



safe boating hints for the

# San Francisco Bay



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THE RESOURCES AGENCY  
DEPARTMENT OF BOATING AND WATERWAYS

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## History and Physical Description of San Francisco Bay

In 1769 Sergeant Jose Francisco de Ortega of Portola's Spanish expedition was probably the first European to see San Francisco Bay from the area now called Sweeney Ridge in San Mateo County. In 1775 Lieutenant Juan Manuel de Ayala sailed into San Francisco Bay, and a year later Mission Dolores and the Presidio of San Francisco were established.

San Francisco Bay is a part of the more complex San Francisco Bay estuary system, which includes San Pablo Bay and Suisun Bay, the Carquinez Strait, the tidal marshes surrounding these waters, and river tributaries. San Francisco Bay estuary, which consists of 480 square miles, 12 islands, and two trillion gallons of salt water, can be thought of as two separate areas: the northern, which passes south and westward from the Delta through Suisun and San Pablo Bays, and the southern (also called the South Bay) which extends southeastward toward San Jose. These two areas join in the Central Bay near the Golden Gate Bridge and flow out to the Pacific Ocean.

The entire bay is relatively shallow, with narrow, deep channels near the Golden Gate and Carquinez Strait which tend to be maintained by tidal currents. These tidal currents are swift and should be treated with respect. Under spring or storm tidal conditions, the current can be dangerous to small craft.

Entrance to San Francisco Bay is from the Gulf of the Farallones, a body of unprotected waters between the San Francisco coastline and the mini-archipelago known as the Farallon Islands.

The gulf can provide a magnificent cruise to the Farallon Islands and adjacent grounds during mild weather. More often, the passage is turbulent and, for many recreational boaters, the first taste of the open sea. The Islands make up the Farallon National Wildlife Refuge and landings are not permitted. For cruising boaters in distress, the Islands offer no real port of refuge.

Northern, western and southern traffic sea lanes converge halfway inside the gulf toward San Francisco on the San Francisco precautionary area 11 miles off shore. From this point, the main channel flows shoreward through four sets of buoys to the Golden Gate. The channel divides the immense horseshoe shallows surrounding the gate into the wide South Bar and the northern Four Fathom Bank, atop which rests the Potatopatch Shoal. Navigating in this area requires the utmost caution, as the seas will often vary with the weather, tides, and seasons, and may become impassible for small craft. The tides in the bay are mixed; two cycles (two low and two high tides) occur each tidal day, and the highs in each cycle are usually quite different in height as are the lows. It is recommended that boaters familiarize themselves with the tidal action in the area in which they will be boating.

San Francisco Bay offers a variety of recreational boating activities. Boating accidents occur each year, however, because boaters overestimate their ability or underestimate the water conditions. The following basic safety tips will help boaters enjoy this beautiful waterway.

## The Golden Gate

Water conditions around the Golden Gate and the Golden Gate Bridge may present several problems for boaters. Tidal currents and wind velocities are increased in the confined area between Alcatraz Island and the bridge. The shallow San Francisco Bay Bar surrounds the outside entrance of the bridge in the shape of a horseshoe. Very dangerous conditions develop over the bar where large swells, generated by storms far out in the Pacific Ocean, reach the coast. A natural condition, called "shoaling," causes the large swells to increase in height when they move over the shallow water shoals. This "piling up" of the water over the shoals is worsened when the tidal current is flowing out (ebbing) of the Golden Gate. The outbound tidal current is strongest between the time of high tide and the next low tide. The incoming large swells are met by the outbound tidal current, causing very rough and dangerous conditions over the bar.

The most dangerous part of the San Francisco Bay Bar is considered to be the shallow northwest portion, better known as the Potatopatch. The Bonita Channel, between the shoal and the Marin coast, can also become very dangerous during large swell conditions. The safest part of the bar is the main ship channel through the center of the bar; but even that area can be extremely dangerous when the tidal current is ebbing. It may be safer to remain at sea or in the bay until tide and/or wind conditions change and calmer seas occur. This is a very difficult crossing to make in bad weather or predominantly strong ebb tide conditions. Steep waves 20 to 25 feet high have been reported over the bar. Conditions over the bar may change considerably in a relatively short period of time.

Boaters should not attempt crossing without first consulting Chart #18649 of San Francisco Bay and the U.S. Coast Pilot No. 7. The chart and the Coast Pilot No. 7 can be purchased through authorized nautical chart agents.

