

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

HARBOR SAFETY COMMITTEE OF THE SF BAY REGION

Thursday; December 11, 2003

Port of Oakland, Board Room, 530 Water Street, Oakland, CA

Scott Merritt, Foss Maritime Company, Vice-Chair, called the public meeting to order at 10:05 and welcomed those in attendance. The following committee members or alternates were in attendance: **Len Cardoza**, Port of Oakland; **John Davey**, Port of San Francisco; **Nancy Pagan**, Port of Benicia; **Tom Wilson**, Port of Richmond; **Capt. Doug Lathrop**, Chevron Texaco; **Capt. Margaret Reasoner**, Crowley Maritime Services; **Alan Miciano** (alternate for **Grant Stewart**), General Steamship; **Michael Beatie**, Golden Gate Bridge Highway and Transportation District, Ferry Division; **Capt. Larry Teague**, San Francisco Bar Pilots; **Linda Scourtis** (alternate for **Joan Lundstrom**), Bay Conservation and Development Commission; **Margot Brown**, National Boating Federation; and **Kathy Zagzebski**, The Marine Mammal Center. Also present were U. S. Coast Guard representatives, **Cmdr. Steve Boyle** (MSO) and **Cmdr. Pauline Cook** (VTS); U. S. Army Corps of Engineers' representative, **David Dwinell**; NOAA representative, **Cmdr. Steve Thompson**; **Al Storm**, OSPR; **Ken Leverich**, State Lands Commission; **Capt. Lynn Korwatch**, Marine Exchange, and more than twenty people from the interested public.

The Secretariat confirmed the presence of a quorum.

Corrections to minutes of previous meeting: **M. Reasoner**: page 2, in discussion of anchored barges and sound signals, it should read "LA ~~erated that as~~ is working on creating a navigational regulated area, so the barges working on a mooring buoy are not required to sound signals." **L. Scourtis**: page 6, Tug Escort Work Group (7), sentence should read "In practice, the work group recommends that the pilot report to the MX when they board a vessel ~~not ready for~~ if the checklist is not completed and the vessel is not in compliance with escort regulations." **P. Cook**: page 2, USCG Report (6), should read "Will there be a requirement for ~~dredges ferries~~ on a public schedule to monitor a second channel; 13 plus another?" **P. Cook**: Established ferry routes have a minimum requirement to file a ~~traffic~~ sailing plan prior to departure. VTS is still working on an implementation plan for using channel 11." **A. Storm**: page 8, Public Comment, at end of discussion, should read, "The Administrator also stated that he would ~~identify funding for~~ fund a training program developed by the committee in conjunction with security. Motion by **L. Teague**, seconded by **T. Wilson** to "accept the minutes of November 13, 2003 as corrected." Motion passed without objection.

USCG REPORT, S. Boyle. (1) **S. Boyle** reported on port operations statistics for pollution response and investigations and significant port safety events for the period November 1, 2003 through November 30, 2003. A written report is made a part of these minutes. (2) The results of the second round of Port Security Grants were distributed. Of \$33.7 million in grant funding to California, SF/Sacramento/Stockton received \$12.5 million; LA received \$19 million and San

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

Diego received \$2.1 million. (3) **Lcdr. Chris Robinson**, Acting Chief of Vessel Inspections, was in attendance to respond to questions raised at the last HSC meeting regarding vessel manning assessments for passenger and cruise vessels. He compiled and distributed documents that address manning. The CG's overall policy is to assess vessel manning on commercial vessels every time they are inspected. The assessment is based on considerations including crowd control, emergency response, number of decks, etc. There is a manning evaluation matrix for high speed vessels, 30+ kts, which is used in conjunction with the operator. There are also two NAVICs that apply. These documents formalize manning levels and document how they were developed. No new products have been established with an absolute answer to manning requirements. There are several view points: manning should be increased, manning should be decreased and the CG position that manning should be adequate for all situations onboard a vessel on SF Bay. **S. Merritt**: The HSC received a letter from **Ron Duckhorn**, Blue and Gold Fleet, with the related NAVIC attached, addressing comments made at the last HSC meeting. The letter was received too late for distribution prior to this meeting and will be discussed at the next HSC meeting after there has been time for everyone to read it. **S. Boyle**: The CG Commandant has received two letters from the SF area asking for a review of manning standards. Local CG is awaiting a response. Question: What are the two NAVICs that address manning? **S. Boyle**: 05-01, #5 of 2001, change 1; and 01-91, change 1. They can be accessed on-line. **S. Merritt**: 05-01 will be attached to the draft meeting minutes as an attachment to the **Duckhorn** letter. (4) **P. Cook** clarified VTS potential use of channel 11. VTS has permission to use channel 11, but not exclusively like channels 12 and 14. It may take a while to implement because of FCC issues. VTS may use channel 11 on an emergency basis but will not implement regular use in the near future. All mandatory VTS users are required to monitor channels 13, 14 and 16; but don't have to personally monitor channel 16 because VTS does that for users.

CLEARINGHOUSE REPORT, A. Steinbrugge. A written report with statistics for the month of November 2003, is made a part of these minutes. There were no calls to OSPR during the month of November for a possible escort violation or from pilots to report a vessel arriving at the pilot station without escort paperwork. Year-to-date, there have been three calls to OSPR regarding escort violations. There were two calls regarding escort violations in 2002; six calls in 2001 and five calls in 2000.

OSPR REPORT, A. Storm. OSPR can't act on the tug escort regulation changes the HSC voted last meeting because, under the Governor's moratorium, there can be no new regulations for six months. There may be a reversal soon and OSPR will proceed upon receipt of a written directive from the Governor's office.

NOAA REPORT, S. Thompson. (1) There is one new nautical chart edition, #18022, small scale San Diego to SF Bay. (2) Additional weather services maps for Central California, with all sites from Pt. Conception to Pt. St. George, including radio frequency, phone numbers and

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

buoy information, were made available at the meeting. (3) The Weather Service short term prediction is for more winter storms. The 30-90 day outlook is for warmer and drier conditions than normal.

COE REPORT, D. Dwinell. The text of the COE Report is made a part of these minutes by attachment. **E. Dohm:** When will the pilots receive data from the surveys of Suisun Bay and the Main Ship Channel that were completed in August? The COE administrative procedures have resulted in slow downs in distribution of survey results to the pilots. The COE District Commander has stated that the survey review process takes two days. The pilots used to get the results two to three days after completion of a survey. Now it is taking months. A lot of money is spent on dredging, but the information is not available for use. **T. Wilson** noted that, a few months ago, bad survey data cost the port a lot of money when the controlling depth was reduced from 32' to 28'. This also happened at the Port of Oakland. **E. Dohm:** The Richmond situation was solved in a couple of days, with only two ships delayed. The old agreement was that the pilots would react to preliminary survey reports of less water before the COE quality assurance process was completed, but would not assume more water until after quality assurance was completed. That system provided for best safety. **P. Bonebakker:** There are areas in Europe where soundings get to the pilots within hours of completion of a survey. There are significant economic advantages to knowing when there is more water available, as well as critical safety issues when there is less. **E. Dohm:** That is true in Oregon, as well. The technology is available. Question: What is the status of the Sacramento Ship Channel project? **D. Dwinell:** The COE is moving forward on studies, but no new milestone has been reached yet.

