

January 30, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response

FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region

SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,

**Harbor Safety Committee Recommendation: San Francisco PORTS**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directives and make appropriate recommendations regarding the prevention aspects of the incident."

Following the Cosco Busan incident, the PORTS Work Group of the Harbor Safety Committee met on December 3, 2007 and January 14, 2008. Previous to the incident, the Work Group initiated an in-depth review of PORTS to be more responsive to mariners by working closely with the San Francisco Bar Pilots to prioritize types and key locations of sensors.

**Report From the PORTS Work Group on the Cosco Busan Incident and San Francisco PORTS**

**Background:** PORTS is a 24 hour-a-day program that measures the currents, depth, salinity and wind in the San Francisco Bay Region, with nine sensor locations at critical areas. Measurements are taken every six (6) minutes, available by telephone or computer website. Traditional tide books, based on twenty-two year averages, often contain inaccurate information about the speed of currents or depth of the Bay, particularly during winter storms and periods of excessive runoff. The system provides on-demand reports of maritime conditions on a real-time basis to everyone from pilots of large cargo ships and oil tankers, tug and barge operators to weekend sailors.

The PORTS program is an important navigational tool in San Francisco Bay, which encompasses seven ports in an estuarine environment, making it the most complex of the California harbors. The Bay includes 5 refineries and more than 20 marine oil terminals over a span of 50 miles. Additionally there are multiple microclimates that can alter navigation within a ten to fifteen mile radius from near winter-like conditions to blazing sun, back to fog or high wind in a very short time.

The San Francisco Marine Exchange on contract with the Office of Spill Prevention and Response maintains the system. The Harbor Safety Committee of the San Francisco Bay Region in coordination with OSPR provides oversight. NOAA from its headquarters in Silver Spring, Md. maintains the accuracy of the data.

The problem: NOAA as a demonstration project installed PORTS, but no ongoing funds were provided to maintain the system. California Office of Spill Prevention and Response (OSPR) grants and California Department of Boating and Waterways provided varying levels of funding year to year. However, the system almost shut down in 2005 lacking a permanent source of funding. Again funds were to expire at the end of the current fiscal year, June 30, 2008. However, the Governor subsequently directed that funding be extended an additional year, through June 30, 2009.

### **What is the Value of PORTS as a Navigational Tool?**

**Value in Oil Spill Prevention:** PORTS has proven its value in reducing the risk of vessel accidents and potential oil spills in a number of ways.

The Work Group summarized the use of the system:

1. San Francisco Bar Pilots rely on the system during inclement weather to guide the diverse mix of vessel traffic - chemical and oil tankers, container ships and car carriers, and cruise ships. Pilots use PORTS, for example, to judge wind speed at the Port of Oakland to pilot container vessels, as wind speeds differ at the Golden Gate. Also knowledge of currents in the Carquinez Strait is essential to traverse multiple bridges – currents of two or three knots create a greater risk. Additionally loaded oil tankers and freighters can have less than two feet clearance in the Pinole Shoal Shipping Channel where a ship can run aground.
2. The State Lands Commission Marine Facilities Office relies on PORTS to determine the safety of offloading oil at the many marine terminals in the Carquinez Strait, an area characterized by fast currents.
3. A private oil barge operator consults PORTS prior to initiating fueling operations to transfer bunker oil to ships. The Work Group was previously unaware of this use.

**Value in Oil Spill Response:** PORTS played a role in confirming the direction of the projected movement of oil, which was helpful during the first 24 hours of the Cosco Busan oil spill when over flight observations were delayed due to dense fog.

**PORTS Work Group Recommendation:** The Work Group made a formal recommendation to the Harbor Safety Committee that PORTS should be permanently funded from the Oil Spill Prevention and Administration Fund (OSPAF) because of its proven value for navigational safety. The full Harbor Safety Committee adopted this recommendation at its January 10, 2007 meeting.

Secondly, the Work Group recommended to OSPR a prioritized list of additional sensors, to be deployed in critical locations. First on the list is a wind sensor for the Union Pacific Railroad Bridge at the Carquinez Strait, a critical aid for transiting the narrow bridge opening. Also the drawbridge cannot open if winds exceed 35 mph. Accurate real time wind speed allows vessels to be diverted to anchor safely. Another sensor within the

Carquinez Strait at an oil terminal would provide real time information of local variable conditions in this confined stretch of waterway. Other proposed locations are the Richmond Southampton Channel for tankers en route to the Chevron Long Wharf, et al; the Oakland Bar Ship Channel near the Port of Oakland; and at Anchorage #9, which is a highly used staging area for vessels awaiting berths throughout the Bay and for bunkering (refueling) operations.

March 18, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response  
FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region  
SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,  
**Harbor Safety Committee Recommendation: Tug Escorts**

## **Introduction**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directives and make appropriate recommendations regarding the prevention aspects of the incident."

The HSC Work Groups addressed the issues raised in the Governor's directives based on information available at this time, noting that the National Transportation Safety Board (NTSB) report on the cause was not expected to be completed until August 8, and the State Board of Pilot Commissioners Accusation (Case No. 07-01) of the pilot is scheduled for hearing before an Administrative Law Judge on September 2, 2008. Other investigations are focused on oil spill response efforts.

Note: The following findings and recommendations should be considered preliminary, as not all evidence was accessible. As new information becomes available, the Harbor Safety Committee may revisit or address other policy implications.

The Tug Escort Work Group met on February 8 and February 29, 2008, to discuss the Cosco Busan incident and its implications for navigational safety related issues and to make recommendations following the Governor's directive. In responding to the Governor's directive, the Work Group looked specifically at the following questions:

### **1. Do the known facts of the Cosco Busan Incident suggest that tug escorting would be an effective strategy to prevent a similar occurrence?**

Findings: The purpose of tug escorting is to affect the speed or direction of a vessel when an emergency arises such as a steering or propulsion failure of the vessel. California Code of Regulations, Subdivision 4. Chapter 4. Section 851.4 c. which outlines tug escort regulations for San Francisco, San Pablo and Suisun Bays, states an emergency shall include, but not be limited to, any of the following:

- "imminent and immediate danger to the vessel, its cargo, or its crew; or imminent and immediate danger to a marine terminal, or to the escort tug; or
- imminent and immediate danger to a vessel in close proximity to the tank vessel; or
- any emergency declared by the Captain of the Port."

The Cosco Busan appeared to have full use of its steering and propulsion systems prior to and following the allision with the bridge. Also it appeared that the vessel's master or pilot did not attempt to position the tug that was tethered to the stern to alter the vessel's course.

While an escort tug may have been able to provide some assistance to maneuver the Cosco Busan, it is questionable as to how effective such assistance would be considering:

- The speed of the Cosco Busan just prior to the allision, as reported in the Board of Pilot Commissioners Accusation of the pilot, was 11 knots with a one-knot flood current. This speed is at the high end of the performance range for most escort tugs to have safely provided maneuvering assistance.
- Since the pilot had not instructed the tug in advance to be used in an escort mode, the pilot's directions to the tug probably could not have been conveyed in the brief amount of time in extremis before the vessel hit the bridge.
- The tug's ability to act as a "lookout" or "leader" when operating in an escort mode along side or behind the vessel is limited. When the vessel being escorted is much higher than the tug, the tug's visual and radar view are often obstructed.

Conclusion: The Work Group concluded that there was no current evidence that would suggest tug escorting would have prevented the Cosco Busan incident or similar incidents from occurring.

## **2. Could an Escort Tug be used to reduce the risk of a similar incident occurring in the future?**

Findings: The Work Group discussed alternate uses for escort tugs such as being used as a "leader" to run ahead of a vessel in limited visibility, acting as a navigational aid. Specific concerns of having a tug running ahead of a vessel include:

- A tug in front of a vessel adds another element of potential risk or distraction for the vessel being escorted. The tug is at risk of being overtaken, collided with and/or capsized by the vessel, as the speed of the tug is generally slower than that of the vessel.
- The tug would not typically have better visibility than the vessel being escorted.
- The tug's personnel are focused on safely keeping the tug's position relative to the vessel thus having limited capacity for the additional responsibility of "leading" the vessel being escorted.

Conclusion: The Work Group concluded that the risk associated with using an escort tug as a "leader" in limited visibility outweighs potential benefits.

**Tug Escort Work Group Recommendation:** The Harbor Safety Committee unanimously adopted the Tug Escort Work Group's findings and recommendations at its March 13, 2008 regular meeting. (Note: As a committee established by the State of

California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendized under the provisions of the Ralph M. Brown Open Meeting Act.)

March 19, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response

FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region

SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,

**Harbor Safety Committee Recommendation: Guidelines for Navigating San Francisco Bay in Reduced Visibility**

**Introduction**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directive and make appropriate recommendations regarding the prevention aspects of the incident."

The HSC Work Groups addressed the issues raised in the Governor's directives based on information available, noting that the National Transportation Safety Board (NTSB) report on the cause is not expected to be completed until autumn 2008, and the State Board of Pilot Commissioners Accusation (Case No. 07-01) of the pilot is scheduled for hearing before an Administrative Law Judge beginning September 2, 2008. Other investigations are focused on oil spill response efforts.

The Navigation Work Group met January 23 and March 4, 2008, to address issues related to navigating San Francisco Bay in inclement weather, specifically, those affecting large vessels transiting during reduced visibility. To advance this effort, the San Francisco Bar Pilots and the Coast Guard developed Guidelines for Navigating in Reduced Visibility ("Guidelines"), which were reviewed by the Navigation Work Group, and which are part of this recommendation.

Note: The following findings and recommendations should be considered preliminary, as not all evidence was accessible. As new information becomes available, the Harbor Safety Committee may revisit or address other policy implications.

**Report From the Navigation Work Group on Navigating San Francisco Bay in Reduced Visibility**

Navigating the San Francisco Bay Region during periods of reduced visibility requires mariners to exercise additional caution and vigilance. The Bay region, consisting of several bays and rivers, is one of the foggiest harbors in the United States. In-Bay distances are long. There is not a single regional climate, but a series of microclimates with variable fog. During summer, 30 to 40 percent of parts of the Bay may experience foggy conditions. In winter, the fog may be denser, originating from a different direction than summer fog.

## **Role of Reduced Visibility in Cosco Busan Incident**

Reduced visibility was a causal factor in the Cosco Busan incident: the State Board of Pilot Commissioners found in its Accusation (Case No. 07-01) that, “At the time of departure [from the dock], [the pilot] had reason to doubt whether the ship could proceed safely and...had insufficient information about the level of visibility along [the] intended route. Under the circumstances, the Cosco Busan’s departure from Berth 56 was “contrary to the guidelines in the San Francisco, San Pablo and Suisun Bays Harbor Safety Plan (“HSP”), which provide for various factors to be considered before moving a vessel...” and further provide that “vessels within the Bay at a dock...should not commence movement if visibility is less than .5 nautical miles throughout the intended route, unless the operator’s assessment of all variables is that the vessel can proceed safely.”

In reviewing the Harbor Safety Plan guidelines quoted above, the Navigation Work Group determined there was a need to clarify and expand on the guidelines because, as was noted, the Bay region is a series of microclimates with variable fog conditions.

## **Recommended Guidelines for Navigating in Reduced Visibility**

These guidelines should be used by the mariner when planning, initiating or navigating a transit in the Bay during periods of reduced visibility. These guidelines acknowledge that **Large Vessels** are not as maneuverable as smaller vessels and therefore define **Large Vessels** as power driven vessels of 1600 gross tons or more, and tugs with barges of 1600 gross tons or more. Mariners are at all times to comply with the requirement of the International Regulations for Avoiding Collisions at Sea, or COLREGS.

**Critical Maneuvering Areas (CMAs):** There are areas within the Bay where additional standards of care are required due to the restrictive nature of the channel, proximity of hazards, or the prevalence of adverse currents. Large vessels should not transit through CMAs when visibility is less than 0.5 nautical miles.

Locations within the Bay identified as Critical Maneuvering Areas:

Redwood Creek  
San Mateo-Hayward Bridge  
Oakland Bar Channel\*  
Islais Creek Channel  
Richmond Inner Harbor  
Richmond-San Rafael Bridge, East Span  
Union Pacific Bridge  
New York Slough, up-bound  
Rio Vista Lift Bridge

\*Note: the Oakland Bar Channel is identified due to cross currents and its proximity to the Bay Bridge and Yerba Buena Island.

**Vessels docked:** Large vessels at a dock within the Bay should not commence a movement if visibility is less than 0.5 nautical miles at the dock.

**Vessels proceeding to dock:** Large vessels proceeding to a dock should anchor if visibility at the dock is known to be less than 0.5 nautical miles, unless, under all circumstances, proceeding to the dock is the safest option.

Note: Vessel pilots or operators should notify VTS upon determination that a scheduled movement will be delayed or cancelled. If underway, they shall make a sailing plan deviation report per VTS regulations.

**Navigation Work Group Recommendations to the Harbor Safety Committee:**

1. The Work Group recommends that the “Guidelines for Navigating in Reduced Visibility” developed by the San Francisco Bar Pilots and the Coast Guard be adopted as “Best Maritime Practices for Large Vessels” and that the guidelines be incorporated into the San Francisco Bar Pilots’ Operations Guidelines as well as their Tide Book, the Coast Guard Vessel Traffic Service (VTS) Training Manual, U.S. Coast Pilot 7, and the San Francisco Harbor Safety Plan.

The Navigation Work group concluded the proposed guidelines would increase safe navigation in San Francisco Bay, and thereby respond in part to the Governor’s directive to analyze navigational safety-related issues of the Cosco Busan incident and make appropriate recommendations regarding the prevention of future incidents.

2. The Work Group recommends the Harbor Safety Committee consider drafting guidelines for navigating in reduced visibility for certain vessels less than 1600 gross tons.

3. The Work Group recommends the Harbor Safety Committee review the “Guidelines for Navigating in Reduced Visibility” within one year of adoption.

4. The Work Group recommends that the Harbor Safety Committee address issues surrounding the capacity and management of Coast Guard designated anchorages in San Francisco Bay.