## Vessel Traffic Service

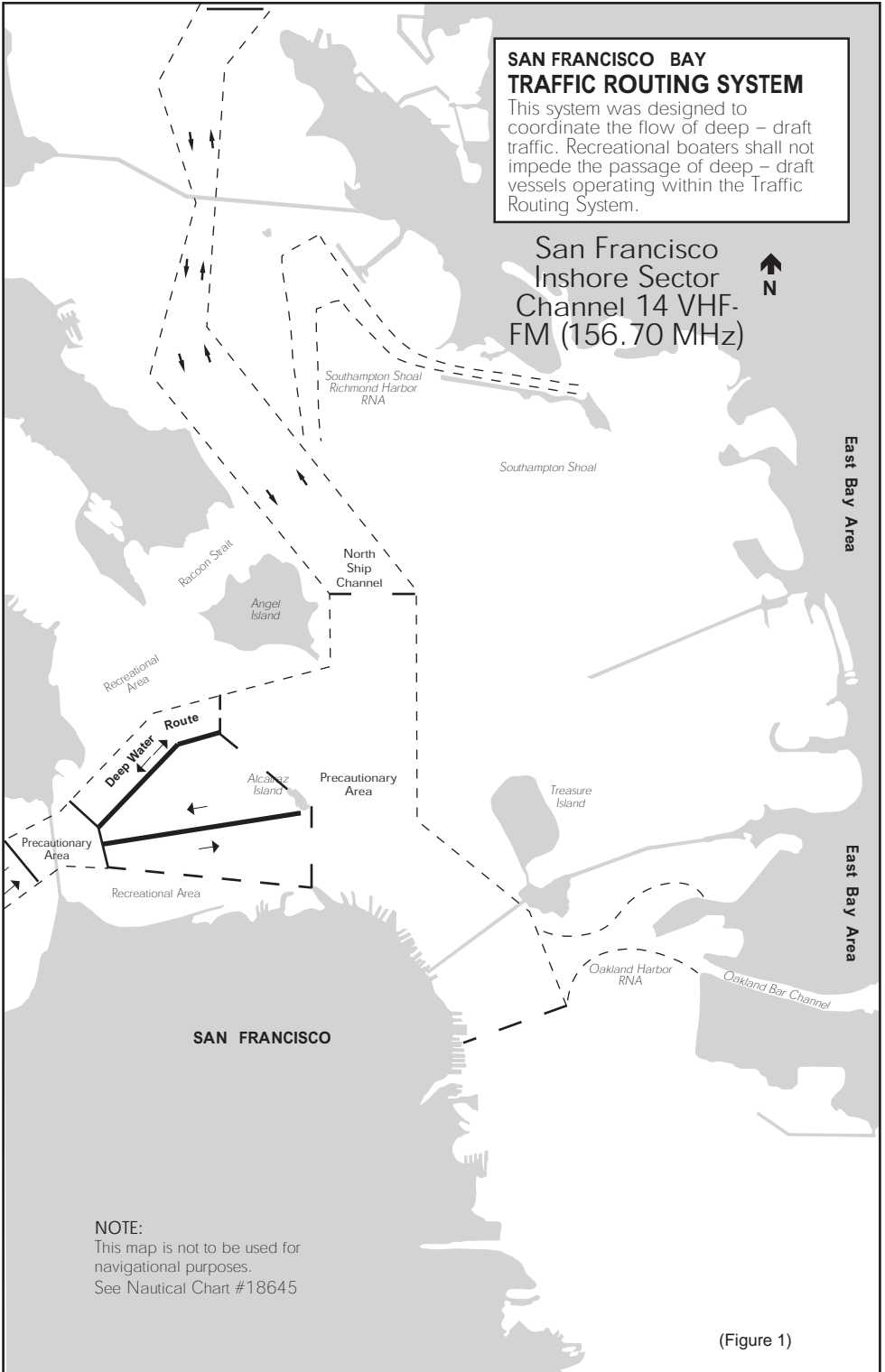
San Francisco Bay is the fifth largest port in the nation. To minimize the risk of collisions and groundings of large, ocean-going vessels, the U.S. Coast Guard's Vessel Traffic Service (VTS) was established in 1972. The system designates separated traffic lanes, a precautionary area and seven regulated Navigation Areas, to coordinate the flow of deep-draft traffic into, out of and within the central portion of the bay.