STATE LANDS COMMISSION REPORT, K. Leverich. (1) There were no terminal spills during the month of November. There were two small spills, under two gallons each, since December 1st. (2) The next customer service meeting will be held January 28, 2004. (3) **Maurya Faulkner**, Program Manager, California Ballast Water Management Program, is working on implementation of the new law in effect January 1, 2004. Ballast water forms must be submitted for each port in California. Current law establishes eight zones, but the goal is develop a system with three zones. Question: Won't the Governor's directive prevent this from going into effect? **K. Leverich:** No, because this is code, not regulation. However, it is an unfunded mandate, which will move forward slowly until mid-2004. For the first six months there will be a lot of education work done with ship operators.

NAVIGATION WORK GROUP REPORT, L. Teague. (1) **E. Dohm** is working with the CG on a new navigational aid to mark the center of the new Zampa-Carquinez Bridge. The new suspension covers the base of the center bridge tower so that it no longer appears on radar. This project is on a fast track. (2) **E. Dohm** reported that he met with **Marc Bayer** regarding placement of aids for the Avon Turning Basin. Good survey

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

information is coming in and shoaling is stable. **M. Bayer** presented the Avon Turning Basin agreements/protocol to the Contra Costa Board of Supervisors earlier this week.

UNDERWATER ROCKS WORK GROUP REPORT, L. Cardoza. (1) The Engineering and Water Appropriation Bill has been signed and funding is anticipated in January. The Port of Oakland federal civil works projects continue to proceed under a continuing resolution in the meantime. The Port anticipates notice to proceed for deepening today. The project is one month behind schedule because there were inconsistencies between the COE survey and the contractor's survey data. Work on the Inner Harbor Turning Basin continues with the demolition of a building at the west corner. The Port of Oakland 50' Project Team is working to get the channel entrance and Outer Harbor to an interim project depth of 46'; construct a Middle Harbor containment structure and complete the widening of the Inner Harbor Turning Basin. The Port is waiting for a survey to reflect completion of Inner Harbor and Outer Harbor dredging as part of federal channel operations and maintenance. The Port completed its berth maintenance project and submitted data to the pilots within hours. (2) The report of the Underwater Rocks Work Group is made a part of these minutes by attachment. **L. Cardoza** recommends option (c). The Vice-Chair will discuss with Chair, **G. Stewart**, and possibly put this on the agenda for a vote at the next meeting.

FERRY OPERATORS WORK GROUP REPORT, N. Pagan. (1) **M. Beatie** talked yesterday with the manager of Blue and Gold, who asked that **M. Beatie** report to the HSC that the comments he made at the last HSC meeting regarding ferry manning were not made with the endorsement of the Bay Area Ferry Operators Association, but were the opinions of **M. Beatie** and other captains that operate on high speed ferries on the bay. (2) Debris on the bay. During certain times when the COE equipment is not available, areas of the bay are subject to large dangerous floating objects that can't be dealt with immediately, i.e., pieces of dock, etc. Can the CG help? **Keith Stahnke**: In the distant past the CG handled this problem, but now they can only investigate. Perhaps they could mark the objects with a light. **L. Cardoza**: An informal agreement was put in place in 1992 that, when the COE was not available nights and week-ends, the CG would provide for central areas designated for off-hours debris collection until the COE could pick-up. **J. Davey**: That practice is still in effect. The Port of SF has used a basin between 35/39. **S. Boyle** and **P. Cook** will take this back to CG. **P. Cook**: VTS can only report objects, not mark them.

PREVENTION THROUGH PEOPLE WORK GROUP, M. Brown. (1) The group met on December 9, 2003 to review the latest progress on the video and discuss how to proceed with the new Rule 9 brochure. Discussion of the brochure will continue at the meeting scheduled for December 23, 2003. At a meeting scheduled for January 6, 2004, the group will review progress on the video. **Matt Elyesh**, who is doing editing, is employing a very professional frame-by-frame process. It is hoped that the video will be completed by February.

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

TUG ESCORT WORK GROUP. No report.

PORTS FUNDING WORK GROUP, S. Merritt. S. Merritt, L. Korwatch, A. Steinbrugge and S. Thompson met with **Capt. Dave McFarland**, who is now in charge of the PORTS Project for NOAA. The project has been approved for federal funding, but no funds have been appropriated. The earliest that federal funding will be available is 2005, but this is highly unlikely because there is no initiative in place. **D. McFarland** believes that federal funding will come sometime down the line. Some funding was received from OSPR for hardware, but a funding source is needed to keep the system running. **L. Korwatch:** It is important to consider the factors that result in a project receiving funding. Those factors include a committed stakeholder base and having one key message, i.e., the value or benefits of the project. The budget must be broken down port-by-port and the cost of individual sensors identified. **S. Merritt** will call a meeting before the next HSC meeting to develop a game plan, which will include lobbying and seeking state funding. **T. Wilson:** BCDC often requires mitigation when projects are approved. Perhaps PORTS funding could be included in mitigation considerations. BCDC is mandated to address public access and PORTS information is available to the public online. Those who use the system are the same people who interact with BCDC regularly. **M. Brown** suggested that if there is a commitment for 2004 funding from Boating and Waterways, that funding should be requested ASAP. **L. Korwatch** reported that she has talked with the Director of Boating and Waterways and he is a strong supporter of PORTS, however, he is in a difficult position because of the uncertainty of Boating and Waterways' future. He has made a verbal commitment that he will try to provide some funding. PORTS is now out of maintenance and operations money. The MX is funding maintenance and operations with the hope of getting money from Boating and Waterways. Money from the \$82,000 grant from the CAPE MOHICAN Trust Fund was used to get the Benicia sensor up and running and to purchase new and redundant equipment. The MX went back to the fund trustees to ask if money could be moved to pay for maintenance, container storage rental and phone lines. The OSPR trustee said yes, but the second trustee is with the District Attorney's office, so there may be a post-election delay in response or a new trustee. **D. McFarland** believes that other regions have the same problems and suggests that PORTS managers hold a conference to look at technical and funding issues.

