

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

Harbor Safety Committee of the San Francisco Bay Region Thursday, April 14th, 2005

Joan Lundstrom, Chair, San Francisco Bay Conservation and Development Commission (BCDC); called the meeting to order at 1009. The secretariat confirmed a quorum of the committee.

The following committee members or alternates were in attendance: Capt. Marc Bayer, Tesoro Maritime Company; Capt. Michael L. Beatie, Ferry Operator; Ted Blanckenburg, AMNAV Maritime Services; Capt. Doug Lathrop, ChevronTexaco; Margot Brown, National Boating Federation; Sue Cauthen, San Francisco Tomorrow; Ron Chamberlain, Port of Benicia; David Dwinnell, Army Corps of Engineers (COE); Capt. Gary Fleeger, Matson Navigation; Capt. Robert Pinder, San Francisco Bar Pilots; Capt. Ern Russell, Foss Maritime Company; Marina V. Secchitano, Inland Boatmen's Union; Cmdr. Gordon Loebl, USCG Marine Safety Office (MSO); Capt. Steve Thompson, National Oceanic and Atmospheric Administration (NOAA); Thomas Wilson, Port of Richmond; Len Cardoza, Port of Oakland; John Davey; Port of San Francisco:

Also present **Capt. Rick Holly**, OSPR; **Cmdr. Pauline Cook**, United States Coast Guard Vessel Traffic Service, (USCG VTS); **Capt. Lynn Korwatch**, Marine Exchange; **Mark Strobin**, National Weather Service; and more than 20 members of the public.

The meeting was open to the public.

Approval of the Minutes

A motion was made and seconded to accept the minutes with the following correction:

Page 5, paragraph 4 should read:

Lundstrom said that the kayakers present asked lots of questions concerning shipping lanes, radio channels and ferry routes. She said that BCDC hopes to have maps of boat launch sites, shipping, ferry lanes and security areas out by this fall.

The motion passed as amended.

Comments by the Chair

Lundstrom announced the following:

- The formation of a PORTS workgroup, with Marc Bayer as chair, Capt. Bob Pinder representing the HSC along with Cmdr. Steve Thompson and Lundstrom herself which will be working on short and long range funding for PORTS
- This is the last meeting **for Doug Lathrop** who will be relocating to Portland.
- **Nancy Pagan** currently chairing the Ferry Operators workgroup will no longer be able to chair.



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- Thanks are extended to **Cmdr. Pauline Cook** and **Capt. Bob Pinder** for renaming the berths.
- **Cmdr. Steve Thompson** will be attending the International Oil Spill Conference in Miami, Florida and was asked to show the Sharing the Bay video.
- It is the intention not to have HSC meetings during the months of July & August.
- There will be a June vote on the revised Harbor Safety Plan.

Coast Guard Report

Cmdr. Gordon Loebel reported that the reorganization of the USCG is moving forward with a sector encompassing all San Francisco Bay.

Capt. Swanson's change of command will be July 15th, 2005 Capt. William Uberti will step in.

The USCG Innovation expo is coming up in May in Santa Clara and there are 25 free passes available. There is an electronic brochure available as well as invitation.

The following change was reported:

The USCG is requiring non-tanker Oil Spill Response Plans (MS Info Bulletin 05-07) with an August 8 deadline.

Cmdr. LeBlanc read from a summary of Coast Guard Operations report which is attached to these minutes which included 2 Marine Casualty Groundings, as well as depth and dredging requirements. The Army COE's will survey shallow spots.

David Dwinell commented further on surveying and dredging. The survey scheduled presently may be postponed.

Joan Lundstom commented on the timeliness of surveys getting to the Bar Pilots & there was further response from the Army COE's. The USCG & NOAA will also be getting the information.

Cmdr. Pauline Cook read from the VTS monthly report, which included: AIS basic information is up and running

New dock address systems (still working out the bugs) the new codes are available on the web at http://www.uscg.mil/D11/vtssf/.