The rules of the road state that vessels of less than 20 meters (66 feet), vessels engaged in fishing, and all sailboats shall not impede the passage of a vessel that can safely navigate only within a narrow channel or fairway (i.e., the traffic routing system). When practicable, boaters should travel in the direction specified by the routing system, staying to the righthand side of channels, precautionary areas, and traffic lanes. In addition to these legal requirements, common sense should tell boaters that the right of way should be given to any large vessel navigating in a narrow channel. Because these ships require a greater area to maneuver and longer distances to stop, small craft should give them a wide berth. Due to their size, large vessels may appear to move slowly, but actually move very rapidly. The traffic lanes to which the deep-draft vessels are restricted are deeply dredged but narrow; because of the length of the deep-draft vessels, a sharp maneuvering turn can easily result in a grounding. The

## SAN FRANCISCO BAY TRAFFIC ROUTING SYSTEM

This system was designed to coordinate the flow of deep-draft traffic. Recreational boaters shall not impede the passage of deep-draft vessels operating within the Traffic Routing System.

San Francisco  
Inshore Sector  
Channel 14 VHF-  
FM (156.70 MHz)



**NOTE:**  
This map is not to be used for navigational purposes.  
See Nautical Chart #18645

(Figure 1)

## PRECAUTIONARY AREA

Traffic within the Precautionary Area may consist of vessels making the transition between the main Ship Channel and one of the established traffic lanes. Mariners are advised to exercise caution when navigating within this area.

San Francisco  
Offshore Sector  
Channel 12 VHF-  
FM (156.60 MHz)