PORTS REPORT, A. Steinbrugge. (1) Most of the system is running well, but there have been some communications problems. (2) The day before the prototype for the Benicia side-looking meter was to be installed, CalTrans requested additional permits. They later agreed that the additional permits were unnecessary, but by that time it was too late to coordinate with NOAA personnel and the installation probably won't happen until February. The solutions for problems with mounting the low-tech instrument in a 3 kts. current were funded through the CAPE MOHICAN Grant.

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

PUBLIC COMMENT. None.

OLD BUSINESS. None.

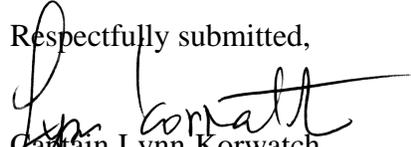
NEW BUSINESS. None.

Jeff McCarthy, MX: The AIS Committee meeting will be held downstairs (Port of Oakland) at 1300.

The next meeting of the HSC will be held on January 8, 2004 at 10:00 at the Richmond. The February meeting will be held on Wednesday, February 11, 2004, because Thursday is a holiday.

MOTION by **A. Miciano**, seconded by **M. Brown**, to “adjourn the meeting.” Motion was passed without objection. Meeting adjourned at 1130.

Respectfully submitted,


Captain Lynn Korwatch
Executive Secretary

**USCG Marine Safety Office San Francisco Bay
Port Operations Statistics
November 2003**

PORT SAFETY:	TOTAL
• SOLAS Interventions/COTP Orders:	05
• Marine Casualty: Allision/Collision (0) Grounding/Sinking (0) Fire (0)	00
• Marine Casualty (Mechanical): Propulsion (0) Steering (0)	00

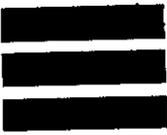
POLLUTION RESPONSE:	MSO
Total oil pollution incidents within San Francisco Bay for the month:	10
▪ Source Identification; Discharges and Potential Discharges from:	
Deep Draft Vessels	00
Facilities (includes all non-vessel)	00
Military/Public Vessels	00
Commercial Fishing Vessels	00
Other Commercial Vessels	00
Non-Commercial Vessels (e.g. pleasure craft)	05
Unknown Source (as of the end of the month)	05
▪ Spill Volume:	
Unconfirmed	05
No Spill, Potential Needing Action	00
Spills < 10 gallons	04
Spills 10 to 100 gallons	01
Spills 100 to 1000 gallons	00
Spills > 1000 gallons	00

Significant Cases:

19NOV- Oil spill off the coast of Monterey caused large sheen visible upon overflight. Cleanup not necessary. No responsible party identified. Oil samples taken, awaiting lab results.

04 NOV- A stowaway was found aboard the M/V DIRECT KESTREL. A COTP Order was issued for the vessel to submit a security plan and security forces while in port. The case was passed to Customs for further action.

19-NOV- M/V WADI HALFA was issued a COPT Order to submit a security plan and security forces for crewmembers that were detained aboard the vessel due to increased security risk.



BLUE GOLD FLEET

December 9, 2003

Grant Stewart
Harbor Safety Committee
Of the San Francisco Bay Region
C/O Marine Exchange
Fort Mason Ctr., Bldg. B, Ste. 325
San Francisco, California 94123

Members of the Harbor Safety Committee:

Ladies and gentlemen,

We are writing to comment on the Draft Minutes from the Harbor safety Committee of November 13, 2003. In particular, the comments made by Mr. Mick Beatie regarding the need for two licensed operators in the wheelhouse for passenger vessels traveling in excess of thirty knots and carrying more than one hundred passengers does not represent Blue & Gold Fleet's position.

Mr. Beatie was chosen by the Ferry Industry in the San Francisco Bay area to represent the ferry vessel operators. In that capacity, it was made clear to him that "official Ferry Industry positions" required the consent of all the members. When Mr. Beatie gave his opinion in the November 13th letter he was not speaking for all the vessel operators and certainly not the Blue & Gold Fleet company.

The issue of two licensed officers in the wheelhouse was explored by a "natural working group" consisting of the Blue & Gold Fleet and the companies copied in on this correspondence. The "Group" met in various ports around the nation to discuss manning and safety issues regarding high-speed passenger vessel operations.

This group agreed to a "Guidance For Evaluating Bridge Manning Of Domestic High Speed Vessels" (Navigation And Vessel Inspection Circular No. 5-01, CH-1 copy attached) which was signed by Rear Admiral Paul J. Pluta. Blue & Gold Fleet pays serious attention to this NVIC and has implemented the safety guidance format outlined therein including the Challenge Assessment Tool (CAT) and the Manning Evaluation Matrix (MEM). Using this approach, Blue & Gold Fleet has instituted the procedure of requiring both a licensed operator and a "qualified" (not necessarily licensed) Senior Deckhand when vessels we operate are exceeding speeds of thirty knots.



BLUE GOLD FLEET

This company high-speed vessel manning policy grew out of the NVIC recommendations and is completely consistent with the "Group's" well thought out safety concerns.

Sincerely,

Ron Duckhorn
President

cc

United States Coast Guard's Office of Marine Inspections
Golden Gate Transit Ferry Division
Washington State Transportation Ferry Division
Boston Harbor Cruises
Catalina Express
New York Fast Ferries
Red & White Fleet
Harbor Bay Maritime
Passenger Vessel Association



COMDTPUB P16700.4

FEB 14 2003

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-01, CH-1

Subj: CHANGE TO NVIC 5-01, GUIDANCE FOR ENHANCING THE OPERATIONAL SAFETY OF DOMESTIC HIGH-SPEED VESSELS

1. **PURPOSE.** This change revises Navigation and Vessel Inspection Circular (NVIC) No. 5-01 by incorporating guidelines for manning domestic operating high-speed vessels with the addition of enclosure (2) to this NVIC. The focus of this guidance is to close the gap between the domestic manning regulations and the International Code of Safety for High-Speed Craft (HSC). This change will also incorporate applicable sections of enclosure (3) of NVIC 6-99, which discusses manning on non-HSC Code domestic passenger vessels. The goal is to produce a single document that covers operations, and manning for domestic high-speed vessels to which to the HSC Code does not apply.

2. **ACTION.**

- a. Officers-in-Charge, Marine Inspection (OCMIs) should review this circular and ensure that the guidance included in enclosure (2) is brought to the attention of the affected vessel owners and operators within their zones. For any vessel meeting the applicability criteria of this circular, OCMIs should discuss with the owner/operator ways to reduce operating risks and to enhance vessel safety.
- b. The owner/operator of a high-speed vessel may find the guidance contained in this circular useful when incorporating safety enhancement measures into their vessel operations and company procedures. Recognizing that high-speed vessel operations are often unique to each vessel, company, and area of operation, this guidance should not be considered as limiting or all-inclusive.