5. The Work Group recommends that the Harbor Safety Committee assess the use of and advances in navigational aid technology to improve safe transit on San Francisco Bay. The Board of Pilot Commissioners has formed a Navigation Technology Committee to investigate the different types of navigation systems generally found on ships calling the Bay Area. A preliminary report is expected June 1, 2008. The HSC Navigation Work Group will review the report in considering recommendations to the full HSC.

**Harbor Safety Committee Action:** The Harbor Safety Committee unanimously adopted the Navigation Work Group findings and recommendations at its March 13, 2008 regular meeting. (Note: as a committee established by the State of California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendized under the provisions of the Ralph M. Brown Open Meeting Act).

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March 20, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response

FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region

SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,

**Harbor Safety Committee Recommendation: Expanding Coast Guard VTS Authority**

### **Introduction**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directive and make appropriate recommendations regarding the prevention aspects of the incident."

The HSC Work Groups addressed the issues raised in the Governor's directives based on information available at this time, noting that the National Transportation Safety Board (NTSB) report on the cause of the allision is not expected to be completed until autumn 2008, and the State Board of Pilot Commissioners Accusation (Case No. 07-01) of the pilot is scheduled for hearing before an Administrative Law Judge beginning September 2, 2008. Other investigations are focused on oil spill response efforts.

Note: The following findings and recommendations should be considered preliminary, as not all evidence was accessible. As new information becomes available, the Harbor Safety Committee may revisit or address other policy implications.

The Prevention Through People Work Group (PTP) met January 8, February 7, February 28 and March 6, 2008, to address the issue of vessel communications, specifically "Should the Coast Guard Vessel Traffic Service (VTS) have expanded authority to direct vessel movements during inclement weather such as dense fog in San Francisco Bay?" Technical experts from the VTS participated in the Work Group's efforts.

### **Report From the Prevention Through People Work Group on the Question, "Should Coast Guard Vessel Traffic Service Authorities be Expanded?"**

#### **Vessel Traffic Service (VTS) History and Background**

The purpose of a VTS is to serve as an extension of a vessel's navigational bridge team, providing active monitoring and navigational information and advice for vessels in confined and busy waterways. The VTS monitors vessel movements, informs mariners of the movements of other vessels and potential hazards, recommends action when it sees a situation of which the mariner may not be aware, and directs the outcome of situations when necessary to prevent disasters.

Participation in the VTS System is mandated by law (33 Code of Federal Regulations (CFR) 161.16) for larger commercial vessels and passenger ferries. Transiting vessels make position reports to a vessel traffic center by radiotelephone and are in turn provided with accurate, complete, and timely navigational safety information. VTS San Francisco uses several land-based sensors including radar, the Automated Identification System (AIS), and closed circuit television sites, which send their signals to a central location where operators monitor and manage vessel traffic movement.

VTS San Francisco was the first Vessel Traffic Service System established by the Coast Guard in the United States through the Ports and Waterways Safety Act of 1972 (33 USC 1223). VTS San Francisco is responsible for the safety of vessel movements from the offshore approaches to San Francisco Bay and all navigable inland waterways to and including the inland Ports of Stockton and Sacramento. In 1995, Regulated Navigational Areas (RNAs) were established in the San Francisco Bay region, which were designed to improve navigation safety by organizing traffic flow patterns; reducing meeting, crossing, and overtaking situations in constricted channels; and by limiting vessel speeds.

### **Existing Authority Allowing VTS to Direct Vessel Movement**

The Work Group reviewed provisions included in the Federal Ports and Waterways Safety Act of 1972 (33 USC 1223), which states:

“[The Coast Guard] may control vessel traffic in areas subject to the jurisdiction of the United States which the Secretary [of the Department of Homeland Security] determines to be hazardous, or under conditions of reduced visibility, adverse weather, vessel congestion, or other hazardous circumstances by:

- (A) Specifying times of entry, movement, or departure;
- (B) Establishing vessel traffic routing schemes;
- (C) Establishing vessel size, speed, draft limitations and vessel operating conditions; and
- (D) Restricting operation, in any hazardous area or under hazardous conditions, to vessels which have particular operating characteristics or capabilities which he considers necessary for safe operation under the circumstances.”

This authority is directly granted to the VTS in 33 Code of Federal Regulations (CFR)161.11:

- “(a) A VTS may issue measures or directions to enhance navigation and vessel safety and to protect the marine environment, such as, but not limited to:
  - (1) Designating temporary reporting points and procedures;
  - (2) Imposing vessel operating requirements; or
  - (3) Establishing vessel traffic routing schemes.
- (b) During conditions of vessel congestion, restricted visibility, adverse weather, or other hazardous circumstances, a VTS may control, supervise, or otherwise manage traffic, by specifying times of entry, movement, or departure to, from, or within a VTS area.”

In reviewing this information, the PTP Work Group concluded the Captain of the Port has the authority to regulate all ship movements, which includes whether ships can or cannot proceed.

The Work Group further noted that the Coast Guard VTS is not equivalent to Air Traffic Control. A VTS area would best be compared to Class A controlled airspace. In Class A controlled airspace, all operations are conducted under Instrument Flight Rules and direct Air Traffic Control, unlike a VTS area where participation by many types of vessels (e.g., recreational boaters, fishing vessels, personal watercraft, etc.) is not required. Under normal conditions, VTS is advisory in nature, differing in its function from an air traffic control system in which air traffic controllers regularly direct the movement of aircraft with specific directional and speed commands. Only in cases of extreme circumstances will VTS direct vessels in a general outcome, such as avoiding a specific hazard of which the vessel may not be aware.

### **VTS Efforts in Response to the Cosco Busan Incident**

In addition, the Work Group asked the Coast Guard to describe what steps are being taken to improve internal processes. In response to the Cosco Busan incident, VTS conducted an extensive analysis, taking the following steps to enhance their prevention efforts:

1. VTS is modifying its operating and training processes to encourage more proactive prevention through concise communications, to better prepare operators to switch from the lower modes of traffic management (advising) to the more assertive directional modes (recommending/directing) when the need arises to prevent an accident.
2. VTS is developing a re-qualification program to ensure continuity of training of its veteran operators.
3. VTS will staff an additional operator position when fog limits visibility to less than 0.5 nautical miles, and will adjust their display scale for better anomalous traffic recognition.
4. Finally, the Coast Guard, San Francisco Bar Pilots and the Harbor Safety Committee are working together in the prevention process and developing recommendations to:
  - o Identify high risk or “Critical Maneuvering Areas” in the Bay that require modified guidelines with respect to low visibility precautions.
  - o Define inclement weather and the operational procedures that accompany those periods of reduced visibility.
  - o Assemble mitigating “best practices and standards” for operations during these periods.

## **Could VTS Directions to the Cosco Busan Have Prevented the Accident?**

The Work Group concluded, based on known facts of the incident at the time of their discussions, that it is unlikely VTS direction could have prevented the allision, given the inertia of the 900-foot vessel and the limited time period when it became apparent that the vessel was off course, and the time of impact.

**Conclusion:** The Work Group concludes that adequate Coast Guard authority to regulate shipping and control vessel movements already exists in current law under the Federal Ports and Waterways Safety Act of 1972 (33 USC 1223) and 33CFR161.11; therefore, no additional authority is recommended. Further, the best skills for maneuvering a vessel originate from onboard the vessel itself, not from the VTS.

On rare occasions VTS will direct the movement or actions of a participant. Direction would be given in cases when the VTS observes obvious violations of regulations or an obvious and immediately dangerous condition of which the participant is not or does not seem to be aware. VTS directions will normally be in the form of a general objective such as staying out of a certain area or coming no closer than a certain distance from a vessel or object, thus allowing the pilot or operator to maneuver the vessel as necessary to comply with the direction. There are several reasons for this:

- o The ultimate responsibility for safe navigation lies with the vessel master, as per 33CFR 161.11 and internationally accepted practice under International Regulations for Prevention of Collisions at Sea (72 COLREGS).
- o VTS operators cannot know the specific handling characteristics of the vessels they may be directing and the dynamics on the bridge of the vessel.
- o VTS operators will not have information about hazards undetected by VTS sensors such as smaller pleasure craft, swimmers, debris, etc.
- o VTS Operators will not have the instantaneous knowledge of the many forces (wind, current, tidal current conditions, etc.) acting on the vessel, as would the vessel's master or pilot.

**Prevention Through People Work Group Recommendation:** The Harbor Safety Committee unanimously adopted the Prevention through People Work Group's findings and recommendations at its March 13, 2008 regular meeting. (Note: as a committee established by the State of California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendized under the provisions of the Ralph M. Brown Open Meeting Act.)

May 19, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response

FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region

SUBJECT: **Harbor Safety Committee Recommendation: Commute Ferry Routing Protocol**

### **Introduction**

Prior to the Cosco Busan incident and the Governor's directive, the Ferry Operations Work Group began meeting with ferry operators to further navigational safety in the Bay region. The Work Group developed an approach and maneuvering scheme in the vicinity of the congested San Francisco Ferry Building, as well as routing protocols in the Central Bay to decrease the risk of collision for commute ferries.

The Work Group agreed to the protocols described in the following report at their meeting of April 23, 2008, and referred them to the Harbor Safety Committee. This report summarizes efforts to increase safe transport of commute passengers as a major segment of maritime traffic on the Bay.

To further the efforts of the Work Group, the protocols will be part of Best Maritime Practices that will be incorporated in the Harbor Safety Plan.

### **Background**

Small commercial passenger vessels operate year round on San Francisco Bay, San Pablo Bay and tributaries, in 2007 carrying five million passengers on nearly 73,000 transits. In total, passenger vessels make up more than 58 percent of all transits tracked by the USCG Vessel Traffic Service.

Currently, commuter service on six routes is provided by three ferry operators that regularly serve a dozen ferry terminals in the Bay Area. High speed ferries (more than 30 knots) currently operate on the Vallejo and Larkspur routes. The Water Transit Authority (WTA) is currently planning to add up to six new commuter routes to the region within the next few years.

While ferries have been one of the safest forms of public transportation, the planned increase in number of routes prompted concern of increased risk of collision. The Ferry Operations Work Group was assigned the task to develop and forward recommendations to the HSC designed to promote safe navigation of commute ferries.

### **Planning Process**

To avoid future possible collisions of ferries, the Bay Area's three commute ferry companies/agencies agreed to work with the Harbor Safety Committee, Coast Guard Vessel Traffic Service (VTS), the WTA and interested parties to develop a protocol for ferry navigation in the San Francisco and San Pablo Bays. This group held more than a dozen meetings, including outreach to tug captains, during 2006-2008.

Beginning in 2006, the Ferry Operations Work Group reviewed a ferry routing model developed by George Washington University to identify risks associated with proposed increased ferry traffic. This model provided data that confirmed the protocols would increase vessel predictability for the ferry captains and VTS, which reduced the risk of collision.

From this information routes and waypoints were developed, and the Work Group and ferry captains tested the protocols using simulator training at the Army's small vessel training facility on Mare Island.

Because the ferries use a common electronic chart program, an overlay of the routes and waypoints was produced to familiarize and assist ferry captains with the route protocols.

### **Outreach**

- San Francisco Bar Pilots provided input on routes and communications.
- Presentations of the route protocols by the VTS were given to the HSC and the WTA technical advisory committee.

### **Trial Period**

Test use of the proposed routes commenced November 2006 and continued through 2007 to allow the Work Group to assess the routes and to incorporate suggested modifications. The work group met a number of times in 2006 and 2007 with ferry operators and captains to discuss lessons learned and to receive input on refining routes. Following the trial period, the ferry companies agreed upon the routing in the Central Bay and the area around the San Francisco Ferry Building.

### **Proposed Ferry Routing**

The proposed routes and Ferry Building Approach Zone are shown in Figures 1-7, attached, and are incorporated herein. The diagrams are screen print files from vector-based electronic nautical charts (ENCs). Additional lines and labels were added to the screen print files for emphasis and clarity. For more information contact:

Scott Humphrey  
Training Director  
Sector San Francisco Vessel Traffic Service  
Phone: +1 415 399 7444  
Email: [scott.humphrey@uscg.mil](mailto:scott.humphrey@uscg.mil)

### **Benefits**

If the protocols are approved by the Harbor Safety Committee, future VTS outreach programs to waterway users will include ferry protocol information. The National Ocean and Atmospheric Administration (NOAA) has also agreed to include information about the ferry protocols on nautical charts and in publications. Including ferry routes in the Central Bay on NOAA charts will alert the maritime community and recreational boaters in particular that fast ferries use this area. A Maneuvering Zone at the Ferry Building will alert recreational boaters of the high frequency of inbound and outbound ferries.

Establishing the routes also lends predictability for VTS tracking: when ferries deviate from a route, there may be a need to advise the ferry captain of possible unsafe movements.

### **Future Ferry Operations Work Group Actions**

- The Work Group will develop Best Practices as guidelines for ferry transit in inclement weather, to be adopted by the HSC and incorporated in the Harbor Safety Plan.
- The Work Group will work with Bay Area ferry operators to define a Maneuvering Zone for the waterfront adjacent the San Francisco Ferry Building and to develop approach and departure protocols for this area.
- The Work Group will work with NOAA to ensure the ferry routes and special zones are accurately reflected on navigational charts for San Francisco Bay.

