on the water. Aids To Navigation include all the visible, audible and electronic symbols that are established by government and private authorities for piloting purposes.

The Coast Guard is the agency responsible for maintaining aids to navigation on U.S. waters that are under federal jurisdiction or that serve the needs of the U.S. armed forces. On bodies of water wholly within the boundaries of a single state, and not navigable to the sea, the Coast Guard grants the state responsibility for establishing and maintaining aids to navigation. The U.S. Corps of Engineers is responsible for many of the canals, dams, locks, and other man-made waterways in the country. The Corps also is responsible for the regulation of mooring buoys in all navigable U.S. Waters.

The individual Coast Guard districts also may grant permission to private groups and citizens to place "Private" Aids to Navigation. These aids allow individuals or organizations the ability to mark privately maintained channels, zones or waterways. These aids must be pre-approved, and must be maintained by the individual or organization.

### Types of Aids to Navigation

The term "aids to navigation" encompasses a wide range of floating and fixed objects (fixed meaning attached to the bottom or shore), and consist primarily of:

- **Buoys** - floating objects that are anchored to the bottom. Their distinctive shapes and colors indicate their purpose and how to navigate around them.
- **Beacons** -Which are structures that are permanently fixed to the sea-bed or land. They range from structures such as light houses, to single-pile poles. Most beacons have lateral or non-lateral aids attached to them. Lighted beacons are called "LIGHTS", unlighted beacons are "DAYBEACONS".

Both Buoys and Beacons may have lights attached, and may have a sound making device such as a gong, bell or horn. Both Buoys and Beacons may be called "marks".

**CAUTION** - Do not count on floating aids to always maintain their precise charted positions, or unerringly display their characteristics. The Coast Guard works constantly to keep aids on station and functioning properly, but obstacles to perfect performance are so great that complete reliability is impossible. Only use floating aids for use as a navigation fix when **YOU CANNOT SEE A FIXED POINT OF REFERENCE.**

### Aids to Navigation Systems

Depending on where you boat in America, you may see several differences in how navigational marks are colored, numbered, or lighted. Regardless of the location, buoys and beacons are placed in very specific locations, to mark either a particular side of a waterway, or some other navigational feature. The primary system in use is referred to the "U.S. Aids to Navigation System". The U. S. Coast Guard maintains this system

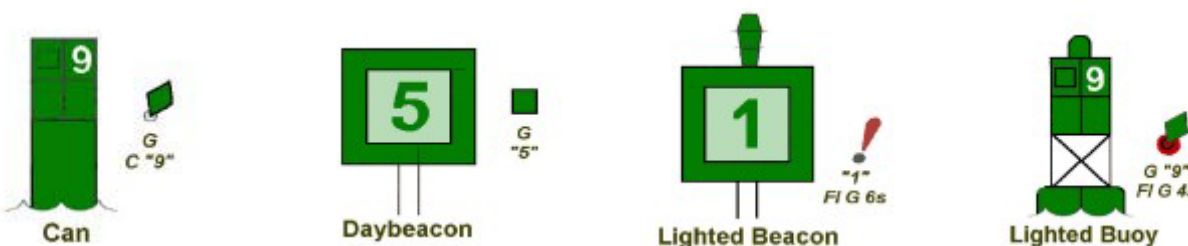
in conformance to the International Association of Lighthouse Authorities (IALA), which is an international committee which seeks to ensure safe navigation, primarily through the use of common navigation aids and signals.

The "LATERAL" system is the familiar RED RIGHT RETURNING system, meaning that on all navigable waters returning from sea, the red even-numbered marks are on the starboard (right) side of the channel and the green odd-numbered marks are on the port (left) side of the channel. Numbers on the marks ascend when traveling from sea to harbor--if you don't have a compass and become disoriented on the water, you will always know you are heading upstream if the buoy numbers get larger as you travel.

### Port Side Odd Numbered Aids

Are numbered with odd numbers, are green in color, and may be lighted (Will have a green light).

Port side marks are located on the left side of the waterway as you travel upstream, and the buoy numbers will increase as you head upstream. (Chart depictions are shown next to the marks) Port-Side Buoys have a cylindrical above-water appearance, like a can or drum floating on its axis. Commonly referred to as "CAN" buoys. Beacons - Port side beacons have square marks attached to them, with two shades of green and a reflective border.