Commercial Vessel Reporting Radius

Faillon Islands

Precautionary Area

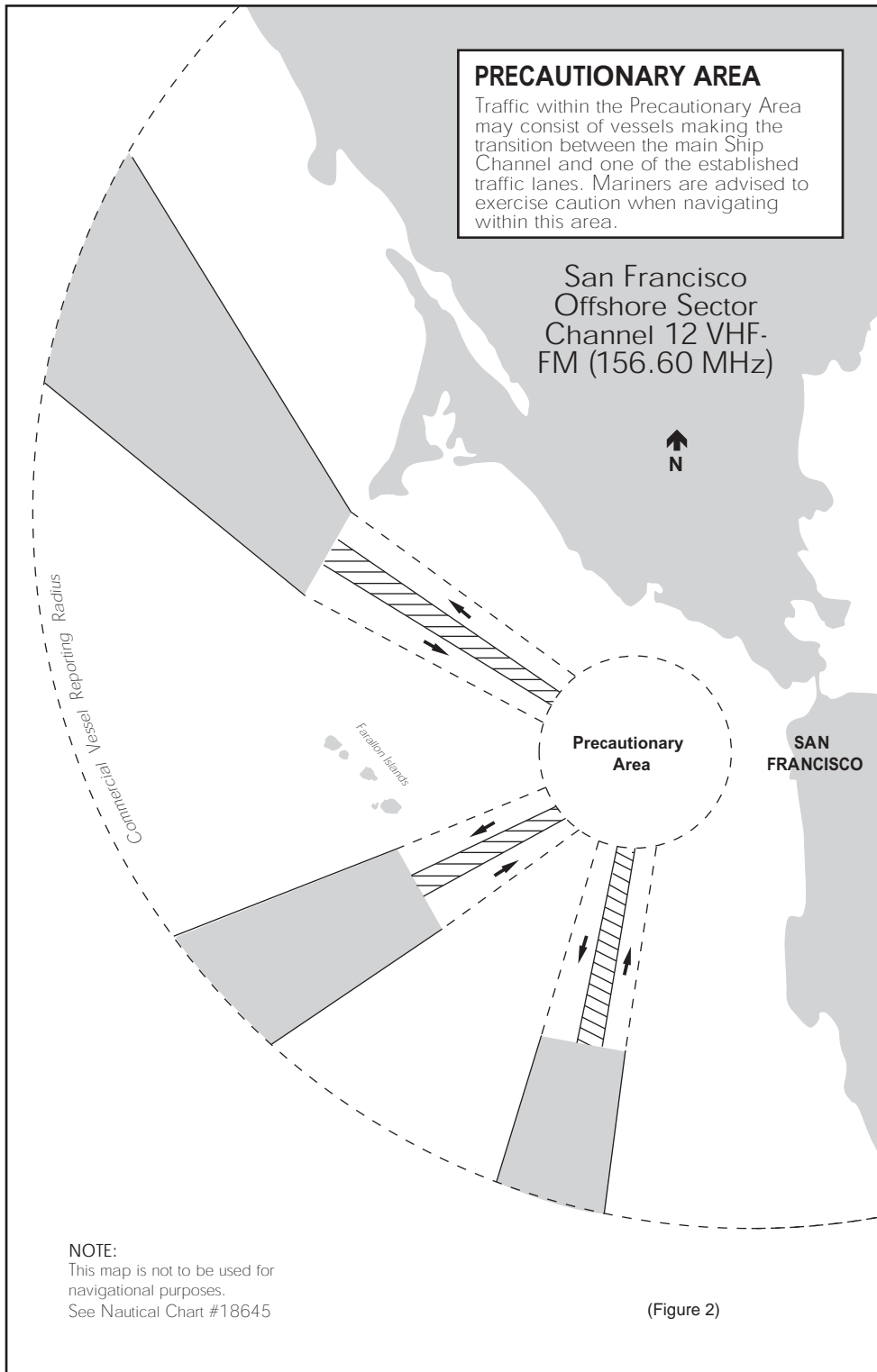
SAN FRANCISCO

### NOTE:

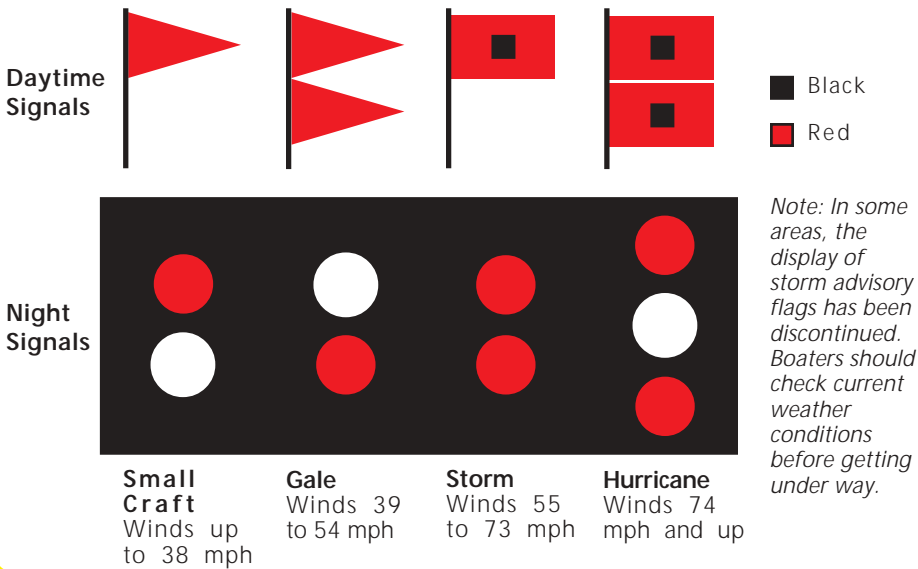
This map is not to be used for navigational purposes.

See Nautical Chart #18645

(Figure 2)



## Storm Advisories



location of the pilot houses on some vessels, and their height above the water, may limit the visibility afforded the master (or pilot) of the areas directly surrounding their ships, particularly the area immediately to the fore and aft of the ship. In addition, the superstructure of a large vessel may block the wind, and sailboats and sailboards may unexpectedly find themselves unable to maneuver. Bow and stern waves can be hazardous to small vessels. Because of these factors and the congestion of vessels in the bay, it is essential that recreational boaters observe the rules of the road and use common sense. Boaters should use extreme caution in the Precautionary Area between Treasure Island and the San Francisco waterfront because larger vessels and ferries transit this area from various directions. Boaters are cautioned that inbound deep-draft vessels normally use the Deep Water Route north of Harding Rock and Alcatraz Island. The traffic lanes are shown in Figure 1 along with the Precautionary Area and the Deep Water Route. Chart #18649, which shows the route and the routing system in detail, can be obtained from authorized chart agents.

Recreational boaters transiting the bay should first obtain information regarding major shipping traffic in their area by temporarily monitoring Channel 13 VHF-FM or Channel 14 VHF-FM.

The VTS is in operation 24 hours a day and in all types of weather. In addition to the traffic system, VTS incorporates radar surveillance of marine traffic, radiotelephone communication and information gathering and display.

Outside the bay, the Coast Guard maintains the Offshore Sector--see Figure 2. Regular broadcasts of the reported movement of large vessels transiting the approaches to San Francisco Bay are made on minute 15 and minute 45 of each hour. Boaters can listen to these broadcasts on Channel 12 VHF-FM.

## Dredges

Floating platforms or barges that are being used for dredging operations may be at work in various places in San Francisco Bay. Boaters should be aware of underground hazards, including pipelines, surrounding all dredging projects.