### **Ferry Operations Work Group Recommendations to the Harbor Safety Committee:**

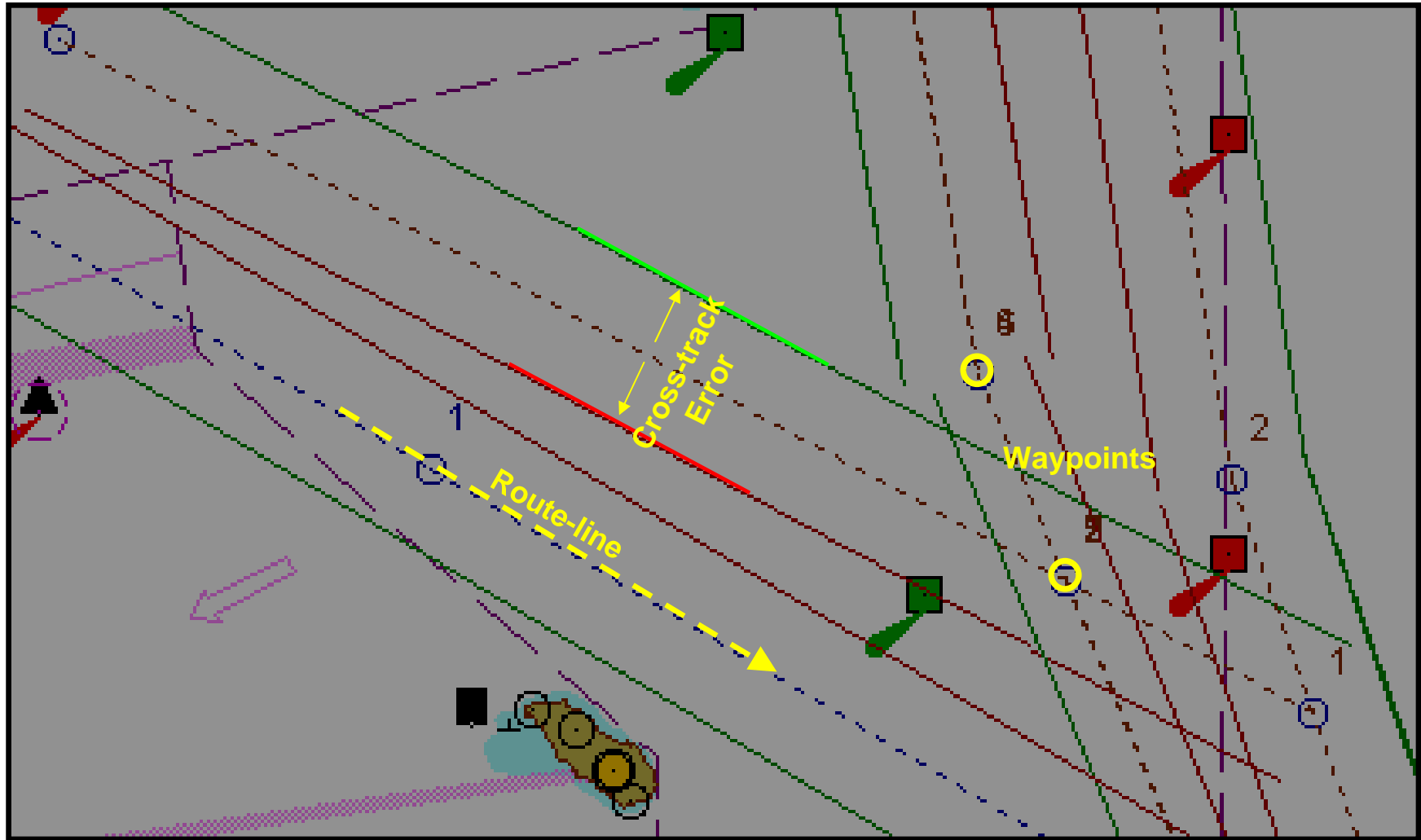
1. The Ferry Operations Work Group recommends that the ferry routes developed by the Work Group working with ferry operators, captains and the VTS, be adopted by the Harbor Safety Committee and incorporated into the Harbor Safety Plan.
2. The Work Group further recommends the HSC work with NOAA to include the routes and accompanying notes on area nautical charts.

**Harbor Safety Committee Action:** The Harbor Safety Committee unanimously adopted the Navigation Work Group findings and recommendations at its May 8, 2008 regular meeting. (Note: as a committee established by the State of California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendized under the provisions of the Ralph M. Brown Open Meeting Act).

Ferry Routing diagrams, Figures 1-7, follow as inserts.

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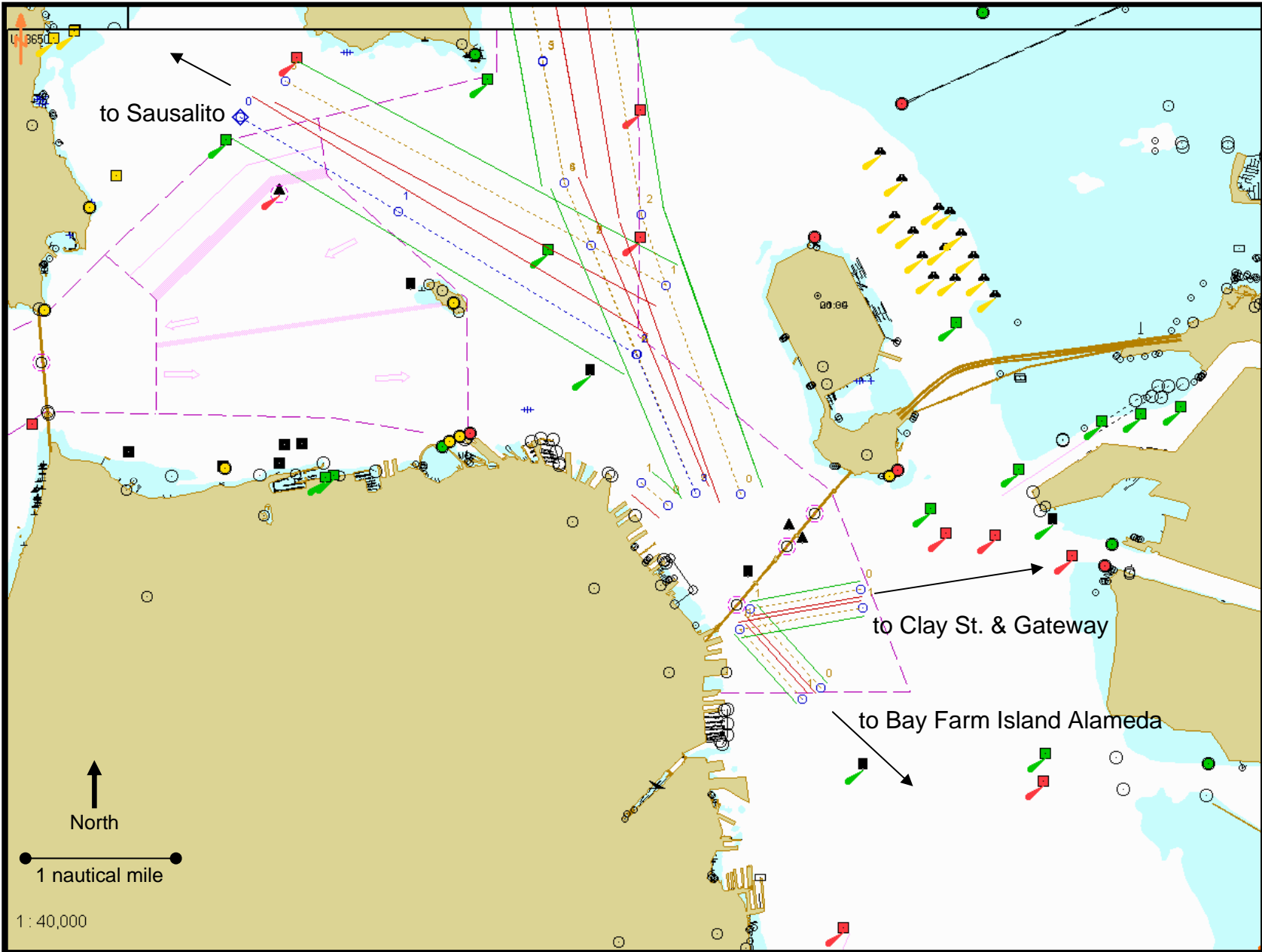
# Diagram Key



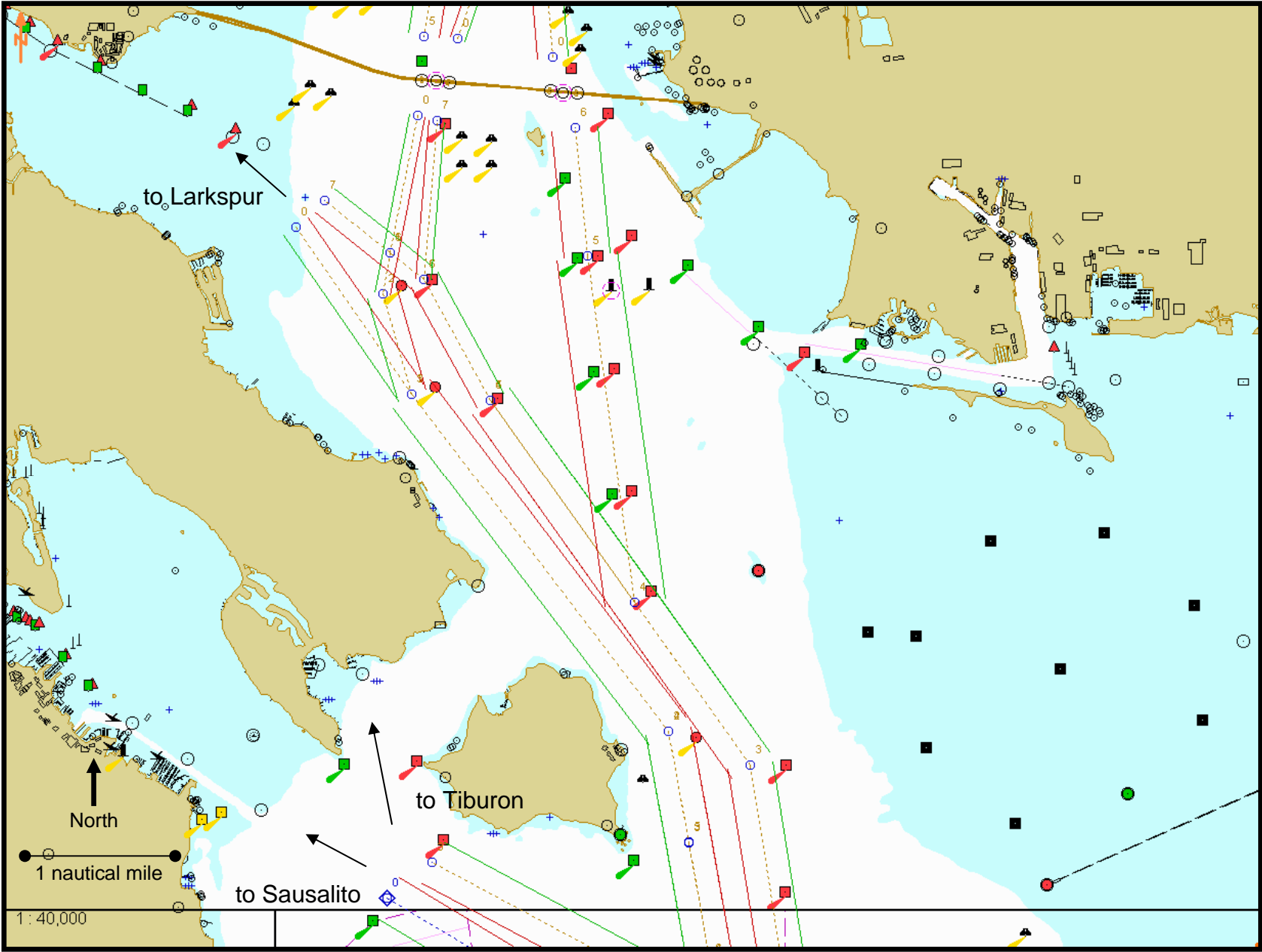
The following chart features are highlighted above.

- Route-line: Centerline of the ferry route.
- Cross-track Error: Left and right of route-line tolerance.
- Waypoints: Turns, route crossing points, and communications points.

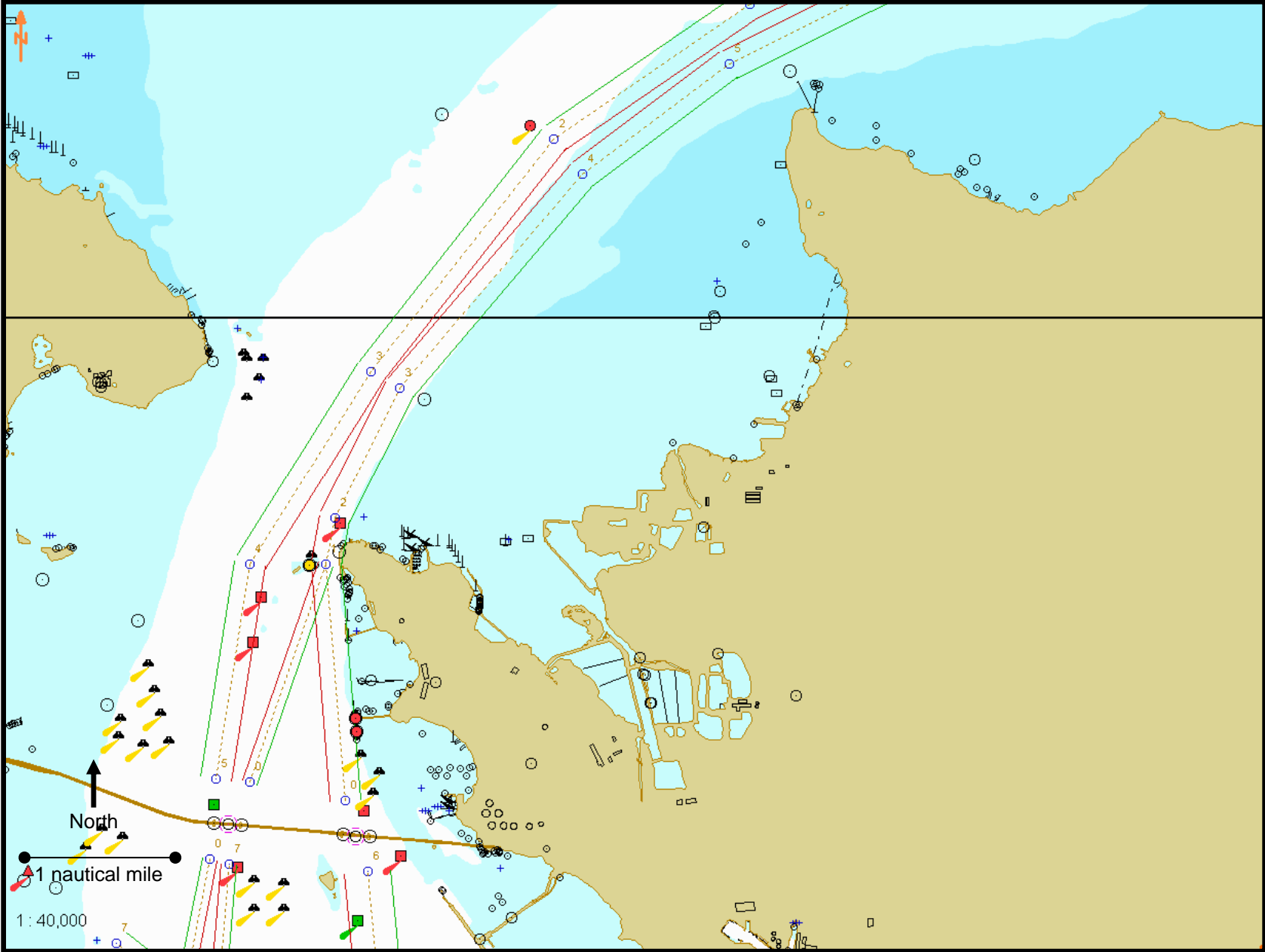
# Central Bay and South San Francisco Bay