Cmdr. Pauline Cook and **Cmdr. Gordon Loebel** presented Certificates of Appreciation for all the individuals who participated in the Navigation Group for the new dock address system and commented further that it was a truly collaborative effort and again expressed sincere thanks.

Capt. Bob Pinder commented further on the cooperative spirit and enhancements to Harbor Safety and thanked **Capt. Swanson**, **Cmdr. Pauline Cook** & **Cmdr. Gordon Loebel**.



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Cmdr. Gordon Loebel introduced **Ross Wheatley** who reported on loss of propulsion study. The MSO reviewed cases from 2002, 2003 & 2004 and included class of vessel, locations, types of casualties, trend & types of vessel. The 1st study was done in the 1990's which initiated the "Safe Transit" brochure. In 2002-2004 cases declined. There were no perceptible trend changes. There was further comment that the data will be continued to be monitored on a ¼ quarterly basis. There were a few questions and further comment by **Joan Lundstrom** that the quarterly reports would be helpful. A copy of the report is attached.

Clearinghouse Report

Alan Steinbrugge read from a report, which is attached to these minutes and included 5 possible escort violations, with 1 in March.

OSPR Report, Swearing In & Presentation

Rick Holly introduced **Capt. Kip Carlson**, the new pilot alternate, and had a swearing in ceremony for him. In addition, there was a presentation of a Certificate of Appreciation to **Capt. Doug Lathrop**, who is relocating and leaving the committee, for all his work on the HSC.

NOAA Report

Capt. Steve Thompson commented on the following items:

18649 entrance to SF Bay is available now.

Capt. Steve Thompson said that **Lt. Bailey** is now acting Scientific Support Coordinator for Spill Response.

A survey team is currently working in the Bay.

One submerged danger to navigation was reported last month and published in U. S. *Notice to Mariners*.

Sharing the Bay video will be shown at the International Oil Spill Conference.

Capt. Steve Thompson introduced **Mark Strobin**, lead forecaster for the National Weather Service, Monterey Office. **Strobin** reported that the forecasts do not currently include weather for the Bar (SF Bay) and that data is needed. The buoys do not help, so call or get a group together, even ferries please help to improve the forecast.

Help improve the forecast.

The goal is the preservation of lives and property.

Please call **Mark** Strobin at 831-656-1724, Fax #831-656-1747,

Email: mark.strobin@noaa.gov.

COE Report

Dave Dwinnell read from a report which is attached to these minutes.



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State Lands Commission Report

Ken Leverich thanked all who attended State Lands yesterday and thanked those who also filled out the survey forms. **Leverich** reported that the Commission monitored 268 transfers and that 20 million came in and 29 million went out (of barrels of oil and gas). **Leverich** reported that a Bay Area Air Quality Management District (BAAQMD) Data Recovery Workshop will be held on April 19, at 10 am, please RSVP.

SF-VMAP & SF-VMAPS Presentation

Jeff McCarthy's presentation is attached to the minutes and included the following: SF-VMAPS is a registry of vessels which will be helpful in emergency situations.

McCarthy met with the Ferry Operator Group and will meet again soon.

The database will be expanded and will integrate AIS information.

The Fire Department shows interest in VMAP and will try to get grant funding.

Lundstrom asked for support for OSPR, see the letter on the last page of the handout.

Capt. Bob Pinder asked if it should be included in the HSC plan and/or write letters for support.

Plan Update Workgroup

The workgroup continues to work away at the update. The next HSC Plan Update Workgroup meeting will be Wednesday, April 27, 9:30 am at the CA State Lands Commission.

Tug Escort Workgroup

Pete Bonebakker (for Capt. Henning) reported on the meeting with the LA Tug Escort Group and would like to work together for a bollard pull test extension amendment. Change in legislation was described by **Joy Lavin-Jones**: as up to a 1 year extension has been submitted for approval from the Office of Administrative Law. There was further comment by **Lundstrom** regarding the consistency of language for Tug Escort companies that work in both the LA and Bay areas.