Distribution SDL No. 140

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A																										
B	w	l	l										l						l							l
C					l								l	l	l											
D	l										l															
E													l	l												
F																										
G																										
H																										

*NON-STANDARD DISTRIBUTION: B:a G-MOC, G-MO-1, G-MSE, MSC (1)

- c. This NVIC provides the tools to be used as an interactive process between the OCMI and the owner including all factors relevant to both points of view. The Challenge Assessment Tool (CAT) and Manning Evaluation Matrix (MEM) offer a way to quantify the manning dialog. These tools also give both parties the ability to modify the parameters both during the initial evaluation and subsequently should operating conditions, routes, or vessel specifics change, while ensuring the same standards are applied.
- d. Finally, the owners and operators of vessels not meeting the specific applicability criteria of this circular, such as those vessels operating at speeds just under 30 knots, are encouraged to apply the enclosed guidance to their own operations

3. IMPLEMENTATION. Add enclosure (2), Guidance For Evaluating Bridge Manning Of Domestic High Speed Vessels, to NVIC 5-01.

4. DIRECTIVES AFFECTED. Enclosure (3) of NVIC 6-99 is cancelled.

5. BACKGROUND.

- a. In 1999, the Coast Guard through its industry partnerships recognized a need to address the potential safety risks associated with the growing fleet of domestic passenger vessels capable of high-speed operations. Vessels in domestic service are not required to comply with the international HSC Code. The guidance contained in the original NVIC 5-01 recommended that the OCMI and the owner work together to identify the risks involved in operation of a particular high-speed vessel and mitigate the risks with an operations manual and training program as an alternative to strict compliance with the HSC Code.
- b. The 30-knot threshold was recognized as a point at which vessel navigation becomes less routine and the risks associated with navigational safety become more apparent. The manning level when operating "at speed" was not originally addressed.

6. DISCUSSION.

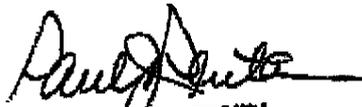
- a. Domestic regulations do not specifically address increased manning required for high speed vessels, but under 46 CFR 15.501, the OCMI is given broad authority to determine the minimum manning requirements on any inspected vessel. The HSC Code does set manning levels to cope with the increased difficulty of operating high speed vessels, but do not apply to vessels operated solely in the U.S. waters. Additionally, the Coast Guard Marine Safety Manual, Volume III, Chapter 21, Section (S), offers manning and training standards for hydrofoils and air cushion vehicles. Where comparable risks are involved, the OCMI may determine it appropriate to apply the same standards to high-speed passenger vessels as are required for hydrofoils and air cushion vehicles.
- b. The enclosed guidance is predominantly geared toward modern high-speed vessels engaged in passenger service; particularly those inspected under 46 CFR, Subchapters H,

K, and T. These vessels are often equipped with highly sophisticated navigation and engineering equipment/systems. Their safe operation requires a high level of training, expertise and teamwork. The enclosed guidance, assumes that the training and operations manuals address other concerns associated with the operation of high-speed vessels and are appropriate for the systems installed on a given vessel.

- c. Recognizing the OCMI's authority to set safe manning levels and the desire to maintain national consistency, vessel operators are strongly encouraged to comply with the enclosed guidance.
- d. The owner of a high-speed vessel may elect to voluntarily comply with the HSC Code in lieu of using these guidelines.

7. **APPLICABILITY.** This circular applies to domestic, non-HSC Code vessels that are capable of loaded service speeds of 30 knots or more and subject to Coast Guard inspection.

8. **DISCLAIMER.** While the guidance contained in this document may assist the industry, the public, the Coast Guard, and other Federal and State regulators in applying statutory and regulatory requirements, the guidance is not a substitute for applicable legal requirements; nor is it itself a rule. Thus, it is not intended to nor does it impose legally-binding requirements on any party, including the Coast Guard, other Federal agencies, the States, or the regulated community.



PAUL J. PLUTA
Rear Admiral, U.S. Coast Guard
Assistant Commandant for Marine Safety,
Security and Environmental Protection

Encl: NVIC 5-01, CH-1, Encl (2) Guidance For Evaluating Bridge Manning Of Domestic High Speed Vessels

**Guidance For Evaluating Bridge Manning
Of
Domestic High Speed Vessels**

ENCL (2)

1. Discussion

a. The domestic regulations that cover manning for inspected passenger vessels are contained in 46 United States Code (USC) 8101, and 46 CFR Part 15. Additional Coast Guard guidance is contained in the MSM volume III. Coast Guard policy regarding the senior deckhand position is contained in NVIC 1-91. The regulations covering the licensing of merchant marine officers are contained in 46 CFR 10. Guidance for safe operation of domestic high-speed craft is contained in this NVIC.

b. Alternately, the international treaty, which covers high-speed vessels on international routes, is the HSC Code. The Coast Guard policy for issuance of type rating endorsements for high-speed craft subject to the HSC Code is contained in NMC Policy Letter 6-01. Chapter 18.1.3.6 of the HSC Code specifies "The crew complement should be such that two officers are on duty in the operating compartment when the craft is underway, one of whom may be the master¹." U. S. law specifies when there must be two licensed personnel on board a vessel, but it does not specify when they must both be on the operating station/bridge.

c. The CG has concluded a need for a bridge team that includes a minimum of two qualified persons on vessels operating at speeds of 30 knots or more under the following circumstances:

- (1) Reduced visibility
- (2) Night operations
- (3) Increased recreational or commercial traffic
- (4) Special weather conditions
- (5) Other conditions as appropriate

d. There are a number of "T" boats operating at speeds of 30 knots or more, which do not require a Mate or a Qualified Deckhand (High Speed) by existing regulations. Some of these vessels may have the same challenges and/or technical sophistication as the present class of high-speed "K" or "H" vessels. It is, by regulation, within the OCM's discretion to apply manning criteria on all inspected vessels.

e. The above discussion establishes a need to determine requirements for a two-person bridge team during these specific circumstances. Paragraph (5) below establishes a methodology for determining when these circumstances exist for a particular operation.

2. Skill Sets

a. A study of the industry conducted in 1999 indicated most operators of high-speed vessels have been voluntarily manning their bridges with two licensed individuals. The current license-testing regime does not address these vessel types. The skills necessary to operate these vessels safely are being "grown" in the industry through hands-on operation and "in-house" vessel specific training. Enclosure (1) of NVIC 5-01 contains guidance for the training of crewmembers manning high-speed vessels.