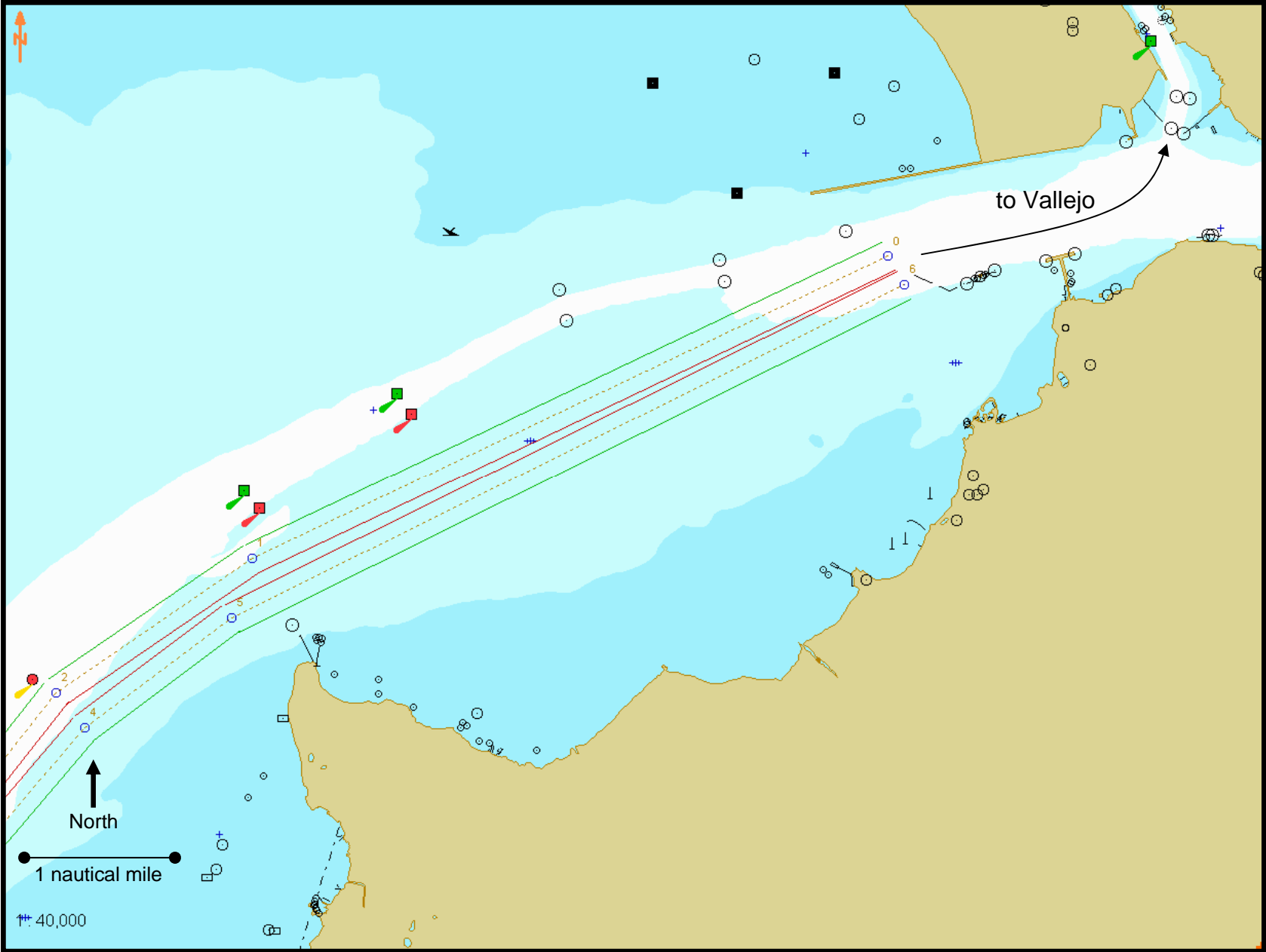
# North Channel and Southampton Shoal Channel



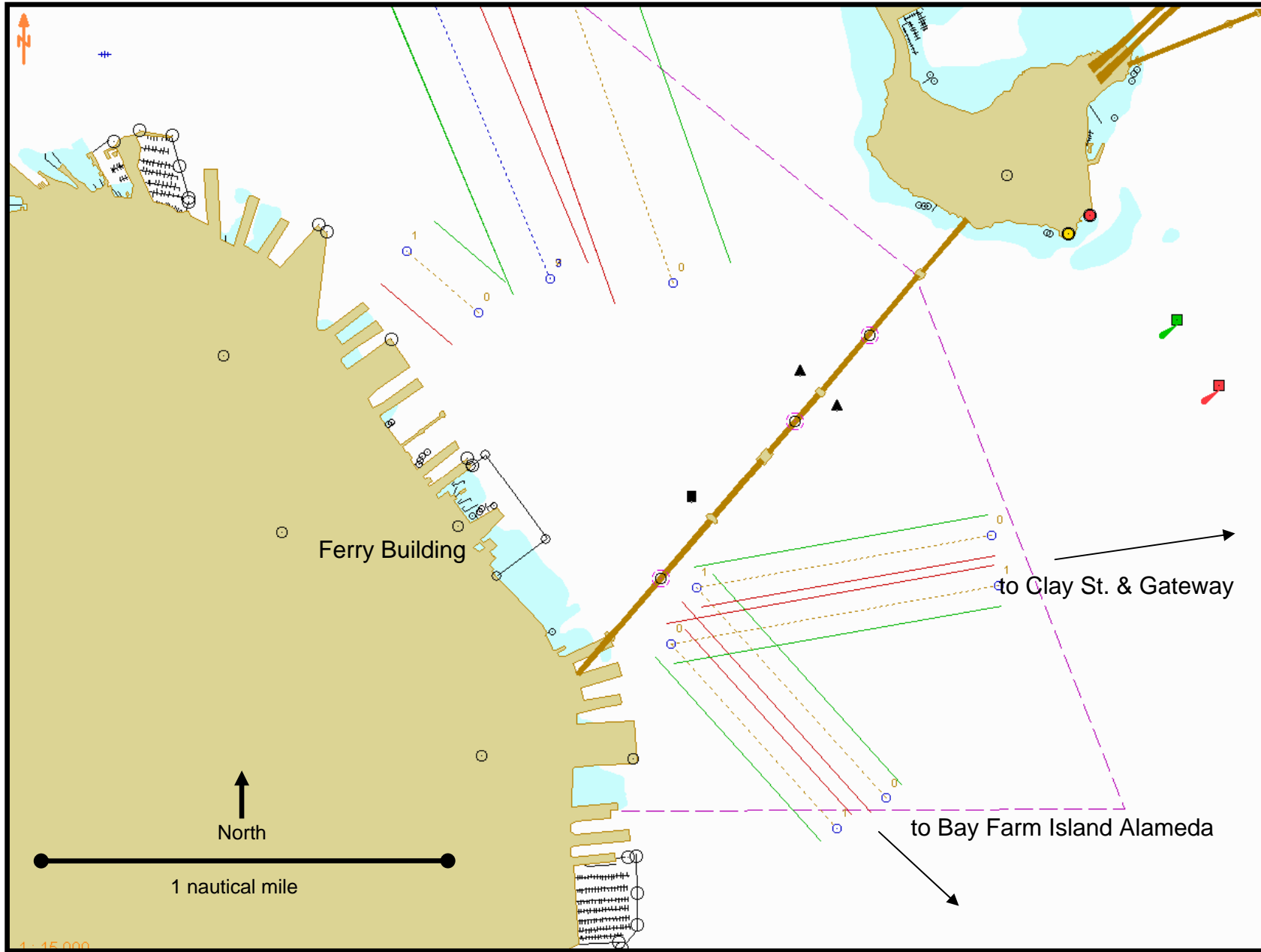
# San Pablo Strait Channel



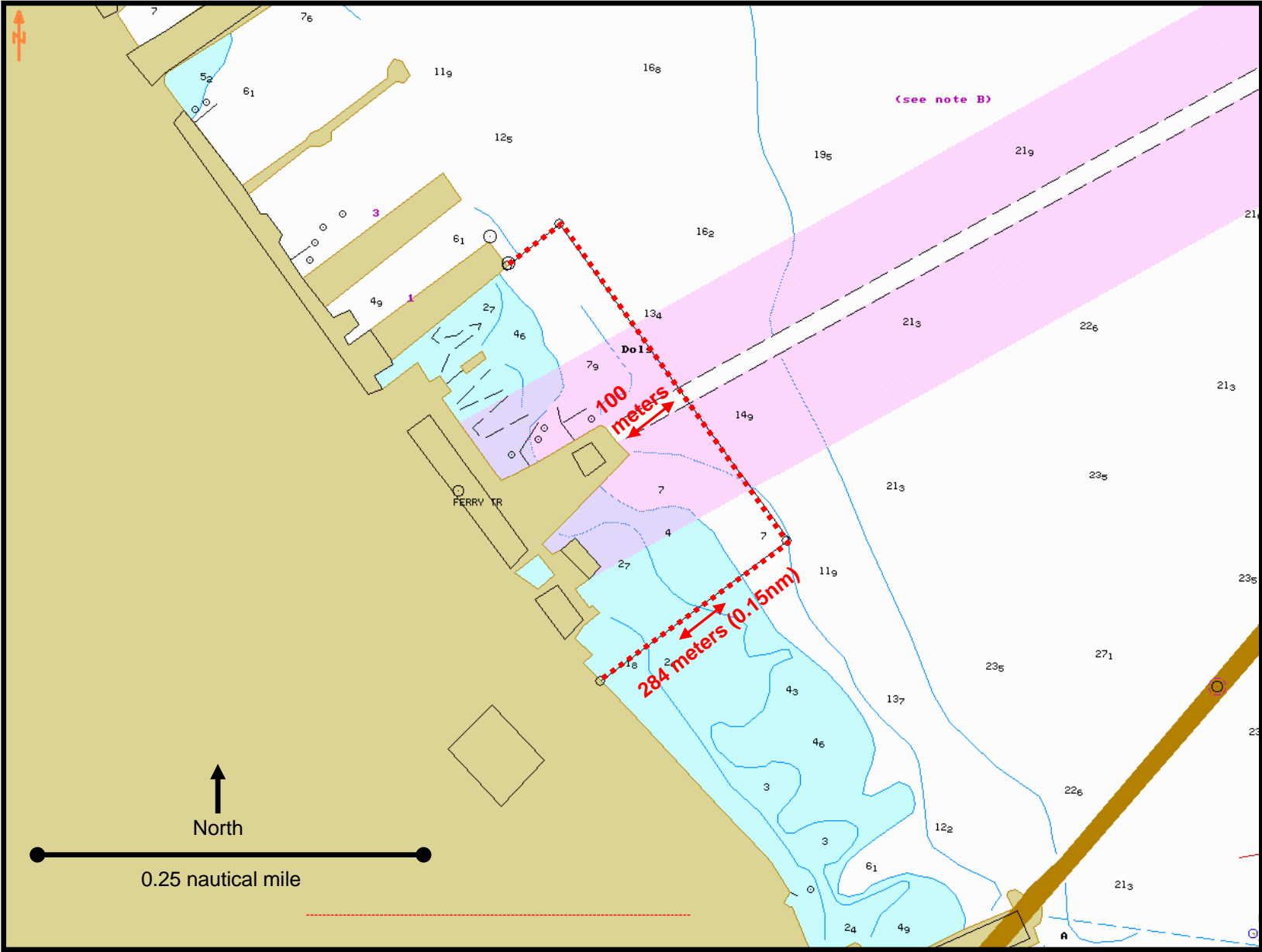
# San Pablo Bay and Mare Island Strait



# Ferry Building Approach/Departure Zone



# Ferry Building Maneuvering Area



# Source and Contact Information

Diagrams are screen print files from vector-based electronic nautical charts (ENCs).

Additional lines and labels were added to the screen print files for emphasis and clarity.

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May 19, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response

FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region

SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,

**Harbor Safety Committee Recommendation: Speed Restrictions in Reduced Visibility**

**Introduction**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directive and make appropriate recommendations regarding the prevention aspects of the incident."

The HSC Work Groups addressed the issues raised in the Governor's directives based on information available, noting that the National Transportation Safety Board (NTSB) report on the cause is not expected to be completed until autumn 2008, and the State Board of Pilot Commissioners Accusation (Case No. 07-01) of the pilot is scheduled for hearing before an Administrative Law Judge beginning September 2, 2008. Other investigations are focused on oil spill response efforts.

The Navigation Work Group met March 4 and April 18, 2008, to consider the speed of large vessels transiting the Bay region during periods of reduced visibility.

Note: the following findings and recommendations should be considered preliminary, as not all evidence was accessible. As new information becomes available, the Harbor Safety Committee may revisit or address other policy implications.

**Report From the Navigation Work Group on Speed Restrictions in Reduced Visibility**

**Role of Speed in Cosco Busan Incident**

In addition to reduced visibility, speed also is being explored as a possible causal factor in the allision of the Cosco Busan with the San Francisco-Oakland Bay Bridge: the State Board of Pilot Commissioners found in its Accusation (Case No. 07-01) that the pilot charged had "reason to doubt whether the ship could safely proceed under the prevailing circumstances... [and proceeded] at a speed that was excessive for the circumstances...."

