

## Boating Tips

### Aids To Navigation

One of the things I stress when instructing is understanding how to use the “lateral bouyage system” while navigating the waterways of the Bay and Delta. The key to understanding this system is a simple, easy-to-remember phrase that will orient you

as to where you should navigate in relation to the buoys you encounter.

“Red – right – returning” is the phrase. This means you keep the red buoys on the right or starboard side of your vessel as you are returning (relatively) from the ocean. The term “relative” means if you are going (for example) from Pittsburg



to Stockton, then you are returning from the ocean even though you have not been out there.

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, direction, 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, marking isolated dangers, enabling pilots to follow channels, and providing a continuous chain of charted marks for precise piloting in coastal waters. The U.S. ATON 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 Coast Guard is the agency responsible for maintaining ATONs on U.S. waters that are under federal jurisdiction or that serve the needs of the U.S. armed forces.

The individual Coast Guard districts may grant permission to private groups and citizens to place “private” aids to navigation. These aids allow individuals or organiza-



Crewmembers on the U.S. Coast Guard Cutter *Aspen* lower the San Francisco Approach Buoy onto the deck of the Cutter after retrieving it from the bottom of the water. The buoy was missing after an outbound ship reportedly struck it.

tions 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 ATONs

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.

**Buoys:** Floating objects that are anchored to the bottom. Their distinctive shapes and colors indicate their purpose and how to navigate around them.

**Beacons:** Structures that are permanently fixed to the seabed or to land. They range from structures such as lighthouses to single-pile poles. Most beacons have lateral or non-lateral aids attached to them. Lighted beacons are called “lights” and unlighted beacons are “day beacons.”

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.”

## ATON Caretakers

So who takes care of all these ATONs? To find out, I contacted Jordan Akiyama, Fireman, Aids to Navigation Team, San Francisco (also referred to as ANT San Francisco) for an interview about the subject of ATONs from his perspective:

### What is the history of ATONs in Northern California?

The Aids to Navigation (ATON) system is one of the oldest missions in the Coast Guard, dating back to the Lighthouse Service established in 1789 by then-Secretary of the Treasury Alexander Hamilton. Nearly 65 years later, the first lighthouse on the West Coast was built in 1854 on an island in the middle of San Francisco Bay now known as Alcatraz.

### What type of equipment does the ANT San Francisco use?

Aids to Navigation Team (ANT) San Francisco utilizes two 26-foot Trailer Aids to Navigation Boats (TANBs) with Differential Global Positioning System (DGPS) equipment. Each TANB is also equipped with a small davit with a hoisting limit of 500 lbs. When working a buoy deck, the ANT crewmember dons a per-



Seaman Alysia Orozco, a buoy deck rigger aboard the *Aspen*, cuts damaged chain off of a buoy using an oxyacetylene cutting torch.

sonal flotation device, a hard hat, safety glasses, safety boots and working gloves for protection. In addition to small boats, the ANT also maintains three government vehicles and two portable aid-positioning kits.

### How many Aids to Navigation does ANT SF service?

ANT San Francisco has one of the largest Area of Responsibilities (AOR) on the West Coast. ANT SF accounts for and services approximately 575 primary and