¹ International Maritime Organization, International Code of Safety for High-Speed Craft (HSC Code), (London: IMO Publication, 2000) 146.

In order to meet changing operational conditions, the focus on adjusting bridge manning follows the recommended Vessel Operations Manual procedures found in paragraph 3.b (9) of enclosure (1).

b. The skill sets needed to operate a high-speed vessel differ in many ways from the skill sets needed to safely operate a traditional slower speed vessel. In some ways, such as reaction time, the high-speed vessels pose a greater challenge to the operators. In others, such as maneuverability, the high-speed vessels are superior. Regardless of the final bridge manning requirements (licensed or unlicensed; Master, Mate, or Qualified Deckhand (High Speed); one or two...) needed in the operation of these vessels, the below listed skills sets are recommended:

- (1) Collision avoidance:
 - (a) Rules of the road knowledge
 - (b) Radar skills
- (2) Local knowledge:
 - (a) Sensitivity to other waterway users
 - (b) Weather conditions
- (3) Knowledge of piloting techniques:
 - (a) Ability to use and update publications
 - (b) Ability to use navigation and communications electronics effectively
- (4) Comprehensive knowledge of vessel characteristics and operating limitations:
 - (a) Turning radii and stopping distances
 - (b) Docking and vessel handling characteristics
 - (c) Comprehensive knowledge of vessel systems
 - (d) Wake generation
 - (e) Maximum wave height and sea/speed conditions
 - (f) Back-up systems
 - (g) Mechanical systems aptitude/awareness
- (5) A set of emergency preparedness and evacuation procedures which encompass demonstrated skills:
 - (a) Passenger communication and control
 - Proper use of public address systems
 - Emergency crew communication and crowd control
 - (b) Grounding, flooding, fire, medical emergency (including the ability to anchor the vessel).
 - (c) Regional emergency response assets
 - (d) Knowledge of station bill or muster list
 - (e) Pollution response
- (6) Multi-tasking skills:
 - (a) Ability to prioritize functions appropriately
 - (b) Manning the bridge with the appropriate complement under differing challenges
 - Reduced visibility

- Night operations
 - (c) Increased traffic, both recreational and commercial
 - (d) Other conditions as appropriate
- (7) Physical Characteristics - Tested
- (a) Color vision
 - (b) Hearing
 - (c) General health
 - (d) Prescription drug use
- (8) Crew Endurance Management
- (a) Crew Endurance Risk Factors - Consult "Crew Endurance Management Practices, A Guide for Maritime Operations"
- (9) Demonstrated night operations skills

3. The Qualified Deckhand (High Speed) Program

a. The senior deckhand position, officially promulgated in NVIC 1-91, was the result of the Coast Guard recognizing the expanding passenger capacity of the small passenger vessel fleet and that a need exists for a person other than a licensed operator to respond to emergencies. The purpose of the senior deckhand position is to coordinate emergency response on vessels with high passenger capacity and act as a team leader of multiple deckhands.

b. The regulations state, "the movement of the vessel shall be under the direction and control of the master or a licensed mate at all times," which effectively restricts the licensed operator to the bridge while underway. On some high-speed vessels this senior deckhand position has evolved into a member of the bridge team who is qualified to sit in the "second seat." The Qualified Deckhand (High Speed) may assist the licensed operator with navigation duties, including: lookout, interpretation of radar data, and assistance with vessel navigation and communications. These skills required of the Qualified Deckhand (High Speed) are now addressed in NVIC 1-91, Ch-1.

c. An individual may act as both a senior deckhand and a qualified deckhand (high speed). If the same individual is acting as both the senior deckhand and the qualified deckhand (high speed), these duties must not interfere with each other. For example, if the senior deckhand is required to investigate a fire alarm in the engine room, that same individual could not also assist on the bridge at the same time. The vessel's operations manual should clearly define the responsibilities of each position to avoid unsafe situations. A solution to the above example would be to reduce speed to negate the need for the qualified deckhand (high speed) on the bridge, to allow that person to act as senior deckhand and investigate the alarm. Such situations should be addressed in the operations manual to make it an effective document.

4. Challenge Assessment Tool (CAT) and Manning Evaluation Matrix (MEM)

a. The Challenge Assessment Tool (CAT): The CAT (Table A) is designed to be used as a working document between the OCMI and high-speed vessel operator. Its purpose is to evaluate the challenges facing a vessel's bridge team. All items should be considered in the special circumstance of the vessel being discussed, operating at high-speed (e.g. operating at night at high-speed). The CAT also serves as the record of the discussion and agreements between the OCMI and the operator.

(1) Step 1: The first step is to arrange a face-to-face meeting between the vessel operator and the cognizant OCMI. This meeting may be part of, or follow-on to, a meeting(s) held to apply the guidance of NVIC 5-01.

(2) Step 2: For each item under the six navigational challenges, answer "yes" or "no". If the answer to a question is "yes", mutually agree to the rating for each line item. Each item should be rated as: low; medium; or high. If the answer to any question is "no" then it should be rated as "low." Again the items should be addressed in the context of the vessel operating at high-speed (e.g. if the vessel does not operate at night at high-speed, then the answer to the question regarding nighttime operations is "no").

(3) Step 3: Use mitigating factors such as specialized training, or equipment to adjust the level of the navigational challenge. During this step those mitigating factors found in the vessel's operations manual should also be considered. It should be noted that the starting point is the typical manning for a vessel of this class. Addition of bridge personnel should not be used during this step as a mitigating factor.

b. The Manning Evaluation Matrix (MEM): The MEM (Table B) is designed to be the final evaluation document used by the OCMI and the prospective operator to determine the vessel's final bridge complement. The finalized MEM will provide a subjective determination of the relative need for increases in the bridge crew above standard manning for the vessel's size and type. If result is all the checkmarks are in the left column of the matrix, then the vessel operation should be judged as relatively similar to other operations in the area. If the checkmarks are all on the right, the vessel operation should be viewed as very challenging and at least two, full-time, qualified personnel should be considered. Results in between the two extremes are indicative of an increased challenge for the bridge crew and the need for a second qualified person. The second person may not be required at all times. As the number of separate factors on the right side of the MEM increases, the need for a second, full-time, qualified person also increases. The steps for the use of the MEM follow:

(1) Step 1: Transfer the six values associated with the six navigational challenges to the Manning Evaluation Matrix (MEM) for further evaluation.

(2) Step 2: Address each factor on the MEM that is scored "medium" or "high". Mutually agree to the method for dealing with the challenge, e.g. specifying additional personnel during a particular section of a route due to a navigational challenge. The OCMI and the operator then need to ensure the operations manual reflects this agreement.