The Board of Pilot Commissioners Accusation states that the speed of the Cosco Busan just prior to the allision was 11 knots with a one-knot flood current. It should be noted that this is a preliminary accusation that has not been confirmed through any investigation as of the time of this writing.

## **COLREGS**

Maritime practices accepted worldwide are codified under the International Regulations for Prevention of Collisions at Sea (COLREGS), which address safe transit speed, risk of collision, and conduct of vessels in restricted visibility.

COLREGS Rule 6 states, in part, that, “Every vessel shall at all times proceed at a safe speed so that [the vessel] can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.” Rule 6 continues, stating that factors to be taken into account in determining a safe speed include, but are not limited to, the state of visibility and the manageability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions.

Rule 7 addresses risk of collision, and states, in part, that, “Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.”

Rule 19, Conduct of Vessels in Restricted Visibility, states, in part, that, “Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility [and] [e]very vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules....”

### **U.S. Coast Guard Authority to Regulate Vessel Speed**

The Federal Ports and Waterways Safety Act of 1972 (33 USC 1223) grants authority to the Coast Guard to further regulate vessel speed, and specifically states:

[The Coast Guard] may control vessel traffic in areas subject to the jurisdiction of the United States which the Secretary [of the Department of Homeland Security] determines to be hazardous, or under conditions of reduced visibility, adverse weather, vessel congestion, or other hazardous circumstances by [a number of means, including] establishing vessel traffic routing schemes and by establishing vessel size, speed, draft limitations and vessel operating conditions.

Under 33 Code of Federal Regulations (CFR) 161.11, the Coast Guard may, through the Vessel Traffic System (VTS), issue measures or directions to enhance navigation and vessel safety and to protect the marine environment, including establishing vessel traffic routing schemes.

### **Existing Coast Guard Speed Restrictions in San Francisco Bay**

The San Francisco Bay region, consisting of several bays and rivers, is one of the foggiest harbors in the United States. Navigating San Francisco Bay during periods of reduced visibility requires mariners to exercise additional caution and vigilance. To aid mariners, the Coast Guard established several Regulated Navigational Areas (RNAs) in the Bay region in 1995, which were designed to improve navigation safety by organizing traffic flow patterns; reducing meeting, crossing, and overtaking situations in constricted channels; and by limiting vessel speeds.

Federal regulation 33 CFR Parts 162 and 165 state in part that the maximum speed for all power driven vessels of 1,600 or more gross tons shall not exceed 15 knots through the water from the COLREGS Demarcation Line to the southern tip of Bay Farm Island, Alameda and the Union Pacific Railroad Bridge in Benicia. This standard also applies to a tug with a tow of 1,600 or more gross tons.

### **Harbor Safety Committee Endorsements of RNAs**

The Harbor Safety Committee endorsed the RNAs, as they were established based on the operating characteristics of ships transiting the Bay. For example, industry related that lower speeds, such as a 12 knot limit, would unnecessarily restrict the maneuverability of some ships in swift currents.

Within the San Francisco Bay region, boundaries of the specific areas where the 15 knot speed limit apply are described in 33 CFR 165.1181 (attached):

- Golden Gate Traffic Lanes, which include the westbound and eastbound lanes west of the Golden Gate Precautionary Area
- Golden Gate Precautionary Area
- Central Bay Traffic Lanes, which include the Deep Water Traffic Lane, the eastbound lane (south of Alcatraz Island) and the westbound lane (south of Harding Rock)
- Central Bay Precautionary Area
- North Ship Channel between North Channel Lighted Buoy “A” and the Richmond-San Rafael Bridge
- Southampton Shoal Channel including the Richmond Long Wharf maneuvering area
- Richmond Harbor Entrance Channel
- Oakland Harbor Bar Channel including the Outer and Inner Harbors Entrance Channels
- San Pablo Strait Channel
- Pinole Shoal Channel
- Benicia-Martinez Railroad Drawbridge

Additionally, the Harbor Safety Committee recommended that all vessels remain in a response mode, allowing for an immediate response to an engine order. 33CFR165 states that, “Power driven vessels of 1,600 or more gross tons shall have their engines ready for immediate maneuver and shall not operate in control modes or with fuels that prevent an immediate response to any engine order ahead.”

It should be noted that in instances where a slower speed than the 15 knot RNA limit is required for safe navigation, the COLREGS will prevail.

**Conclusion:** In reviewing the speed restrictions in place in San Francisco Bay, the Work Group agreed that sufficient regulations and guidelines exist regarding speed limitations for large vessels transiting the San Francisco Bay region during periods of reduced visibility.

**Navigation Work Group Recommendation to the Harbor Safety Committee:** The Work Group recommends that no additional measures be proposed to restrict the speed of large vessels in reduced visibility.

**Harbor Safety Committee Action:** The Harbor Safety Committee unanimously adopted the Navigation Work Group findings and recommendations at its May 8, 2008 regular meeting. (Note: as a committee established by the State of California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendized under the provisions of the Ralph M. Brown Open Meeting Act).

Attachment

**COLREGS Addressing Speed Restrictions**  
(data taken from <http://www.navcen.uscg.gov/mwv/navrules/navrules.htm>)

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**RULE 6**  
**SAFE SPEED**

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

(a) By all vessels:

- i. The state of visibility;
- ii. The traffic density including concentrations of fishing vessels or any other vessels;
- iii. The manageability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;
- iv. At night, the presence of background light such as from shore lights or from back scatter from her own lights;
- v. The state of wind, sea and current, and the proximity of navigational hazards;
- vi. The draft in relation to the available depth of water.

(b) Additionally, by vessels with operational radar:

- i. The characteristics, efficiency and limitations of the radar equipment;
- ii. Any constraints imposed by the radar range scale in use;
- iii. The effect on radar detection of the sea state, weather and other sources of interference;
- iv. The possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range;
- v. The number, location and movement of vessels detected by radar;
- vi. The more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.

**RULE 7**  
**RISK OF COLISION**

(a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

- (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
- (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
- (d) In determining if risk of collision exists the following considerations shall be among those taken into account:
  - i. Such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change;
  - ii. Such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

#### **RULE 19: CONDUCT OF VESSELS IN RESTRICTED VISIBILITY**

- (a) This Rule applies to vessels not **in sight** of one another when navigating in or near an area of restricted visibility.
- (b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate maneuver.
- (c) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules **[of Section I of this Part / 4 through 10]**.
- (d) A vessel which detects by radar alone the presence of another vessel shall determine if a close-quarters situation is developing and/ **[Intl]** or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration in course, so far as possible the following shall be avoided:
  - (i) An alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;
  - (ii) An alteration of course toward a vessel abeam or abaft the beam.
- (e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to be the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

# SFBay RNAs in 33CFR165

( VTS web site: <http://www.uscg.mil/d11/vtssf/33cfr165.1181.pdf>)

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[Code of Federal Regulations]

[Title 33, Volume 2]

[Revised as of July 1, 2006]

From the U.S. Government Printing Office via GPO Access

[CITE: **33CFR165**]

[Page 762-766]

TITLE 33--NAVIGATION AND NAVIGABLE WATERS

CHAPTER I--COAST GUARD, DEPARTMENT OF HOMELAND SECURITY (CONTINUED)

PART 165 REGULATED NAVIGATION AREAS AND LIMITED ACCESS AREAS--Table of Contents

Subpart F\_Specific Regulated Navigation Areas and Limited Access Areas  
Sec. 165.1181 San Francisco Bay Region, California--regulated navigation area.

(a) Applicability. This section applies to all vessels unless otherwise specified.

(b) Deviations. The Captain of the Port, San Francisco Bay, or the Commanding Officer, Vessel Traffic Service San Francisco, as a representative of the Captain of the Port, may authorize a deviation from the requirements of this regulation when it is deemed necessary in the interests of safety.

(c) Regulated Navigation Areas--(1) San Francisco Bay RNA. (i) The following is a regulated navigation area--The waters bounded by a line connecting the following coordinates, beginning at:

37[deg]47[min]18[sec] N, 122[deg]30[min]22[sec] W; thence to  
37[deg]48[min]55[sec] N, 122[deg]31[min]41[sec] W; thence along the  
shoreline to 37[deg]50[min]38[sec] N, 122[deg]28[min]37[sec] W; thence  
to 37[deg]50[min]59[sec] N, 122[deg]28[min]00[sec] W; thence to  
37[deg]51[min]45[sec] N, 122[deg]27[min]28[sec] W; thence to  
37[deg]52[min]58[sec] N, 122[deg]26[min]06[sec] W; thence to  
37[deg]51[min]53[sec] N, 122[deg]24[min]58[sec] W; thence to  
37[deg]51[min]53[sec] N, 122[deg]24[min]00[sec] W; thence to  
37[deg]51[min]40[sec] N, 122[deg]23[min]48[sec] W; thence to  
37[deg]49[min]22[sec] N, 122[deg]23[min]48[sec] W; thence to  
37[deg]48[min]20[sec] N, 122[deg]22[min]12[sec] W; thence to  
37[deg]47[min]02[sec] N, 122[deg]21[min]33[sec] W; thence to  
37[deg]47[min]02[sec] N, 122[deg]23[min]04[sec] W;

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thence along the shoreline to the point of beginning.

Datum: NAD 83

(ii) The San Francisco Bay RNA consists of the following defined sub-areas:

(A) Golden Gate Traffic Lanes--(1) Westbound traffic lane: Bounded by the Golden Gate precautionary area and the COLREGS Demarcation Line (33 CFR 80.1142), between the separation zone and a line connecting the following coordinates:

37[deg]48[min]30[sec] N, 122[deg]31[min]22[sec] W; thence to  
37[deg]49[min]03[sec] N, 122[deg]29[min]52[sec] W.

Datum: NAD 83

(2) Eastbound traffic lane. Bounded by the COLREGS Demarcation Line (33 CFR 80.1142) and the Golden Gate precautionary area, between the separation zone and a line connecting the following coordinates:

37[deg]47[min]50[sec] N, 122[deg]30[min]48[sec] W; thence to  
37[deg]48[min]30[sec] N, 122[deg]29[min]29[sec] W.

Datum: NAD 83

(3) Golden Gate Separation Zone: The area 75 yards each side of a line connecting the following coordinates:

37[deg]48[min]08[sec] N, 122[deg]31[min]05[sec] W; thence to  
37[deg]48[min]46[sec] N, 122[deg]29[min]40[sec] W.

Datum: NAD 83

(B) Golden Gate Precautionary Area: An area bounded by a line connecting the following coordinates beginning at:

37[deg]48[min]30[sec] N, 122[deg]29[min]29[sec] W; thence to  
37[deg]48[min]52[sec] N, 122[deg]28[min]41[sec] W; thence to  
37[deg]48[min]52[sec] N, 122[deg]27[min]49[sec] W; thence to  
37[deg]49[min]36[sec] N, 122[deg]27[min]46[sec] W; thence to  
37[deg]49[min]55[sec] N, 122[deg]28[min]09[sec] W; thence to  
37[deg]49[min]28[sec] N, 122[deg]28[min]45[sec] W; thence to  
37[deg]49[min]03[sec] N, 122[deg]29[min]52[sec] W; thence returning to  
the point of beginning.

Datum: NAD 83

(C) Central Bay Traffic Lanes--(1) Westbound traffic lane: Bounded by the Central Bay precautionary area and the Golden Gate precautionary area, between the Central Bay and the Deep Water Traffic Lane separation zones.

(2) Eastbound traffic lane: Bounded by the Golden Gate precautionary area and the Central Bay precautionary area, between the Central Bay Separation Zone and a line connecting the following coordinates, beginning at:

37[deg]48[min]41[sec] N, 122[deg]25[min]17[sec] W; thence to  
37[deg]48[min]50[sec] N, 122[deg]26[min]14[sec] W; thence to  
37[deg]48[min]52[sec] N, 122[deg]27[min]49[sec] W.

Datum: NAD 83

(3) Deep Water (two-way) Traffic Lane: Bounded by the Central Bay precautionary area and the Golden Gate precautionary area, between the Deep Water Traffic Lane separation zone and a line connecting the

following coordinates, beginning at:

37[deg]49[min]55[sec] N, 122[deg]28[min]09[sec] W; thence to  
37[deg]50[min]36[sec] N, 122[deg]27[min]12[sec] W; thence to  
37[deg]50[min]47[sec] N, 122[deg]26[min]26[sec] W.

Datum: NAD 83

(D) Central Bay Separation Zone: The area 75 yards each side of a line connecting the following coordinates, beginning at:

37[deg]49[min]17[sec] N, 122[deg]27[min]47[sec] W; thence to  
37[deg]49[min]35[sec] N, 122[deg]25[min]25[sec] W.

Datum: NAD 83

(E) Deep Water Traffic Lane Separation Zone: The area 75 yards each side of a line connecting the following coordinates, beginning at:

37[deg]49[min]36[sec] N, 122[deg]27[min]46[sec] W; thence to  
37[deg]50[min]22[sec] N, 122[deg]26[min]49[sec] W; thence to  
37[deg]50[min]25[sec] N, 122[deg]26[min]22[sec] W.

Datum: NAD 83

(F) Central Bay Precautionary Area: An area bounded by a line connecting the following coordinates, beginning at:

37[deg]48[min]41[sec] N, 122[deg]25[min]17[sec] W; thence to  
37[deg]49[min]32[sec] N, 122[deg]25[min]13[sec] W; thence to  
37[deg]50[min]25[sec] N, 122[deg]26[min]22[sec] W; thence to  
37[deg]50[min]47[sec] N, 122[deg]26[min]26[sec] W; thence to  
37[deg]51[min]04[sec] N, 122[deg]24[min]58[sec] W; thence to  
37[deg]51[min]53[sec] N, 122[deg]24[min]58[sec] W; thence to  
37[deg]51[min]53[sec] N, 122[deg]24[min]00[sec] W; thence to  
37[deg]51[min]40[sec] N, 122[deg]23[min]48[sec] W; thence to  
37[deg]49[min]22[sec] N, 122[deg]23[min]48[sec] W; thence to  
37[deg]48[min]20[sec] N, 122[deg]22[min]12[sec] W; thence to  
37[deg]47[min]02[sec] N, 122[deg]21[min]33[sec] W; thence to  
37[deg]47[min]02[sec] N, 122[deg]23[min]04[sec] W; thence returning  
along the shoreline to the point of beginning.