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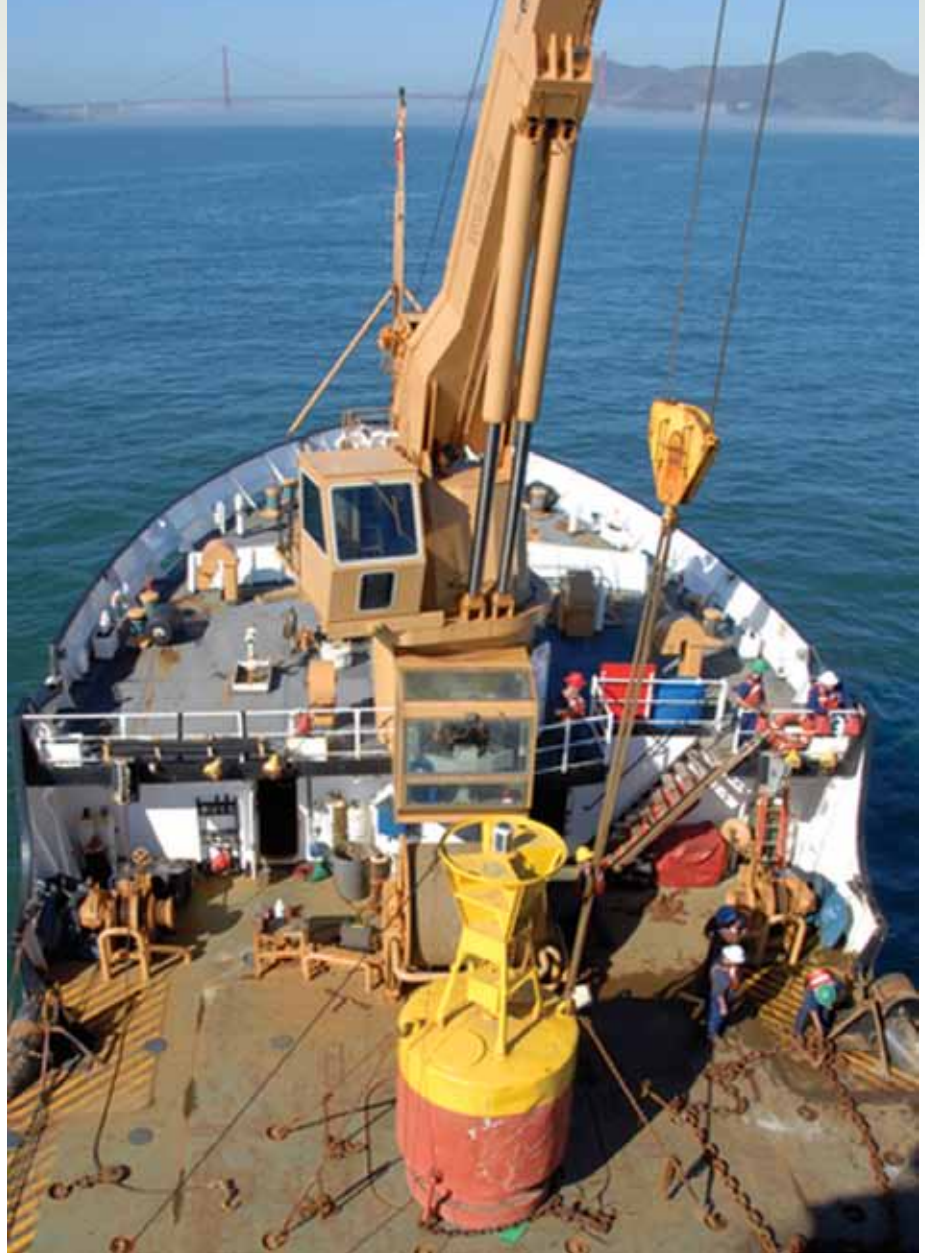
150 secondary aids, with an AOR from as far north as Bodega Bay reaching down south to Point Sur and moving east inland through the winding channels and rivers of the Delta to the far peaks of Lake Tahoe, NV.

### What kind of problems does ANT SF run into?

Much like any job in the Coast Guard, working aids can be dangerous. From climbing fixed aids and range beacons that tower between 10 to 75 feet above the ground, to 115-lb., fifth-class foam buoys attached to 300-lb. sinkers with up to 90 feet of steel chain laid out across your buoy deck, this job has no place for complacency.

On one occasion, I recall having to climb a 13-foot buoy that was located offshore in Half Moon Bay. It was a typical gloomy Northern California day and the current was whipping up these 3-foot swells. Growing up in Hawaii, 3-foot swells are nothing; however, when you're getting seasick on top of a 13-foot buoy holding on with one hand for dear life and trying to manually service a light with the other, 3-foot swells are no laughing matter.