Navigation Workgroup

Capt. Bob Pinder said that the rewrite of the plan was making good progress. **Pinder** read amendments which included proposed changes such as amendments dealing with pilotage. These items were addressed and discussed and agreed that they do not need to be included in the HSC plan. After much discussion, a motion carries in which it was decided that because the issues are currently covered by state & federal regulations, the items will be deleted from the HSC plan & but will be included in the history section.



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Ferry Operations Workgroup

Marina Secchitano gave a report about Traffic in the Bay which included the following: Oct 15, Near miss situation, questions concerning protocols with Ferry Traffic at commuter times, and it was suggested that VTS chair a meeting with Ferry Operators, and the Port of San Francisco.

It was reported that some progress has been made, and that near miss reporting is coming from operators & commanders. . Lundstrom commented that Cmdr.,Pauline Cook will chair a committee, a subcommittee of Ferry Operator Workgroup with the goal of having a standardized protocol for passing and communication. This draft will be complete for review within about four months – hopefully by June. There was further clarification of Rule 9 by Cmdr. Cook.

Prevention Through People Workgroup

Brown thanked **Cmdr. Steve Thompson** for taking the Sharing the Bay video to Miami, Florida and hopes that the video will be well received.

Brown noted Opening Day on the Bay and that there should be considerable traffic, with the Blessing of the Fleet and procession to Crissy Field, etc.

Brown reported on some results of the Paddlesports meeting on March 18 which included groups of kayakers having a radio tuned to CH 14 when proceeding out of the estuary, and being in communication with VTS.

The next meeting will be May 19 at the Port of Oakland, 7^{th} Floor at 10am. **Brown** hopes that they will be able to produce an $8 \frac{1}{2} X 5$ card that can be attached to the kayak or radio for easy use. Further comment from **Lundstrom** concerned safety for all paddlesporters.

PORTS Workgroup

Capt. Marc Bayer reported on the legal options from NOAA if the Marine Exchange hosted PORTS and charged for it.

Also discussed were legislative solutions to fund PORTS as well as changes to improve the system.

The next meeting will directly follow today's HSC meeting.

PORTS Report

Steinbrugge reported that the platform for the Tessoro is due to arrive about June 1st with a tentative June installation. The Oakland wind sensor was repaired, the windbird was replaces with the help of **Jeff McCarthy** & **Chris Hicks** of the Marine Exchange. The Richmond current meter is still not functional.

Public Comment



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No comments at this time

Old Business

There was no old business

New Business

Due to **Doug Lathrop's** relocation, there is an opening on the HSC for Tanker Operator, a 3 year position. The deadline is May 5^{th} , 2005.

Capt. Korwatch announced the upcoming Marine Exchange MAYDAY party, as well as having a tip jar for the PORTS system.

Next Meeting

Lundstrom said the next meeting of the HSC would be at 10:00am, May 12th at the Port of San Francisco.

Adjournment

A motion to adjourn was made and seconded. There was no discussion. The motion passed.