Datum: NAD 83

(2) North Ship Channel RNA. The following is a regulated navigation area--The waters bounded by a line connecting the following coordinates,

beginning at:

37[deg]51[min]53[sec] N, 122[deg]24[min]58[sec] W; thence to  
37[deg]54[min]15[sec] N, 122[deg]27[min]27[sec] W; thence to  
37[deg]56[min]06[sec] N, 122[deg]26[min]49[sec] W; thence to  
37[deg]56[min]06[sec] N, 122[deg]26[min]34[sec] W; thence to  
37[deg]54[min]48[sec] N, 122[deg]26[min]42[sec] W; thence to  
37[deg]54[min]02[sec] N,

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122[deg]26[min]10[sec] W; thence to 37[deg]51[min]53[sec] N,  
122[deg]24[min]00[sec] W; thence to returning to the point of  
beginning.

Datum: NAD 83

(3) San Pablo Strait Channel RNA. The following is a regulated  
navigation area--The waters bounded by a line connecting the following  
coordinates, beginning at:

37[deg]56[min]06[sec] N, 122[deg]26[min]49[sec] W; thence to  
37[deg]57[min]26[sec] N, 122[deg]27[min]21[sec] W; thence to  
38[deg]00[min]48[sec] N, 122[deg]24[min]45[sec] W; thence to  
38[deg]01[min]54[sec] N, 122[deg]22[min]24[sec] W; thence to  
38[deg]01[min]44[sec] N, 122[deg]22[min]18[sec] W; thence to  
37[deg]57[min]37[sec] N, 122[deg]26[min]23[sec] W; thence to  
37[deg]56[min]06[sec] N, 122[deg]26[min]34[sec] W; thence returning to  
the point of beginning.

Datum: NAD 83

(4) Pinole Shoal Channel RNA. The following is a regulated  
navigation area--The waters bounded by a line connecting the following  
coordinates, beginning at:

38[deg]01[min]54[sec] N, 122[deg]22[min]25[sec] W; thence to  
38[deg]03[min]13[sec] N, 122[deg]19[min]50[sec] W; thence to  
38[deg]03[min]23[sec] N, 122[deg]18[min]31[sec] W; thence to  
38[deg]03[min]13[sec] N, 122[deg]18[min]29[sec] W; thence to  
38[deg]03[min]05[sec] N, 122[deg]19[min]28[sec] W; thence to  
38[deg]01[min]44[sec] N, 122[deg]22[min]18[sec] W; thence returning to  
the point of beginning.

Datum: NAD 83

(5) Benicia-Martinez Railroad Drawbridge Regulated Navigation Area  
(RNA): The following is a regulated navigation area--The waters bounded  
by the following longitude lines:

- (i) 122[deg]13[min]31[sec] W (coinciding with the charted location  
of the Carquinez Bridge)
- (ii) 121[deg]53[min]17[sec] W (coinciding with the charted location  
of New York Point)

Datum: NAD 83

(6) Southampton Shoal Channel/Richmond Harbor RNA: The following,  
consisting of two distinct areas, is a regulated navigation area--

(i) The waters bounded by a line connecting the following  
coordinates, beginning at:

37[deg]54[min]17[sec] N, 122[deg]22[min]00[sec] W; thence to  
37[deg]54[min]08[sec] N, 122[deg]22[min]00[sec] W; thence to  
37[deg]54[min]15[sec] N, 122[deg]23[min]12[sec] W; thence to  
37[deg]54[min]30[sec] N, 122[deg]23[min]09[sec] W; thence along the  
shoreline to the point of beginning.

Datum: NAD 83

(ii) The waters bounded by a line connecting the following coordinates, beginning at:

37[deg]54[min]28[sec] N, 122[deg]23[min]36[sec] W; thence to  
37[deg]54[min]20[sec] N, 122[deg]23[min]38[sec] W; thence to  
37[deg]54[min]23[sec] N, 122[deg]24[min]02[sec] W; thence to  
37[deg]54[min]57[sec] N, 122[deg]24[min]51[sec] W; thence to  
37[deg]55[min]05[sec] N, 122[deg]25[min]02[sec] W; thence to  
37[deg]54[min]57[sec] N, 122[deg]25[min]22[sec] W; thence to  
37[deg]53[min]26[sec] N, 122[deg]25[min]03[sec] W; thence to  
37[deg]53[min]24[sec] N, 122[deg]25[min]13[sec] W; thence to  
37[deg]55[min]30[sec] N, 122[deg]25[min]35[sec] W; thence to  
37[deg]55[min]40[sec] N, 122[deg]25[min]10[sec] W; thence to  
37[deg]54[min]54[sec] N, 122[deg]24[min]30[sec] W; thence to  
37[deg]54[min]30[sec] N, 122[deg]24[min]00[sec] W; thence returning to  
the point of beginning.

Datum: NAD 83

(7) Oakland Harbor RNA: The following is a regulated navigation area--The waters bounded by a line connecting the following coordinates,

beginning at:

37[deg]48[min]40[sec] N, 122[deg]19[min]58[sec] W; thence to  
37[deg]48[min]50[sec] N, 122[deg]20[min]02[sec] W; thence to  
37[deg]48[min]29[sec] N, 122[deg]20[min]39[sec] W; thence to  
37[deg]48[min]13[sec] N, 122[deg]21[min]26[sec] W; thence to  
37[deg]48[min]10[sec] N, 122[deg]21[min]39[sec] W; thence to  
37[deg]48[min]20[sec] N, 122[deg]22[min]12[sec] W; thence to  
37[deg]47[min]36[sec] N, 122[deg]21[min]50[sec] W; thence to  
37[deg]47[min]52[sec] N, 122[deg]21[min]40[sec] W; thence to  
37[deg]48[min]03[sec] N, 122[deg]21[min]00[sec] W; thence to  
37[deg]47[min]48[sec] N, 122[deg]19[min]46[sec] W; thence to  
37[deg]47[min]55[sec] N, 122[deg]19[min]43[sec] W; thence returning  
along the shoreline to the point of the beginning.

Datum: NAD 83

(d) General regulations. (1) A power-driven vessel of 1600 or more gross tons, or a tug with a tow of 1600 or more gross tons, navigating within the RNAs defined in paragraph (c) of this section, shall not exceed a speed of 15 knots through the water.

(2) A power-driven vessel of 1600 or more gross tons, or a tug with a tow of 1600 or more gross tons, navigating within the RNAs defined in paragraph (c) of this section, shall have its engine(s) ready for immediate maneuver and shall operate its engine(s) in a control mode and on fuel that will allow for an immediate response to any engine order, ahead or astern, including stopping its engine(s) for an extended period of time.

(3) The master, pilot or person directing the movement of a vessel within the RNAs defined in paragraph (c) of this regulation shall comply with Rule 9 of the Inland Navigation Rules (INRs) (33 U.S.C. 2009) in conjunction with the provisions of the associated INRs.

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(e) Specific Regulations--(1) San Francisco Bay RNA: (i) A vessel shall navigate with particular caution in a precautionary area, or in areas near the terminations of traffic lanes or channels, as described in this regulation.

(ii) A power-driven vessel of 1600 or more gross tons, or a tug with a tow of 1600 or more gross tons, shall:

(A) Use the appropriate traffic lane and proceed in the general direction of traffic flow for that lane;

(B) Use the Central Bay Deep Water Traffic Lane if eastbound with a draft of 45 feet or greater or westbound with a draft of 28 feet or greater;

(C) Not enter the Central Bay Deep Water Traffic Lane when another power-driven vessel of 1600 or more gross tons or tug with a tow of 1600

or more gross tons is navigating therein when either vessel is:

(1) Carrying certain dangerous cargoes (as denoted in section 160.203 of this subchapter);

(2) Carrying bulk petroleum products; or

(3) A tank vessel in ballast if such entry would result in meeting, crossing, or overtaking the other vessel.

(D) Normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side, shall do so at as small an angle to the general direction of traffic flow as practicable;

(E) So far as practicable keep clear of the Central Bay Separation Zone and the Deep Water Traffic Lane Separation Zone;

(F) Not cross a traffic lane separation zone unless crossing, joining, or leaving a traffic lane.

(2) Pinole Shoal Channel RNA: (i) A vessel less than 1600 gross tons or a tug with a tow of less than 1600 gross tons is not permitted within this RNA.

(ii) A power-driven vessel of 1600 or more gross tons or a tug with a tow of 1600 or more gross tons shall not enter Pinole Shoal Channel RNA when another power-driven vessel of 1600 or more gross tons or tug with a tow of 1600 or more gross tons is navigating therein if such entry would result in meeting, crossing, or overtaking the other vessel,

when either vessel is:

(A) Carrying certain dangerous cargoes (as denoted in Sec. 160.203 of this subchapter);

(B) Carrying bulk petroleum products; or

(C) A tank vessel in ballast.

(iii) Vessels permitted to use this channel shall proceed at a reasonable speed so as not to endanger other vessels or interfere with any work which may become necessary in maintaining, surveying, or buoying the channel, and they shall not anchor in the channel except in case of a deviation authorized under paragraph (b) of this section.

(iv) This paragraph shall not be construed as prohibiting any necessary use of the channel by any public vessels while engaged in official duties, or in emergencies by pilot boats.

(3) Benicia-Martinez Railroad Drawbridge Regulated Navigation Area

(RNA)--(i) Eastbound vessels: (A) The master, pilot, or person directing the movement of a power-driven vessel of 1600 or more gross tons or a tug with a tow of 1600 or more gross tons traveling eastbound and intending to transit under the lift span (centered at coordinates 38[deg]02[min]18[sec] N, 122[deg]07[min]17[sec] W) of the railroad bridge across Carquinez Strait at mile 7.0 shall, immediately after entering the RNA, determine whether the visibility around the lift span is  $\frac{1}{2}$  nautical mile or greater.

(B) If the visibility is less than  $\frac{1}{2}$  nautical mile, or subsequently becomes less than  $\frac{1}{2}$  nautical mile, the vessel shall not

transit under the lift span.

(ii) Westbound vessels: (A) The master, pilot, or person directing the movement of a power-driven vessel of 1600 or more gross tons or a tug with a tow of 1600 or more gross tons traveling westbound and intending to transit under the lift span (centered at coordinates 38[deg]02[min]18[sec] N, 122[deg]07[min]17[sec] W) of the railroad bridge across Carquinez Strait at mile 7.0 shall, immediately after entering the RNA determine whether the visibility around the lift span is  $\frac{1}{2}$  nautical mile or greater.

(B) If the visibility is less than  $\frac{1}{2}$  nautical mile, the vessel shall not pass beyond longitude line 121[deg]55[min]19[sec] W (coinciding with the charted position of the westernmost end of Mallard Island) until the visibility improves to greater

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than  $\frac{1}{2}$  nautical mile around the lift span.

(C) If after entering the RNA visibility around the lift span subsequently becomes less than  $\frac{1}{2}$  nautical mile, the master, pilot, or person directing the movement of the vessel either shall not transit under the lift span or shall request a deviation from the requirements of the RNA as prescribed in paragraph (b) of this section.

(D) Vessels that are moored or anchored within the RNA with the intent to transit under the lift span shall remain moored or anchored until visibility around the lift span becomes greater than  $\frac{1}{2}$  nautical mile.

(4) Southampton Shoal/Richmond Harbor RNA: A power-driven vessel of 1600 or more gross tons, or a tug with a tow of 1600 or more gross tons,

shall not enter Southampton Shoal/Richmond Harbor RNA when another power-driven vessel of 1600 or more gross tons, or a tug with a tow of 1600 or more gross tons, is navigating therein, if such entry would result in meeting, crossing, or overtaking the other vessel.

(5) Oakland Harbor RNA: A power-driven vessel of 1600 or more gross tons or a tug with a tow of 1600 or more gross tons shall not enter the Oakland Harbor RNA when another power-driven vessel of 1600 or more gross tons, or a tug with a tow of 1600 or more gross tons, is navigating therein, if such entry would result in meeting, crossing, or overtaking the other vessel.

[CGD11-94-007, 60 FR 16796, Apr. 3, 1995; 60 FR 30157, June 7, 1995. Redesignated by USCG-2001-9286, 66 FR 33642, June 25, 2001, as amended by USCG-2003-15404, 68 FR 37741, June 25, 2003; CGD11-03-001, 69 FR 2843, Jan. 21, 2004]

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May 19, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response

FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region

SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,

**Harbor Safety Committee Recommendation: Crew Requirements in Reduced Visibility**

**Introduction**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directive and make appropriate recommendations regarding the prevention aspects of the incident."

The HSC Work Groups addressed the issues raised in the Governor's directives based on information available, noting that the National Transportation Safety Board (NTSB) report on the cause is not expected to be completed until autumn 2008, and the State Board of Pilot Commissioners Accusation (Case No. 07-01) of the pilot is scheduled for hearing before an Administrative Law Judge beginning September 2, 2008. Other investigations are focused on oil spill response efforts.

The Navigation Work Group met March 4 and April 18, 2008, to consider the question of vessel crew staffing requirements in reduced visibility in the San Francisco Bay Region.

Note: the following findings and recommendations should be considered preliminary, as not all evidence was accessible. As new information becomes available, the Harbor Safety Committee may revisit or address other policy implications.

**Existing Crew Staffing Requirements in Reduced Visibility**

The Work Group reviewed the following regulations and guidelines regarding requirements for crew staffing on large vessels in restricted visibility. (Attached as an addendum.)

1. Selected COLREGS including Rule 5 Lookouts, Rule 6 Safe Speed, and Rule 19 Conduct of Vessels in Reduced Visibility.
2. 46 CFR 15.705 addressing manning requirements for watches on U.S. vessels.
3. Seafarer's Training, Certification & Watchkeeping (STCW) Code, A-VIII/2 Part 3-1 addressing International Maritime Organization (IMO) requirements for watchkeeping at sea.