Along the Delta and other inland waterways, the Coast Guard has many fixed aids (large 18-inch diameter, steel, pillar-type structures with dayboards and/or lights installed on top). These fixed aids allow many of the shipping vessels to safely navigate through the rivers and narrow channels of the Bay. Much of the problems encountered out there involve knock-downed or damaged structures, wasps, spiders,



Members of the *Aspen's* buoy detail team prepare to deploy the Fleet Week center buoy here Oct. 8, 2008. The buoy is used as a point of reference for air show performers, such as the Navy's Blue Angels.



The *Aspen* steams past the San Francisco skyline.

# KEVO'S Boating Tips

bird guano, batteries that power the light being stolen or the lights themselves being shot out.

## What justifies the existence of the ANT?

As one of the primary objectives of the Coast Guard's 11 maritime missions, aids to navigation remains among the most modest. Statutory Authority (14 USC 2) and (14 USC 81) authorizes and defines the U.S. Coast Guard's role in establishing and maintaining federal aids to navigation. Aside from marking shipping channels and ports so that ships and vessels can safely navigate, the ANT is also responsible to mark areas where vessels have sunk or run aground.

## How many members are on ANT SF?

ANT San Francisco stands 17 members strong. Every member is specially trained in the field of aids to navigation and capable of working a fifth-class foam buoy and performing maintenance on the lights and lighthouses that are used to guide ships along safe waters. A crew generally consists of at least four: an ATON Coxswain, a Buoy Deck Supervisor and two ATON Crewmembers.

## What are the different types of federal ATONs?

ANT San Francisco's primary mission is to maintain three types of federal aids.

First is a fifth-class foam buoy, which weighs 115 lbs. fully assembled. It attaches to one-half-inch



Buoys stand at attention on the deck of the *Aspen* awaiting deployment into the Pacific Ocean.

steel chain that has a shot length of up to 90 feet and weighs 210 lbs. At the bottom is a Dor-Mor® Pyramid Mooring Anchor or concrete sinker that can weigh up to 300 lbs.

Second are the fixed aids. They're pillar-lighted structures with metal cages attached that are punched into the seabed. In the Bay Area, a fixed aid can range any-



Jordan Akiyama, Fireman on the USCG Aids to Navigation Team, San Francisco.

where between 5 to 35 feet above the waterline and up to 75 feet when installed on land. Fixed aids provide the same navigational function as a buoy, but stand higher up out of the water. In addition, these aids are assigned to a fixed position on a navigation chart.

Last is the lighthouse. Among the oldest forms of nautical trafficking, the lighthouse took its origin off the coast of Boston Harbor. The lighthouse was designed to alert ships of hazardous areas along the shoreline. And out of all the aids lighting the waterways, the lighthouse remains the most visible and prominent.

### **What is the future of ATONs as technology advances?**

Over the past year, the Coast Guard has been moving toward

Light Emitting Diode (LED) lights to replace the legacy incandescent lanterns on the top of their aids. The LED conversion is more efficient and practical than that of its predecessors. The LED lights are self-sustained, meaning the LED comes equipped with an internal power supply rather than having to rely on an outside source such as a 12-volt battery for power.

Like the older lights, it still uses solar power to recharge itself, but the LED technology allows the aid to burn brighter and longer since it only requires a fraction of the energy. The LED is also smaller and more portable, which allows the ANT to place them on top of smaller foam buoys as well as temporarily correcting discrepancies.

Many of the lighthouses in Northern California, such as Point Montara and Farallon Islands Light,

are very old and many of the parts needed to keep them operating are no longer in production, which keeps maintenance on these lights difficult. The Coast Guard has recently begun converting some of these lighthouses to a tier-type LED system as a way to save energy and to ensure these lights keep burning brightly.

#### **Kevo's Tip:**

The ANT San Francisco from the USCG works hard to keep the ATONs in place and safely guiding the mariners of NorCal. The next time you see one of the teams working on an ATON, slow down so as not to wake them. Lastly, never tie up to an ATON unless you are in distress.

**As always, feedback is appreciated. I can be reached at 925/890-8428 or kevo@yachtsmanmagazine.com. #**