Respectfully submitted,

Captain Lynn Korwatch Executive Secretary

USCG MARINE SAFETY OFFICE SAN FRANCISCO BAY	
PORT OPERATIONS - SAN FRANCISCO HARBOR SAFETY STATISTICS	
March-05	
PORT SAFETY CATEGORIES	TOTAL
1. Total Number of Port State Control Detentions for period:	1
SOLAS (0), MARPOL (0), ISM (0), ISPS (1)	
2. Total Number of COTP Orders for the period:	7
Navigation Safety (4), Port Safety & Security (2), Other (1)	
3. Marine Casualties (reportable & unreportable) within SF Bay: Allison/Collision (1), Fire (0),	10
Grounding (1), sinking (2), Steering (0), Propulsion (2), Personnel (2), Tow Equipment (2)	
4. Total Number of (routine) Navigation Safety related issues / Letters of Deviation	7
Radar (2), Steering (0), Gyro (1), Echo sounder (2), AIS (2)	
5. Reported Rule 9 Violations (or other Navigational Rule Violations) within SF Bay	0
6. Significant Waterway cases or Navigation related cases for the period: (T/V BRASA)	1
7. Marine Safety Information Broadcasts (MSIBs):	4
Total Port Safety (PS) Cases opened for the period:	33
MARINE DOLLUTION DECRONOS	
MARINE POLLUTION RESPONSE	TOTAL
Total Oil/Hazmat Pollution Incidents within San Francisco Bay for Period	18
* Source Identification (Discharges and potential Discharges):	
Deep Draft Commercial Vessels	1
Facilities (includes all non-vessel discharges)	5
Military/Public Vessels	0
Commercial Fishing Vessels	3
Other Commercial Vessels	0
Non-Commercial Vessels (e.g. recreational vessels)	1
Unknown Source (as of end of the period) Storm Drain Runoff / Vehicle (vehicle accident)	6
	1
*Spill Information	
Unconfirmed	00
No Spill (Potential for Possible USCG Action: 2500 gallon spill from inland overturned fuel truck)	9
Pollution Cases Requiring Clean-up	9
Federally Funded Clean-up Cases (OSLTF-(1) / CERCLA-1)	2
Total Oil Disabagga and Hanardaya Matariala Dalagaa Valumaa	10/
Total Oil Discharge and Hazardous Materials Release Volumes: 1. Spills < 10 gallons	106 gals 8
2. Spills 10 - 100 gallons	2
3. Spills 100 - 1000 gallons	0
4. Spills > 1000 gallons	0
Total Oil Discharge and/or Hazardous Material release volumes (And by vessel type): 1. Estimated spill amount from deep draft vessels:	106 gals
Estimated spill amount from commercial vessels: Estimated spill amount from commercial vessels:	1gal 91 gals
Estimated spill amount from recreational vessels: Stimated spill amount from recreational vessels:	0 gal
Stimated spill amount from facilities / shoreside point discharge:	13
3. Estimated spill amount from unknown sources:	1 gal
PENALTY ACTION:	J
Marine Violation (MV) Cases for Period	0
Notice of Violations (TKs)	1

Letters of Warning

** SIGNIFICANT PORT SAFETY & SECURITY (PSS) CASES **

* A. MARINE CASUALTIES - PROPULSION / STEERING

- 1. Marine Casualty Propulsion, M/V PIONEER (Vanuatu) 08MAR05: COTP Order 05-014 issued requiring 1 tug escort for inbound vessel that suffered minor propulsion casualty between B.C., Canada and San Francisco. CG 2692 "Report of a Marine Casualty" was completed and the cause of the casualty was identified as trouble with a surging turbo charger and No. 1 MDE high temps. Piston o-rings refitted and installed; tests Sat. Vessel safely arrived and Classification Society verified repairs. COTP Order rescinded & CASE CLOSED.
- 2. Marine Casualty Propulsion, M/V PANAGIA TINOU (Panama) 27MAR05: COTP Order 05-018 issued to departing container ship. Vessel suffered minor engine casualty after departing Oakland berth and was directed under tug assistance to Anchorage 8. The cause of the casualty was the main engine could not maintain adequate RPMs. Class Society Survey and Chief Engineer reported possible cause as water in the control air system. Repairs were effected and verified by Classification Society. COTP Order was rescinded and vessel was cleared to depart. CASE CLOSED.