**Conclusion:** The Work Group agreed that sufficient regulations and guidelines exist under federal and international law for crewing requirements. These regulations and guidelines set out watch standards for mariners on ships. Federal regulations regulate only U.S.-flagged ships, while the COLREGS and STCW Code pertain to all ships.

The Work Group noted that crew staffing did not appear to be an issue in the Cosco Busan incident, but was raised in the Governor's Directive as an issue to address.

**Navigation Work Group Recommendation to the Harbor Safety Committee:** The Work Group recommends to the Harbor Safety Committee that no additional measures be proposed regarding crew staffing requirements in limited visibility.

**Harbor Safety Committee Action:** The Harbor Safety Committee unanimously adopted the Navigation Work Group findings and recommendations at its May 8, 2008 regular meeting. (Note: as a committee established by the State of California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendaized under the provisions of the Ralph M. Brown Open Meeting Act).

## Attachments: Crew Staffing

### **Selected COLREGS**

#### Rule 5

##### Look-out

Every vessel shall at all times maintain a proper look-out by sight as well as by hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

#### Rule 6

##### Safe Speed

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

(a) By all vessels:

(i) The state of visibility;

(ii) The traffic density including concentrations of fishing vessels or any other vessels;

(iii) The manageability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;

(iv) At night the presence of background light such as from shore lights or from back scatter from her own lights;

(v) The state of wind, sea and current, and the proximity of navigational hazards;

(vi) The draft in relation to the available depth of water.

(b) Additionally, by vessels with operational radar:

(i) The characteristics, efficiency and limitations of the radar equipment;

(ii) Any constraints imposed by the radar range scale in use;

(iii) The effect on radar detection of the sea state, weather and other sources of interference;

(iv) The possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range;

(v) The number location and movement of vessels detected by radar;

(vi) The more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.

## Rule 19

### Conduct of Vessels in Restricted Visibility

- (a) This rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.
- (b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and condition of restricted visibility. A power driven vessel shall have her engines ready for immediate maneuver.
- (c) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.
- (d) A vessel which detects by radar alone the presence of another vessel shall determine if a close-quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration in course, so far as possible the following shall be avoided:
  - (i) An alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;
  - (ii) An alteration of course toward a vessel abeam or abaft the beam.
- (e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to be the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

TITLE 46--SHIPPING

CHAPTER I--COAST GUARD, DEPARTMENT OF HOMELAND SECURITY

PART 15\_MANNING REQUIREMENTS--Table of Contents

Subpart F\_Limitations and Qualifying Factors

Sec. 15.705 Watches.

(a) Title 46 U.S.C. 8104 is the law applicable to the establishment of watches aboard certain U.S. vessels. The establishment of adequate watches is the responsibility of the vessel's master. The Coast Guard interprets the term watch to be the direct performance of vessel operations, whether deck or engine, where such operations would routinely be controlled and performed in a scheduled and fixed rotation.

The performance of maintenance or work necessary to the vessel's safe operation on a daily basis does not in itself constitute the establishment of a watch. The minimum safe manning levels specified in a

vessel's certificate of inspection take into consideration routine maintenance requirements and ability of the crew to perform all operational evolutions, including emergencies, as well as those functions which may be assigned to persons in watches.

(b) Subject to exceptions, 46 U.S.C. 8104 requires that when a master of a seagoing vessel of more than 100 gross tons establishes watches for the licensed individuals, sailors, coal passers, firemen, oilers and watertenders, the personnel shall be divided, when at sea, into at least three watches and shall be kept on duty successively to

perform ordinary work incident to the operation and management of the vessel. The Coast Guard interprets sailors to mean those members of the deck department other than licensed officers, whose duties involve the mechanics of conducting the ship on its voyage, such as helmsman (wheelsman), lookout, etc., and which are necessary to the maintenance of a continuous watch. Sailors is not interpreted to include able seamen

and ordinary seamen not performing these duties.

(c) Subject to exceptions, 46 U.S.C. 8104(g) permits the licensed individuals and crew members (except the coal passers, firemen, oilers, and watertenders) to be divided into two watches when at sea and engaged

on a voyage of less than 600 miles on the following categories of vessels:

- (1) Towing vessel;
- (2) Offshore supply vessel; or,
- (3) Barge.

(d) Subject to exceptions, 46 U.S.C. 8104(h) permits a licensed master or mate (pilot) operating a towing vessel that is at least 26 feet in length measured from end to end over the deck (excluding sheer) to work not more than 12 hours in a consecutive 24 hour period except in

an emergency. The Coast Guard interprets this, in conjunction with other

provisions of the law, to permit licensed masters or mates (pilots) serving as operators of towing vessels that are not subject to the provisions of the Officers' Competency Certificates Convention, 1936, to

be divided into two watches regardless of the length of the voyage.

(e) Fish processing vessels are subject to various provisions of 46 U.S.C. 8104 concerning watches.

(1) For fish processing vessels that entered into service before January 1, 1988, the following watch requirements apply to the licensed officers and deck crew:

(i) If over 5000 gross tons--three watches.

(ii) If more than 1600 gross tons and not more than 5000 gross tons--two watches.

(iii) If not more than 1600 gross tons--no watch division specified.

(2) For fish Processing vessels which enter into service after December 31, 1987, the following watch requirements apply to the licensed officers and deck crew:

(i) If over 5000 gross tons--three watches.

(ii) If not more than 5000 gross tons and having more than 16 individuals on board primarily employed in the preparation of fish or fish products--two watches.

(iii) If not more than 5000 gross tons and having not more than 16 individuals on board primarily employed in the preparation of fish or fish products--no watch division specified.

(f) Properly manned uninspected passenger vessels of at least 100 gross tons--

(1) Which are underway for no more than 12 hours in any 24-hour period,

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and which are adequately moored, anchored, or otherwise secured in a harbor of safe refuge for the remainder of that 24-hour period may operate with one navigational watch;

(2) Which are underway more than 12 hours in any 24-hour period must

provide a minimum of a two-watch system;

(3) In no case may the crew of any watch work more than 12 hours in any 24-hour period, except in an emergency.

[CGD 81-059, 52 FR 38652, Oct. 16, 1987, as amended by USCG-1999-6224, 64 FR 63235, Nov. 19, 1999; USCG-1999-5040, May 15, 2002; USCG-2004-18884, 69 FR 58343, Sept. 30, 2004]

## **Seafarer's Training, Certification & Watchkeeping (STCW) Code**

Chapter VIII of the STCW Annex, and the associated sections of the STCW Code, are a consolidation of material relating to watchkeeping arrangements. The primary focus of the STCW convention is to ensure that an effective watch is maintained on all seagoing ships, by qualified and fit personnel under all circumstances. Part 3 of Chapter VIII addresses maintaining a watch at sea.

### ***PART 3 - WATCHKEEPING AT SEA***

Principles applying to watchkeeping generally

8 Parties shall direct the attention of companies, masters, chief engineer officers and watchkeeping personnel to the following principles which shall be observed to ensure that safe watches are maintained at all times.

9 The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

10 The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

Protection of marine environment

11 The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

### ***PART 3-1 - PRINCIPLES TO BE OBSERVED IN KEEPING A NAVIGATIONAL WATCH***

12 The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972.

Look-out

13 A proper look-out shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972 and shall serve the purpose of:

.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant change in the operating environment;

.2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

14 The look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task.

15 The duties of the look-out and helmsperson are separate and the helmsperson shall not be considered to be the look-out while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out. The officer in charge of the navigational watch may be the sole look-out in daylight provided that on each such occasion:

.1 the situation has been carefully assessed and it has been established without doubt that it is safe to do so;

.2 full account has been taken of all relevant factors including, but not limited to:

- state of weather,

- visibility,

- traffic density,

- proximity of dangers to navigation, and

- the attention necessary when navigating in or near traffic separation schemes; and

.3 assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

16 In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:

.1 visibility, state of weather and sea;

.2 traffic density, and other activities occurring in the area in which the vessel is navigating;

- .3 the attention necessary when navigating in or near traffic separation schemes or other routing measures;
- .4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres;
- .5 the fitness for duty of any crew members on call who are assigned as members of the watch;
- .6 knowledge of and confidence in the professional competence of the ship's officers and crew;
- .7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability;
- .8 activities taking place on board the ship at any particular time, including radio communication activities and the availability of assistance to be summoned immediately to the bridge when necessary;
- .9 the operational status of bridge instrumentation and controls, including alarm systems;
- .10 rudder and propeller control and ship manoeuvring characteristics;
- .11 the size of the ship and the field of vision available from the conning position;
- .12 the configuration of the bridge, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and
- .13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

#### Watch arrangements

17 When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, inter alia, shall be taken into account:

- .1 at no time shall the bridge be left unattended;
- .2 weather conditions, visibility and whether there is daylight or darkness;
- .3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;
- .4 use and operational condition of navigational aids such as radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;

- .5 whether the ship is fitted with automatic steering;
- .6 whether there are radio duties to be performed;
- .7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and limitations; and
- .8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

#### Taking over the watch

18 The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.

19 The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.

20 Prior to taking over the watch relieving officers shall satisfy themselves as to the ship's estimated or true position and confirm its intended track, course and speed, and UMS controls as appropriate and shall note any dangers to navigation expected to be encountered during their watch.

21 Relieving officers shall personally satisfy themselves regarding the:

- .1 standing orders and other special instructions of the master relating to navigation of the ship;
- .2 position, course, speed and draught of the ship;
- .3 prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;
- .4 procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and
- .5 navigational situation, including but not limited to:
  - .5.1 the operational condition of all navigational and safety equipment being used or likely to be used during the watch,
  - .5.2 the errors of gyro and magnetic compasses,

.5.3 the presence and movement of ships in sight or known to be in the vicinity,

.5.4 the conditions and hazards likely to be encountered during the watch, and

.5.5 the possible effects of heel, trim, water density and squat on under keel clearance.

22 If at any time the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is taking place, the relief of that officer shall be deferred until such action has been completed.

Performing the navigational watch

23 The officer in charge of the navigational watch shall:

.1 keep the watch on the bridge;

.2 in no circumstances leave the bridge until properly relieved;

.3 continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood; and

.4 notify the master when in any doubt as to what action to take in the interest of safety.

24 During the watch the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.

25 The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment.

26 The officer in charge of the navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.

27 Officers of the navigational watch shall make the most effective use of all navigational equipment at their disposal.

28 When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the International Regulations for Preventing Collisions at Sea, in force.

29 In cases of need the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signalling apparatus. However, timely notice of intended variations of engine speed shall be given where possible or effective use made of UMS engine controls provided on the bridge in accordance with the applicable procedures.

30 Officers of the navigational watch shall know the handling characteristics of their ship, including its stopping distances, and should appreciate that other ships may have different handling characteristics.

31 A proper record shall be kept during the watch of the movements and activities relating to the navigation of the ship.

32 It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper look-out is maintained. In a ship with a separate chart room the officer in charge of the navigational watch may visit the chart room, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper look-out is maintained.

33 Operational tests of shipboard navigational equipment shall be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Whenever appropriate, these tests shall be recorded. Such tests shall also be carried out prior to port arrival and departure.

34 The officer in charge of the navigational watch shall make regular checks to ensure that:

- .1 the person steering the ship or the automatic pilot is steering the correct course;
- .2 the standard compass error is determined at least once a watch and, when possible, after any major alteration of course; the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;
- .3 the automatic pilot is tested manually at least once a watch;
- .4 the navigation and signal lights and other navigational equipment are functioning properly;
- .5 the radio equipment is functioning properly in accordance with paragraph 86 of this section; and
- .6 the UMS controls, alarms and indicators are functioning properly.

35 The officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the requirements in force of the International Convention for the Safety of Life at Sea, (SOLAS) 1974\*. The officer of the navigational watch shall take into account:

- .1 the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and

.2 that with a ship under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the look-out in order to take emergency action.

36 Officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate and shall bear in mind that the echo-sounder is a valuable navigational aid.

37 The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters having due regard to its limitations.

38 The officer in charge of the navigational watch shall ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.

39 Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis is commenced in ample time.

40 The officer in charge of the navigational watch shall notify the master immediately:

- .1 if restricted visibility is encountered or expected;
- .2 if the traffic conditions or the movements of other ships are causing concern;
- .3 if difficulty is experienced in maintaining course;
- .4 on failure to sight land, a navigation mark or to obtain soundings by the expected time;
- .5 if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;
- .6 on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;
- .7 if the radio equipment malfunctions;
- .8 in heavy weather, if in any doubt about the possibility of weather damage;
- .9 if the ship meets any hazard to navigation, such as ice or a derelict; and
- .10 in any other emergency or if in any doubt.

41 Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall in addition not hesitate to take immediate action for the safety of the ship, where circumstances so require.

42 The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper look-out.

Watchkeeping under different conditions and in different areas

Clear weather

43 The officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer in charge of the navigational watch shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972 and subsequently check that such action is having the desired effect.

44 In clear weather, whenever possible, the officer in charge of the navigational watch shall carry out radar practice.

Restricted visibility

45 When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972 with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre. In addition, the officer in charge of the navigational watch shall:

.1 inform the master;

.2 post a proper look-out;

.3 exhibit navigation lights; and

.4 operate and use the radar.

In hours of darkness

46 The master and the officer in charge of the navigational watch when arranging look-out duty shall have due regard to the bridge equipment and navigational aids available for use, their limitations; procedures and safeguards implemented.

## Coastal and congested waters

47 The largest scale chart on board, suitable for the area and corrected with the latest available information, shall be used. Fixes shall be taken at frequent intervals, and shall be carried out by more than one method whenever circumstances allow.