(3) Step 3: Using the MEM, the OCMI and the Operator should agree upon an overall challenge value for the six categories and assign the vessel with a low, medium, or high score. This overall score will determine when the vessel is required to have two qualified personnel on the bridge when the vessel is operating at a high-speed.

(a) Low: vessel manned as a typical "T," "K," or "H." A vessel will only be assigned an overall score of low when all categories are scored as a "low."

(b) Medium: vessel operates with two qualified personnel during all periods when the matrix indicates a score of medium or high in any operational category

(c) High: the vessel operates with two qualified personnel at all times.

c. The above evaluation and conditions should be included in the operations manual. The OCMI should be aware that in cases where the second person is needed on the bridge most of the time, this person cannot be counted on to perform normal deck hand duties and manning may need to be increased by OCMI accordingly. Also the term "qualified" should not be taken to mean licensed. A qualified senior deckhand, whose training has been augmented for high-speed vessels, may be adequate.

d. It is important to recognize that this is designed to be an iterative process between the OCMI and the prospective operator including all factors relevant to both points of view. Although subjective, it provides a way to quantify the manning dialog and give both parties the ability to modify the parameters both during the initial evaluation. These tools may also be usefully should operating conditions, routes, or vessel specifics.

Table A

High-Speed Vessel – Challenge Assessment Tool (CAT)

Company:	Vessel:
OCMI Zone:	Date:

	Yes	No	Identify mitigating factors that are covered in the operations manual or local operational circumstances that address the specific challenge.	Low	Med	High
1. Restricted Visibility						
Does the vessel operate at speed in restricted visibility?						
2. Night Operations						
Does the vessel operate at speed at night?						
Does the vessel normally operate more than twelve hours per day?						
3. Vessel complexity (extent of distraction from navigation)						
Is the on-board navigation equipment operation or lay out a challenge to manage?						
Is the machinery monitoring system a challenge to manage?						
Are the fire detection & alarm systems a challenge to manage?						
Is the on-board video system a challenge to manage?						
Does the bridge visibility pose a challenge to navigation? (blind areas, glare)						
4. Complexity of route(s)						
Does/will the vessel operate on multiple routes? (may do separate assessments)						
Does the vessel encounter heavy traffic along the route(s)?						
Does the route cross traffic schemes or separation zones?						
Does the route(s) encounter low profile traffic? (kayaks, windsurfers, swimmers...)						
Does traffic cross the vessel's route(s)?						
Are there other high speed vessels along this route(s)? (recreational or commercial)						
Do the nav aids pose a navigational challenge? (city lights, small size, etc.)						

Does the route(s) transit narrow channels or shallow water?					
Does the route encounter obstructions (debris, pots, buoys, etc.)?					
Are numerous course changes required?					
Does the operation call for short turnaround between runs?					
B. Special weather conditions and sea state					
Do currents along the route(s) pose a navigational challenge?					
Do winds along the route(s) pose a navigational challenge?					
Do tides along the route(s) pose a navigational challenge?					
Does sea state pose a navigational challenge? (fatigue, passenger safety...)					
Does ice or icing pose a navigational challenge?					
C. Company Experience					
Is the Company new to high speed vessel operations?					
Is the vessel operating on a new route?					
Is this the only high speed vessel operated by this Company?					
Is vessel equipment different on one or more vessels in the company's fleet?					
Is the crew unfamiliar with the vessel's navigational equipment?					
Does the vessel have limited mechanical support - shores/onboard?					
Does the crew have limited or no experience in high speed ops?					

Comments/Additional Challenges:

Reviewers:

Company Representative:

USCG Representative:

Table B

High-Speed Vessel – Manning Evaluation Matrix (MEM)

Company:	Vessel:
OCMI Zone:	Date:

Level Categories	Low	Medium	High
1. Restricted Visibility			
2. Night Operations			
3. Vessel Complexity			
4. Route Complexity			
5. Special Weather Conditions or Sea State			
6. Company Experience			
Overall Evaluation			

Low: vessel will remain manned as a typical "T," "K," or "H." A vessel will only be assigned an overall score of low when all categories are scored as a "low."

Medium: vessel will operate with two qualified personnel on the bridge during all periods when the matrix indicates a score of medium or high in any operational category.

High: vessel will be required to operate with two qualified personnel during all operational periods.

San Francisco Bay Clearinghouse Report For November 2003

San Francisco Bay Region Totals

			2002
Tanker arrivals to San Francisco Bay	51		64
Tank ship movements & escorted barge movements	257		295
Tank ship movements	146	56.81%	173
Escorted tank ship movements	70	27.24%	76
Unescorted tank ship movements	76	29.57%	97
Tank barge movements	111	43.19%	122
Escorted tank barge movements	64	24.90%	65
Unescorted tank barge movements	47	18.29%	57
Percentages above are percent of total tank ship movements & escorted barge movements for each item.			
Escorts reported to OSPR	0		0

Movements by Zone	Zone 1	%	Zone 2	%	Zone 4	%	Zone 6	%	Total	%
Total movements	175		249		0		121		545	
Unescorted movements	80	45.71%	120	48.19%	0	0.00%	55	45.45%	255	46.79%
Tank ships	52	29.71%	74	29.72%	0	0.00%	33	27.27%	159	29.17%
Tank barges	28	16.00%	46	18.47%	0	0.00%	22	18.18%	96	17.61%
Escorted movements	95	54.29%	129	51.81%	0	0.00%	66	54.55%	290	53.21%
Tank ships	49	28.00%	67	26.91%	0	0.00%	28	23.14%	144	26.42%
Tank barges	46	26.29%	62	24.90%	0	0.00%	38	31.40%	146	26.79%

Notes:

1. Information is only noted for zones where escorts are required.
2. All percentages are percent of total movements for the zone.
3. Every movement is counted in each zone transited during the movement.
4. Total movements is the total of all unescorted movements and all escorted movements.