* B. MARINE CASUALTIES - VESSEL SAFETY CONDITIONS

- 1. Marine Casualty Equipment, M/V VOC DAISY (Philippines) 27MAR05: COTP Order 05-017 issued to outbound vessel for temporary malfunctioning gyrocompass. Vessel required to proceed to Anchorage 9 for repair. Vessel initially issued Letter of Deviation when first noticed by SF Bar Pilot prior to the second instance of the malfunctioning navigation safety equipment. While at Anchorage nine, no further problems noticed. COTP Order was rescinded and vessel was cleared to depart SF Bay..
- 2. Marine Casualty Grounding, T/V BRASA (Malta) 31MAR05: Inbound vessel reported minor grounding in Pinole Shoal Channel, San Pablo Bay. The loaded tank vessel safely arrived to Martinez and conducted an immedate check of hull integrity. The exact location and cause of the grounding remains under investigation. The reported area of the grounding was in vicinity of Light 11. MSO, SF Bar Pilots and Army Corp of Engineers (ACOE) took precautionary steps to ensure no further deep draft traffic would be affected by possible shoaling. Channel was momentarily closed to deep draft traffic. Channel survey was completed by ACOE and no major shoaling/hazards reported. Some portions of the dredged channel reported as decreased to 33.5' from 35'. Possible dredging may occur prior to the June scheduled dredging. SF Bar Pilots and VTS will closely monitor all deep draft transits. T/V BRASA conducted full class society hull survey at Anchorage 9 and no further damage was reported. Vessel safely departed SF Bay. INVESTIGATION continues.

* C. COAST GUARD - GENERAL SAFETY/SECURITY CASES

- 1. Ship Security Deficiency ISPS, M/V SAM JOHN SPIRIT (Greece) 16MAR05: Vessel detained due to security deficiencies and COTP Order 05-015 issued. Class Society required to conduct a complete ISPS Audit. Audit completed, security concerns corrected and vessel cleared to sail. COTP Order rescinded.
- 2. Navigation Deficiency Echo Depth Sounder, M/V MOORGATE (Liberia) 21MAR05: Inbound vessel issued Letter of Deviation (LOD) for inoperable echo depth sounding recording device. LOD granted for inbound and outbound voyages. Vessel will repair item at next scheduled dry dock and must report deficient item at each port. Class Society issued shorterm Safety Equipment Certificate.
- 3. TUG /TOW Minor Reportable Casualties: There were two minor reportable casualties within SF Bay involving tugs with troubled tow wires. Both cases were quickly repaired and safe navigation was not impaired.

SIGNIFICANT MARINE ENVIRONMENTAL RESPONSE (MER) CASES:

1. UNKNOWN FLOATING TANK (26MAR05): MSO Pollution Investigators (PI) responded to unknown floating cylinder in the Sacramento Deep Water Channel. Originally reported as a "12-foot long propane" tank moving downstream with the current. Tank drifted ashore outside the channel approx 250 yds South of light 17 (closest city is Rio Vista). PI team responded for issues of removal. Tank was unmarked, 6 ft long and posed a low hazard to the environment and the public. The tank was removed by Parker Diving under USCG supervision for proper disposal. The CERCLA Fund was opened to cover the cost of removal and disposal. Less than 20 gallons of propane was in the tank. CASE CLOSED.

2. 4,000 Gallon POTENTIAL Diesel Spill (05MAR05): MSO PI Team responded to overturned tank trunk in the vicinity of Pittsburg Marina (actual location was within EPA jurisdiction). The location of the spill was over 1 mile from the waterway, however 1,500 gallons of diesel estimated to have entered the nearby storm drain. Clean-up was monitored and no product ever reached the waterway. CASE CLOSED as potential only.