48 The officer in charge of the navigational watch shall positively identify all relevant navigation marks.

## Navigation with pilot on board

49 Despite the duties and obligations of pilots, their presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.

50 If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

## Ship at anchor

51 If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the navigational watch shall:

- .1 determine and plot the ship's position on the appropriate chart as soon as practicable;
- .2 when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;
- .3 ensure that proper look-out is maintained;
- .4 ensure that inspection rounds of the ship are made periodically;
- .5 observe meteorological and tidal conditions and the state of the sea;
- .6 notify the master and undertake all necessary measures if the ship drags anchor;
- .7 ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;

.8 if visibility deteriorates, notify the master;

.9 ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and

.10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

Note: to view entire STCW document, see IMO or U.S. Coast Guard web sites:

[http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D7864/STCWCode.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D7864/STCWCode.pdf)

<http://www.uscg.mil/STCW/stcw-code-ach8.htm>

July 15, 2008

TO: Lisa Curtis, Administrator, Office of Spill Prevention and Response  
FROM: Joan Lundstrom, Chair, Harbor Safety Committee of the San Francisco Bay Region  
SUBJECT: Governor's Directive to Analyze the Cosco Busan Oil Spill Incident,  
**Harbor Safety Committee Recommendation: Pilot Use of Navigational Tools**

Attn: Bud Leland, Deputy Administrator

### **Introduction**

In response to the Cosco Busan oil spill incident, Governor Schwarzenegger directed a state investigation into the causes of and response to the oil spill. The directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." OSPR tasked the Harbor Safety Committee (HSC) of the San Francisco Bay Region to "analyze the navigational safety-related issues of the Governor's directive and make appropriate recommendations regarding the prevention aspects of the incident."

The HSC Work Groups addressed the issues raised in the Governor's directives based on information available, noting that the National Transportation Safety Board (NTSB) report on the cause is not expected to be completed until autumn 2008. Other investigations are focused on oil spill response efforts.

To date the Navigation Work Group completed recommendations to the HSC related to large vessel transit of the San Francisco Bay Region as well as the speed of large vessels the region during periods of reduced visibility.

To respond to the Governor's directive to develop recommendations regarding the use of advanced technology to aid pilots in navigating San Francisco Bay, the HSC agreed to coordinate with the San Francisco Board of Pilot Commissioners. The Navigation Work Group met June 27, 2008, to develop its recommendations to the HSC, based upon the adopted recommendations of the Board of Pilot Commissioners.

Note: the following findings and recommendations should be considered preliminary, as not all evidence was accessible. As new information becomes available, the Harbor Safety Committee may revisit or address other policy implications.

### **Report From Navigation Work Group on Pilot's Use of Navigational Tools**

#### **Background**

In response to the Cosco Busan incident, the Governor directed OSPR to investigate the potential role of navigational technology in reducing the risk of vessel collisions in the San Francisco Bay Region. The HSC Navigation Work Group agreed to coordinate its review of the subject with the work of the Board of Pilot Commissioners ("Pilot Commission"), which formed a Navigation Technology Committee to develop recommendations for the enhancement of pilots' ability to safely navigate using shipboard and portable electronic navigation systems.

The State Board of Pilot Commission, created in 1850, regulates the Bar Pilots of the San Francisco Bay Region. The Commission consists of seven members appointed by the Governor with the consent of the Senate: three are public members who are neither pilots nor work for companies that use pilots, two are pilots licensed by the Pilot Commission and two are industry members - one from the tanker industry and one from the dry cargo industry.

Over the course of several months, in investigating different types of navigation systems found on ships calling on the San Francisco Bay Area and the sufficiency of pilot training in the use of such systems, the Pilot Commission Technology Committee considered presentations by experts in navigation technology and in the education of mariners in the use of the technology. The committee also evaluated portable electronic navigation chart systems that can be brought aboard by pilots, various comprehensive reports on their use, liability issues and interface with shipboard equipment and how portable pilot units are regulated in other jurisdictions.

### **Work Group Discussion**

The HSC Navigation Work Group met June 27, 2008, to review the recommendations adopted by the Pilot Commission and to develop recommendations to the Harbor Safety Committee. (Attachment: *Draft Board of Pilot Commission status report on Pilot Commission's actions to enhance pilots' ability to safely navigate ships with the use of advanced navigation technology.*)

The Work Group noted that prudent mariners rely on an array of informational sources when navigating, including paper charts, electronic charts, Army Corps of Engineers charts, USCG Notices to Mariners, etc. Portable electronic navigation chart systems that can be brought aboard by pilots, or Portable Pilot Units ("PPUs"), are an additional navigational tool proposed to be carried by Pilot Commission-licensed pilots in San Francisco Bay. These units cannot supplant onboard systems; however, their use is appropriate in the Bay due to its variety of microclimates and periods of dense fog.

To further navigational safety, the Work Group agreed to support international efforts to standardize symbols used on onboard charts. Confusion can result when piloting the more than 900 different ships that transit the Bay, many of which carry different charting systems featuring proprietary symbology. Future training of Pilot Commission-licensed pilots will include the symbology used on different charts.

**Conclusion:** In discussing issues related to the use of advanced navigational technology systems, the Navigation Work Group found that Portable Pilot Units are an additional tool of value to increase navigation safety in the Bay Region, along with enhanced training of Pilot Commission-licensed pilots in advanced electronic navigation systems.

## **Navigation Work Group Recommendations to the Harbor Safety Committee**

1. Urge the Board of Pilot Commissioners, as a near-term priority, to work with the San Francisco Bar Pilots to incorporate in the Pilot training program enhanced training in advanced electronic navigation systems, providing exposure to a greater number of systems and variety of presentations.

2. Support adoption by the Board of Pilot Commissioners of a regulation to require that pilots licensed by the Pilot Commission be equipped with, and trained in the use of, portable electronic navigation equipment, commonly known as Portable Pilot Units ("PPUs"). The regulation should require that pilots be equipped with PPUs at all times while piloting except when the pilot deems that embarking on or disembarking from a vessel while carrying a PPU may present an unacceptable safety hazard to the pilot or when circumstances would prevent its use.

Such PPUs shall, at a minimum, have the following capabilities:

- (a) Displaying approved electronic navigation charts (ENCs) issued by the cognizant U.S. government authority;
- (b) Displaying the vessel's position and heading on such ENCs to the accuracy required by the International Maritime Organization (IMO) for Automatic Identification Systems (AIS); and
- (c) Displaying other navigational information as provided through the vessel's AIS pilot plug.

**Harbor Safety Committee Action:** The Harbor Safety Committee unanimously adopted the Navigation Work Group findings and recommendations at its July 10, 2008 regular meeting. (Note: as a committee established by the State of California, all Harbor Safety Committee meetings are open to the public and publicly noticed and agendized under the provisions of the Ralph M. Brown Open Meeting Act).

## Attachment

### **Draft Board of Pilot Commissions status report on Pilot Commission's actions to enhance pilots' ability to safely navigate ships with the use of advanced navigation technology**

Following the COSCO BUSAN accident and oil spill in San Francisco Bay in November 2007, the state Board of Pilot Commissioners appointed a special committee to develop recommendations for the enhancement of pilots' ability to safely navigate ships with the use of advanced navigation technology. The Commission recently accepted the preliminary recommendations of its Navigation Technology Committee and commenced the process for incorporating enhanced training in advanced electronic navigation systems and for the adoption by regulation of a requirement that pilots licensed by the Commission be equipped with, and trained in the use of, portable electronic navigation equipment that the pilots would carry with them when they go aboard a ship. The development of these recommendations, progress to date and estimated timetable to full implementation are summarized below.

#### INTRODUCTION

In response to the COSCO BUSAN's allision with the fendering system of the Delta Tower of the San Francisco-Oakland Bay Bridge and the ensuing oil spill, Governor Schwarzenegger directed a state investigation into the causes of, and response to, the accident and the spill. The Governor's directive outlined a number of issues to ensure "any action necessary to prevent this from ever happening again." The state Office of Oil Spill Prevention and Response (OSPR) tasked the Harbor Safety Committee of San Francisco Bay Region (HSC) to "analyze the navigational safety-related issues of the Governor's directive and to make appropriate recommendations regarding the prevention aspects of the incident." The HSC agreed to consult with the state agency that licensed the pilot, the Board of Pilot Commissioners for the Bays of San Francisco, San Pablo and Suisun (the Pilot Commission), on certain issues related to the use of shipboard and portable electronic navigation systems by pilots.

#### BOARD OF PILOT COMMISSIONERS

Immediately following the incident, the Pilot Commission, through its Incident Review Committee (IRC), commenced an investigation to determine whether the incident was caused by pilot error. On December 6, 2007, the IRC filed charges against the pilot in the form of an Accusation alleging that the pilot had reason to doubt whether the ship could safely proceed under the prevailing circumstances, proceeded with insufficient information about the level of visibility along his intended route, proceeded at a speed that was excessive for the circumstances and failed to make full use of all available resources to determine the vessel's position prior to attempting a transit between the Delta and Echo towers of the bridge in conditions of reduced visibility. The pilot has denied the charges and requested a hearing. A hearing on the charges is currently scheduled for September 2, 2008.

The Pilot Commission summarily suspended the pilot's state license on November 30, 2007. That license remains suspended pending the hearing on the IRC's charges.

One of the issues raised in the investigation focused on the electronic navigation system aboard the COSCO BUSAN and whether the pilot was able to make full use of the information provided by it.

#### NAVIGATION TECHNOLOGY COMMITTEE OF THE BOARD OF PILOT COMMISSIONERS

In response to the incident, the Pilot Commission formed a Navigation Technology Committee to investigate the different types of navigation systems found on ships calling on the San Francisco Bay Area and the sufficiency of pilot training in the use of such systems; and to evaluate portable electronic navigation chart systems that can be brought aboard by pilots to assist in navigation.

The Navigation Technology Committee was chaired by RADM Frank X. Johnston, MARAD, (Ret.), who was appointed by Governor Schwarzenegger to the Pilot Commission in January 2008. Committee members included the chairs of the navigation technology committees for the San Francisco Bar Pilots, Captain Sean Gabe, and for the Jacobsen Pilot Service in Long Beach, Captain Vic Schissler, as well as a retired master mariner who helped Exxon develop an advanced electronic navigation system for its tanker fleet, Captain Tom Hill.

The Committee held well-attended public workshops in February, March and April, 2008, with participation or presentations by experts in navigation technology and in the training and education of mariners in that subject, including Professor Sam Pecota of the California Maritime Academy, Executive Director Glen Paine of the Maritime Institute of Technology and Graduate Studies, Training Director Scott Humphrey of the Coast Guard Vessel Traffic Service for San Francisco Bay Area, Human Factors Expert Dr. Richard Mogford from NASA and various commercial providers of portable pilot navigation units.

The Committee also reviewed how portable pilot units are regulated in other pilotage jurisdictions and various comprehensive reports on their use, liability issues and interface with shipboard equipment. (Copies of the Committee's meeting minutes and the various reports reviewed by the Committee are available from the Pilot Commission.)

The Committee presented its initial report to the Pilot Commission on April 17, 2008, recommending that the Commission's Pilot Training Curriculum Committee be directed to consider incorporating enhanced training in advanced electronic navigation systems that would provide exposure to a greater number of systems and variety of presentations than what is provided by the current training program. In addition, the Committee

recommended that the Commission adopt by regulation a requirement that pilots licensed by the Commission be equipped with, and trained in the use of, portable electronic navigation equipment, commonly known as portable pilot units (PPUs), with specified minimum capabilities and other relevant provisions.

At its May 22, 2008 meeting, the Pilot Commission voted unanimously to direct its Curriculum Committee to consider incorporating enhanced training in advanced electronic navigation systems and directed its staff to begin the formal rulemaking process for adopting the regulation recommended by the Navigation Technology Committee.

## ENHANCED TRAINING IN ADVANCED ELECTRONIC NAVIGATION SYSTEMS

The Maritime Institute of Technology and Graduate Studies (MITAGS) has a contract with the Pilot Commission to provide specified training to pilots as mandated by current regulations. The curriculum is specified in the contract. That contract ends June 30, 2009.

The Commission's Pilot Training Curriculum Committee will need to review the current curriculum taught by MITAGS under the contract, possible options to provide enhanced training in advanced electronic navigation systems, and how such training can be incorporated into the current training program within the Commission's regulatory and budget constraints.

Preliminary estimates are that it will take several meetings over a period of two to three months to develop specific recommendations for changing the curriculum and for the Board to take action on those recommendations, followed by possible contract negotiations with MITAGS and the preparation and execution of contract amendments. (Contract matters are handled through the Department of Consumer Affairs.)

If the resulting contract expenses remain within the Commission's budget, the enhanced training, if adopted, could be in place by October 1, 2008. If the additional training expenses would exceed the Board's budget, the Board may need to seek an increase in its spending authorization unless spending on other program areas can be reduced. Such a request could add a minimum of three to four months to the process.

## RULEMAKING RE USE OF PORTABLE PILOT UNITS

The rulemaking process is governed by the California Administrative Procedures Act (APA), and by budgetary constraints imposed by the Department of Finance (DOF) and the Legislature. The Pilot Commission has been directed by DOF to use temporary part time government employees known as AGPAs (Associate Government Policy Analysts) to meet the Commission's future rulemaking needs. The Board's current budget does not

authorize expenditures for such employees, but there is such authority in the proposed budget for F/Y 08/09, which begins July 1, 2008. Once that budget has been approved (as part of the annual state budget approval process), the Commission can proceed with the retention of an AGPA and begin the rulemaking process.

The AGPA will need to ensure compliance with APA requirements; prepare the notice of proposed rulemaking and supporting documentation including a fiscal analysis and have them approved by the Office of Administrative Law and, if necessary, the Department of Finance; guide the Pilot Commission through the public comment period (minimum of 45 days from the publication of the notice of proposed rulemaking and 15 additional days following notice of any substantive amendments to the original rulemaking language); guide the Board through the public rulemaking hearing or hearings, until the rulemaking language has been adopted by the Commission; prepare the final rulemaking package and supporting documents; and guide the rulemaking through the approval process before the Office of Administrative Law (OAL). Once approved by OAL, the rulemaking is filed with the Secretary of State and ordinarily becomes law 30 days later.

The entire process can take from six to nine months or more. On an expedited basis, it is possible that the rulemaking could be completed by early 2009.

It should be noted that investigations are ongoing at both the state and federal level, and that the reports and recommendations that will ultimately come out of those investigations, along with various legislation now under consideration, may result in changes or additions to the above actions.

June 5, 2008. Source: Board of Pilot Commission Navigation Technology Committee Report.