San Francisco Bay Clearinghouse Report For 2003

San Francisco Bay Region Totals

			<u>2002</u>
Tanker arrivals to San Francisco Bay	708		709
Tank ship movements & escorted barge movements	3,570		3,015
Tank ship movements	2,162	60.56%	1,981
Escorted tank ship movements	1,068	29.92%	996
Unescorted tank ship movements	1,094	30.64%	985
Tank barge movements	1,408	39.44%	1,034
Escorted tank barge movements	761	21.32%	564
Unescorted tank barge movements	647	18.12%	470
Percentages above are percent of total tank ship movements & escorted barge movements for each item.			
Escorts reported to OSPR	2		2

<u>Movements by Zone</u>	<u>Zone 1</u>	<u>%</u>	<u>Zone 2</u>	<u>%</u>	<u>Zone 4</u>	<u>%</u>	<u>Zone 6</u>	<u>%</u>	<u>Total</u>	<u>%</u>
Total movements	2,221		3,357		1		1,826		7,405	
Unescorted movements	1,029	46.33%	1,651	49.18%	1	100.00%	843	46.17%	3,524	47.59%
Tank ships	708	31.88%	1,065	31.72%	0	0.00%	507	27.77%	2,280	30.79%
Tank barges	321	14.45%	586	17.46%	1	100.00%	336	18.40%	1,244	16.80%
Escorted movements	1,192	53.67%	1,706	50.82%	0	0.00%	983	53.83%	3,881	52.41%
Tank ships	708	31.88%	1,013	30.18%	0	0.00%	519	28.42%	2,240	30.25%
Tank barges	484	21.79%	693	20.64%	0	0.00%	464	25.41%	1,641	22.16%

Notes:

1. Information is only noted for zones where escorts are required.
2. All percentages are percent of total movements for the zone.
3. Every movement is counted in each zone transited during the movement.
4. Total movements is the total of all unescorted movements and all escorted movements.

**Harbor Safety Committee
Of the San Francisco Bay Region**

**Report of the
U.S. Army Corps of Engineers, San Francisco District**

December 11, 2003

1. CORPS 2003 O&M DREDGING PROGRAM

- a. *Main Ship Channel* – Complete
- b. *Richmond Outer and Southampton Shoal* – Complete.
- c. *Richmond Inner* – Complete
- d. *Oakland (Inner & Outer)* – Complete, Corps is in the process of assessing the post dredge surveys. Corps is coordinating O & M dredging with the deepening project time line. Material went to the ocean.
- e. *Suisun Bay Channel* – Complete.
- f. *Redwood City* – Complete
- g. *San Rafael* – Complete.
- h. *Petaluma* – Complete
- i. *Pinole Shoal/Suisun Bay Channel/New York Slough* – Complete

2. CORPS 2004 O&M DREDGING PROGRAM

The Corps is analyzing the 2004 budget to determine what we will do on this years dredging program. However, we are still working under a continuing resolution authority since the funding has not been received. Under the continuing resolution authority, we are preparing for our yearly projects.

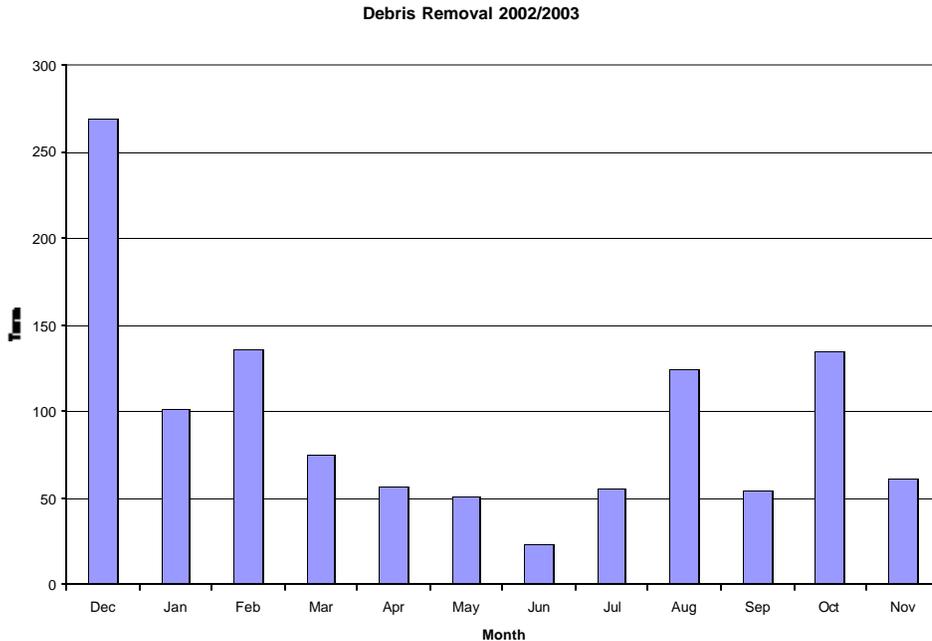
For Oakland Inner and Outer Harbor and Richmond Inner Harbor the Corps plans to combine the two projects into one Indefinite Delivery Indefinite Quantity (IDIQ) dredging contract. This contract will have a base year with two option years. The Corps is working to have this contact in place early next year.

Corps has received a 3 year Waste Discharge Requirements (WDR) from the San Francisco Bay Regional Water Quality Control Board and a 3 year Consistency Determination from the San Francisco Bay Conservation and Development Commission.

- a. **Main Ship Channel** – Expect to start dredging in late May or early June. Government dredge *Essayons* is scheduled to perform the dredging.
- b. **Richmond Outer Harbor and Southampton Shoal** – Expect to start this work in early June. Government dredge *Essayons* is scheduled to perform the dredging. Material is scheduled to go in bay to the Alcatraz Disposal Site (SF-11).
- c. **Richmond Inner Harbor** – Anticipate that the contract will be in place and that dredging should start 1 June. Material is scheduled to go to the Deep Ocean Disposal Site (SF-DODS)
- d. **Oakland Outer and Inner Harbor** – Anticipate that the contract will be in place and that dredging should start 1 August. Material is scheduled to go to SF-DODS.
- e. **Suisun Bay Channel** – Expect to start dredging in early July. Material is scheduled to go to Winter Island or Sherman Island with SF-16 as the back-up disposal alternative. The Bull's Head Reach is scheduled to go to SF-16.
- f. **Petaluma Across the Flats** – Congressional addition to the budget. Corps is proposing to take this material to Hamilton. However, if Hamilton is not ready, then the material will go in bay to the San Pablo Bay Disposal Site (SF-10). However, based on the Congressional add, it is likely the Corps will have to reprogram considerable funds to accomplish this proposal.
- g. **Pinole Shoals** – Congressional addition to the budget. Funding is not sufficient for project. Corps will be looking for ways to complete this project.
- h. **Redwood City** – Congressional addition to the budget. Only enough funding to start planning for FY 05.

2. DEBRIS REMOVAL

The total tonnage of debris collected on the San Francisco Bay for November 2003 was 61 tons. This is down from the 135 tons collected in the month of October. The Raccoon and Grizzly were each out of service for one week during the month of November because of crew leave. The Grizzly recovered a 16-foot by 35-foot piece of floating dock



3. UNDERWAY OR UPCOMING HARBOR IMPROVEMENTS

a. Oakland 50-ft –

Construction is continuing. Dredging with the disposal of material at Montezuma Wetlands Restoration site should start on November 15, 2003. The contract for the demolishing of a building has been let. It was decided not to let the contract for the storm water treatment unit in Middle Harbor at this time. The FY 2004 budget contains 20 million for the Oakland 50 foot project less saving and slippage.

b. S.F. Rock Removal Feasibility Study

The Final Report is complete and the Corps met with the Under Water Rocks Group on December 4, 2003 to furnish them with the Report. The Corps considers this project complete except for the final audit of the funding.