## Weather

The Bay offers a variety of weather hazards: storms, high winds, dense fog, and very often, rough seas. Late summer and early fall months generally provide the best boating conditions; however, fog is most common between the Golden Gate Bridge and Alcatraz Island during the summer. If low fog is predicted, carefully consider your trip. Winds from the northwest prevail during the summer. Winds usually increase in the afternoon, often resulting in conditions hazardous to small craft (under 65 feet) and subside after sunset.

Winter weather varies considerably from summer weather. Winds shift and blow onshore from the west or southwest. Storms usually follow southeasterly winds. Seas can build rapidly from approaching storms.

The water is cold, and prolonged exposure can be fatal if boaters capsize or fall overboard. The wise boater will always check the weather conditions before getting under way. In addition, frequent radio weather checks while under way will keep boaters aware of revised forecasts. The chart below will aid in obtaining updated weather information.

Twenty-four-hour continuous weather is broadcast on 162.55 MHz. The Coast Guard and local AM or FM commercial radio and TV stations also provide frequent updated weather reports. The National Weather Service provides updated recorded weather forecasts at (831) 656-1725.

## Regattas

Powerboat, sailboat or sailboard races are commonplace on the bay. Although participants of these events must follow the rules of the road, courteous boaters should stay clear of the race area. Some large regattas are patrolled to maintain restricted areas. Boaters not involved with the event must stay clear. Most large regattas or marine events are published in the Coast Guard Local Notice to Mariners. To obtain copies, write: Commander (pow) 11th Coast Guard District, Coast Guard Island, Building 50-6, Alameda, CA 94501-5100.

## Safety Equipment

In addition to the safety equipment required by law (i.e., personal flotation devices, fire extinguishers, lights, etc.) it is recommended that boaters carry additional equipment (anchor, line, bailer or bilge pump) to provide protection from unexpected hazards.

Visual distress signals must be carried on vessels outside the Golden Gate. While they are not required by law inside the bay, it is strongly recommended that boaters carry them.

Personal flotation devices should be worn by all children and nonswimmers when on or about the water. During adverse weather, all boaters should wear flotation devices.

The common occurrence of fog DEMANDS a compass, charts and radar reflector, and a sound knowledge of their use. Depth sounders, radio direction finders, radar or other electronic positioning equipment are extremely valuable in this area. Shallows are very common in the south part of the bay. Tide tables and charts will help to avoid grounding in shallow areas.

## When You Need Assistance

If a vessel loses power or becomes disabled, there are several ways to obtain assistance. The U.S. Coast Guard is the primary search and rescue agency in an emergency. The Coast Guard may refer boaters to a commercial tow boat service for all but emergency calls. The Coast Guard currently monitors Channel 16 (156.8 MHz) VHF-FM on the marine radio. Coast Guard assistance can also be obtained by dialing 9-1-1. The quickest remedy may be to seek the aid of a passing boater. Within the bay, boaters may use recognized distress signals to indicate distress and need of assistance. When operating on coastal waters, the Coast Guard requires boaters to carry the required number of approved visual distress signaling devices. (The visual distress signaling regulations apply to waters seaward of the demarcation line drawn from Point Bonita Light through Mile Rocks Light to shore.) Recreational boats 16 feet or greater in length must carry suitable devices aboard at all times. Boats less than 16 feet; manually propelled craft of any size; and sailboats of completely open construction, not equipped with propulsion machinery and under 26 feet in length are only required to carry suitable signaling devices between sunset and sunrise. All required equipment must be Coast Guard-approved, readily accessible, and in serviceable condition.

## More Information

The safety-minded recreational boater will consult the U.S. Coast Pilot No. 7 for more specific information on San Francisco Bay and the California Coast. Copies are available in most public libraries or may be purchased through authorized nautical chart agents.

BOATING SAFETY CLASSES explaining required and recommended equipment for small boats and offering training in good seamanship are conducted throughout California by the U.S. Coast Guard Auxiliary, the U.S. Power Squadrons and certain chapters of the American Red Cross. For information on Coast Guard Auxiliary and Power Squadron classes, call (800) SEA-SKIL (732-7545) or (800) 368-5647. The Department of Boating and Waterways offers a free home study course entitled California Boating Safety Course. For more information, e-mail us at [pubinfo@dbw.ca.gov](mailto:pubinfo@dbw.ca.gov), or phone (916) 263-1331 or tollfree (888) 326-2822, or write: Department of Boating and Waterways, 2000 Evergreen Street, Suite 100, Sacramento, California 95815-3888. Visit our Website at [www.dbw.ca.gov](http://www.dbw.ca.gov).