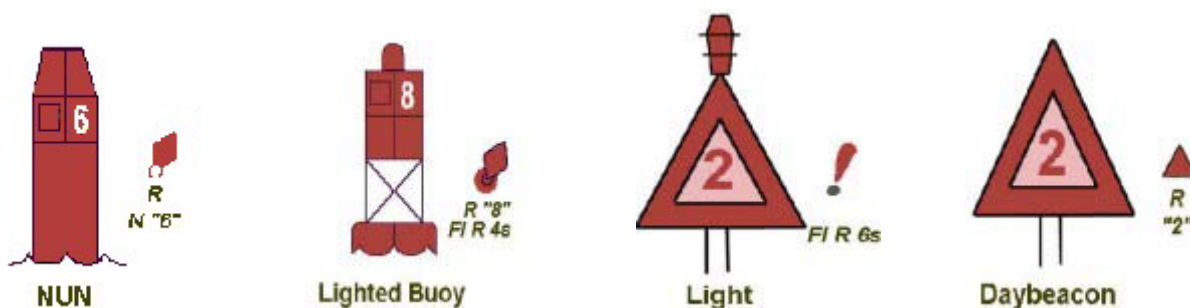


### Starboard Side Even Numbered Aids

**Starboard aids are red in color, evenly numbered,** and will be on your right side as you travel upstream. Buoy numbers increase as you head upstream, and may have a red light.

Starboard-side Buoys have an above-water appearance like that of a cylinder topped with a cone, pointed end up. The cone may come to a point or be slightly rounded. Commonly referred to as "NUN" buoys.

Starboard-side Beacons have triangular marks attached to them, with two shades of red and a reflective border.



### INTERCOASTAL WATERWAY

For the sea buoys that delineate channels off the coast of the United States, and for the Intracoastal Waterway (ICW), red is on the right (shore side) when proceeding clockwise around the U. S. from the East Coast to the Gulf Coast, or proceeding north along the West Coast.

ICW marks are further identified by a small yellow reflector at the bottom of the mark. The same port and starboard marks shown above will look like the following:



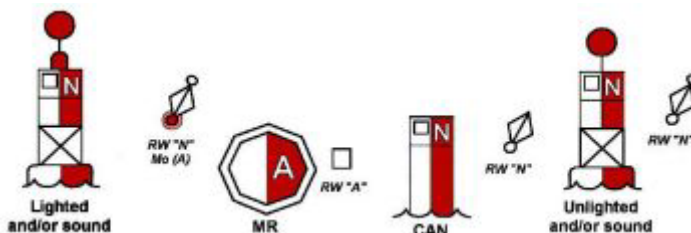
Numbers on the marks ascend when traveling in this direction. Where the IALA-B and ICW marks meet, one must be very careful to observe the change in meaning by referral to local charts.

**OTHER AIDS**

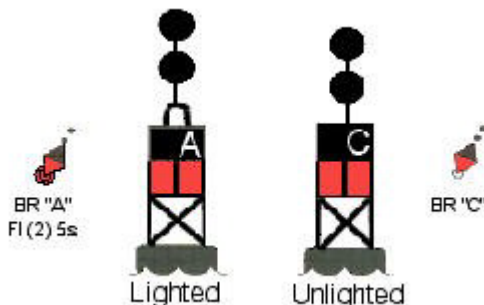
**DAYBOARDS** - These diamond shaped marks are used to help the vessel operator determine location on a nautical map. When you see a dayboard, and find the corresponding mark on the chart, you know your precise location. They may be lettered, and may be lighted with a white light. Their color reflects that of nearby lateral marks.



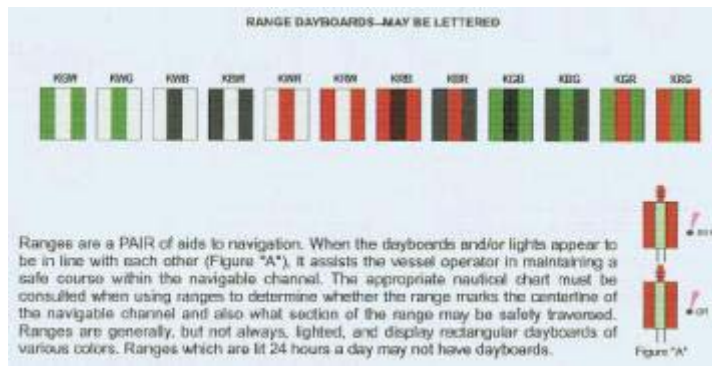
**SAFE WATER MARKS** - These marks are used to mark fairways, mid-channels, and offshore approach points. They have unobstructed water on all sides. These marks may be lettered, and may be lighted with a white light. They may also have a red top mark.