4. EMERGENCY (URGENT & COMPELLING) DREDGING

There has not been any emergency dredging in FY 2004 and the Corps is working hard in its dredging program to try to eliminate the need for emergency dredging. For example, we have been performing advanced maintenance in the Suisun Channel at Bull's Head Reach.

5. OTHER WORK

San Francisco Bay to Stockton

Status unchanged – Project work is continuing.

The San Francisco District is looking at a General Re-evaluation Report (GRR) to deepen the John F. Baldwin Ship and Stockton Deep Water Ship Channels. This would be only 1 or 2 feet. Division has given ok to proceed with study. The Corps signed the Pre-construction Engineering Design agreement with the Port of Stockton on July 11, 2002. This started Phase 1 of the GRR on salinity and economics. The Department of Water Resources has performed model studies in support of the GRR. We have completed the peer review of the salinity model and have finished up the economic analysis. The results of these studies look promising that the Corps can justify a project. Based on these studies the Port wants to continue and the Corps is developing scopes for the full General Re-evaluation Report (GRR) and writing a Project Management Plan. Contra Costa County will now be brought in as a full partner. Corps hopes to have the scopes and agreements in place by the end of January 2004 so we can move forward with the project when we receive funding. We should have approximately \$750,000 less saving and slippage for FY 2004.

Sacramento River Deep Water Ship Channel Deepening

Status unchanged – Project work is continuing.

The San Francisco District has taken over the Sacramento River Deep Water Ship Channel Deepening Project from the Sacramento District. This project is looking to continue the authorized deepening project of the channel from 30 feet to 35 feet. The Corps developed a Project Management Plan (PMP) and the Port concurred to initiate the study in July 2002. We are doing a Limited Re-evaluation Report (LRR) that focuses on economics and updating the environmental documentation. The studies should take approximately 24 months (July 2004). We are continuing to work on this project. We have awarded the contract for the salinity model. We are waiting for funding for sediment testing and for evaluating the disposal sites. The initial estimate is we will need capacity to dispose of approximately 6.5 million cubic yards of material. Funding is low for this project for FY 2004.

Memorandum

Date: December 11, 2003

To: Harbor Safety Committee, San Francisco Bay Region

From: Len Cardoza

Subject: Underwater Rocks Work Group Report

The Underwater Rocks Work Group met at 10:00, December 4, 2003 at the CSLC offices in Hercules, California. The purpose of the meeting was to discuss the status of the San Francisco Central Bay Rock Removal Project Feasibility Study and associated Reference Report developed by the Corps of Engineers.

The Corps of Engineers (CoE) completed the Reference Report (Report) reflecting the status of the Corps of Engineers (CoE) Feasibility Study (FS) for the project. The final Report incorporates comments by reviewers, including members of the Underwater Rocks Group of the San Francisco Bay Harbor Safety Committee. The CoE is in the process of placing the report on its website located at www.spn.usace.army.mil (publications and studies).

The Final Reference report summarizes all work accomplished to date on the project. **The Corps of Engineers determined that there was not a Federal interest in pursuing a structural alternative (physically lowering some or all of the rocks) as a result of the study.** The final paragraph of the Report's Executive Summary follows:

As a result of more than two (2) years of study, it was determined there was not a Federal interest in pursuing a structural alternative, given the current practices in place, which ensure the safe passage of vessels within the Bay, the probability of a vessel actually grounding on the rocks became extremely remote. This low probability of occurrence, when applied to the potential damages that may result from a spill, reduced the project benefits well below the cost to lower the rocks. Since evaluating non-structural measures (e.g., aids to navigation, tug support, emergence (sic) response) is continually being evaluated by others under the overall navigation safety mission of the Harbor Safety Committee, the Feasibility study (sic) was halted. There has been a significant amount of valuable information collected during this investigation, which may be applicable to others when confronting similar navigation hazards. It is the objective of this Reference Report; (sic) therefore, to make available the information to as wide an audience as possible.

The San Francisco Bay Rock Removal Feasibility Study was initiated on April 2000 pursuant to Congressional House Resolution docket 2516, adopted May 7, 1997. The San Francisco Bay Harbor Safety Committee identified four named submerged rock mounds (Harding, Shag, Arch, and Blossom) together with an additional un-named mound, all located in central San Francisco Bay, as a major hazard to navigation. Removing this hazard would significantly reduce the possibility of a major oil spill resulting from a vessel striking one of the mounds. Although there are other obstructions to navigation within the Bay, these rock mounds are especially dangerous due to their close proximity to the confined shipping lanes.

The Corps of Engineers, working with the Harbor Safety Committee's Underwater Rocks Work Group and the California State Lands Commission, investigated the economic and environmental feasibility of lowering the rock mounds to depths required for safe navigation. The focus of the study was to develop a structural alternative (i.e. physically lower some or all of the rock mounds).

The following studies / field investigations were performed in support of the study:

- Hydrographic study (mapping underwater topography)
- Seismic survey (geological data)
- Benthic survey (environmental habitat)
- Risk assessment Simulation (risk analysis – incident causes, frequency and potential volume of oil spills)
- Bio-economic oil spill simulation (ecological and financial consequences of an oil spill)

As previously reported, The Project Team, led by the CoE, arrived at following conclusions:

1. The risk assessment model for the study resulted in a cost benefit analysis significantly below the 1:1 ratio required to proceed with CoE projects under the concept of National Economic Development (NED).
2. It is also unlikely that the Corps of Engineers can pursue the project's structural alternative (rock removal) under the Federal objective for National Ecosystem Restoration (NER). The FS documented that an oil spill in the San Francisco Bay will have devastating environmental impacts. However, characterizing the prevention of these impacts as environmental restoration is problematic, from the perspective of the CoE. Although prevention of these impacts is a potential project output, CoE Principles and Guidelines for project formulation might not consider these outputs as environmental restoration. The outputs result from preventing an accident rather than restoring the environment.

Next Steps:

1. Conclude the study after obtaining a final reconciliation of project costs (ongoing).
2. Determine the subsequent role, if any, of the Underwater Rocks Work Group. Potential alternatives:
 - a. Conclude the activities of the Underwater Rocks Work Group; Archive work products.
 - b. Continue the Underwater Rocks Work Group, exploring alternatives to a CoE Civil Works Project to lower the submerged hazards to navigation.