**ISOLATED DANGER MARKS** - These indicate a danger which may be passed on all sides. They are erected on, or moored on or near danger. They should not be approached closely without special caution. They may be lighted, and they may be lettered.

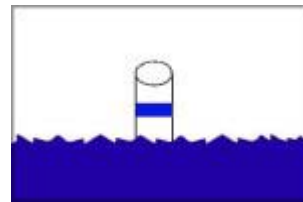
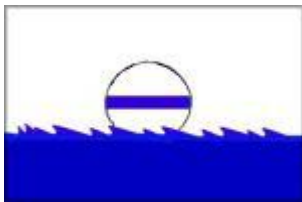


**Ranges** - pairs of unlighted or lighted fixed aids that when observed in line show the pilot to be on the centerline of a channel.



(Click on image)

**MOORING BUOYS** - Mooring buoys come in two different shapes; spherical and cylindrical. Both have white bodies with a solid blue horizontal band on the center of the buoy. Mooring buoys may have a white reflector, or a white light attached to them. Mooring buoys are the **ONLY** buoys to which you may legally tie your boat. Buoys are generally placed in marked anchorage areas, and you must take caution if you are traveling near buoy areas. Check your state boating guide for particular operating restrictions in anchorage areas.

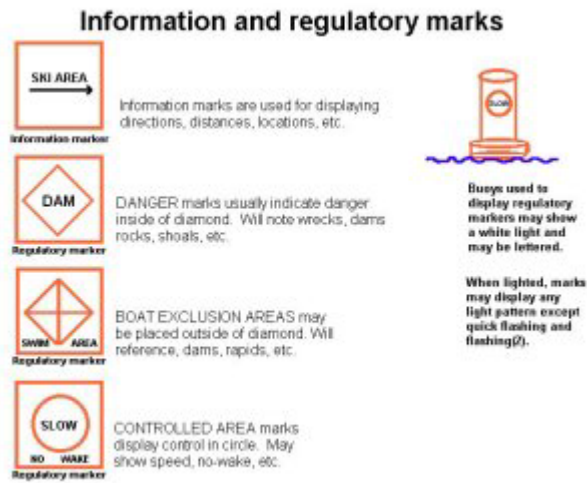


**SPECIAL MARKS** - Special marks have no lateral significance (meaning they don't tell you which side of the channel or river you may be on). These marks are used to mark a special feature or area. These include area limits for anchorages, fishing grounds, or dredging/spoil areas. These buoys may be lighted, and if they are it will be a fixed or flashing yellow light. Shape is optional, but usually follows the shape of the navigation buoys that it is positioned near.



**REGULATORY MARKS** - Are designed to assist boaters by informing them of special restrictions or dangers that they are approaching. Regulatory marks are white "can" buoys that have an orange shape on them. The mark will give either a warning or instructions on how to proceed. The shape determines what type of mark it is.

- An open diamond shape signifies danger.
- A diamond with a cross in it signifies an exclusion area that you may not enter.
- A circle indicates an upcoming operating restriction, such as a speed limit.
- A square or rectangular shape is used for conveying instructions.



(Click image to see Regulatory Buoys)

## UNIFORM STATE WATERWAY MARKING SYSTEM

This system was originally intended for use on lakes and inland waterways that weren't covered by nautical charts. Many states use this system for their waterways, though the system is being phased out and being replaced by the Federal system shown above. Though the system operates under essentially the same format as the Federal System, there are a few differences that you should know about.

### Lateral Aids

The state system differs in several ways:

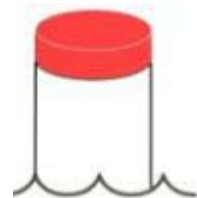
- Buoys are placed in pairs, and you pass in between them.
- State buoys do use the color red for starboard side marks, but they are cans, and not nuns, while port buoys are black and can-shaped.
- Numbers on buoys go up as you head upstream, or towards the head of navigation.
- Portside buoys use the color black instead of green
- Are numbered with odd numbers
- May show a green reflector or light
- Starboard side buoys are red
- Are numbered with even numbers
- May show a red reflector or light



### Other State Aids

#### Red-topped White Buoys

- Signify that you may pass south or west of buoy
- May be numbered
- May show a white reflector or light



#### Red-striped white Buoys

- Signify that you should not pass between mark and nearest shore
- May be lettered
- May show white reflector or light



### Black-topped White Buoys

- Signify that you may pass east or north of buoy
- May be numbered
- May show a white reflector or light