SIGNIFICANT PORT SAFETY INFORMATION or EXERCISES

- 1. Marine Safety/Security Information Bulletin 05-02 (15MAR05): "VENTING, CLEANING, AND GAS FREEING OF MARINE TANK VESSELS". MSIB issued to advise mariners that the compliance and enforcement division of the Bay Area Air Quality Management District (BAAQMD) has released a compliance advisory on the subject of "venting, cleaning and gas freeing of marine tank vessels" for vessels at piers or at anchorage. Regulations prohibit uncontrolled venting of emissions from a regulated cargo within San Francisco Bay. BAAQMD is the responsible agency. For further guidance: www.baaqmd.gov/dst/regulations.
- 2. Marine Safety/Security Information Bulletin 05-07 (08MAR05): "NEW RESPONSE PLAN REQUIREMENTS FOR NONTANK VESSELS". MSIB issued to advise all owners and operators of nontank vessels of 400 gross tons or more the required responsibility to have a Vessel Response Plan (VRP) submitted to the Coast Guard for approval by August 8, 2005. A VRP is a vessel's plan for responding to a worse case oil discharge or a substantial threat of such a discharge. A nontank vessel is defined as a self-propelled U.S. or foreign vessel of 400 gross tons or more that carries oil of any kind, such as fuel, but is not a tank vessel. An interim or valid authorization letter satisfying the requirements of NVIC 01-05 and MTSA is required by August 9, 2005.
- 3. Marine Safety/Security Information Bulletin 05-08 (10MAR05): "AMERICA'S WATERWAY WATCH PROGRAM". MSIB issued to further advise all mariners that the Coast Guard has launched a new waterway watch program for the maritime industry and the boating public to encourage reporting all suspicious maritime activities as soon as possible. All suspicious activities should be addressed to the National Response Center at: 1 877 24-WATCH.
- 4. Marine Safety/Security Information Bulletin 05-09 (11MAR05): "SAN FRANCISCO BAY AREA REVISED DOCK ADDRESS SYSTEM". MSIB issued to advise the maritime community of the newly implemented system of revised dock addresses to refer to dock locations throughout the San Francisco Bay Region.
- **5. INCREASED PORT SECURITY PRESENCE:** MSO and MSST 91105 conducted increased port security activities throughout March and early April that included the use of bomb sniffing dogs on area ferry vessels and waterfront facilities. There are no known credible security threats. However the Coast Guard continues to maintain an increased port safety and security posture throughout SF Bay and adjacent facilities.

* RECENT PORT SAFETY CASES SINCE END OF MONTH STATS PERIOD * * FURTHER DETAILS WILL BE CAPTURED IN APRIL STATS *

- 1. Port Safety Intoxicated Master, M/V HANJIN IRENE (Panama) 03APR05: COTP Order 05-021 issued to keep vessel at pier due to Bar Pilot notification that the Master and Chief Mate appear to be intoxicated. CG Investigators conducted breath analyzer test which determined a .26 and .15 respectively. Vessel held until new Captain and Chief Mate could be identified. Case remains under investigation and possible civil penalty action. Manning issues were resolved and Flag State approved replacement Master and Chief Mate arrived.
- 2. Marine Casualty Capsized vessel/sinking, TUG SUNSHINE STATE (U.S.) 05APR05: Tug capsized while working with DREDGE BARGE FLORIDA in vicinity of Oakland Outer Harbor. Cause of the capsized vessel remains under investigation. 2 crew members were onboard, 1 remains missing. A Safety Zone was immediately created to control the traffic in the vicinity of the Serious Marine Incident. The vessel was safely salvaged. Case remains under investigation.
- **3. Marine Casualty Allision, P/V TREASURE ISLAND COMMODORE (U.S.) 07APR05:** P/V allided with the barge GC-181 in the vicinity of Treasure Island. The passenger vessel immediately returned to Berkley Marina. The vessel was not in danger of sinking, however passengers and crew took protective measures and donned emergency life jackets. Case remains under investigation.

4. Marine Casualty - Engine Casualty; M/V SEA MAPLE (Panama) 08APR05: COTP Order 05-022 issued due to temporary loss of power while transiting inbound. Vessel required 1 tug escort and day light transit only. Cause of the casualty was attributed to leak in start air system. Engineers were able to repair. Class Society verified repairs and COTP Order was rescinded. CASE CLOSED.



Loss of Propulsion Casualty Analysis

2002 - 2004

Mr. Ross Wheatley
Senior Investigating Officer
Marine Safety Office San Francisco Bay
March 31, 2005

Loss of Propulsion Casualty Analysis 2002 to 2004

- A. Introduction
- **B.** Data Collection
- C. Analysis
- **D.** Conclusions
- **D.** Recommendations
- II. Spreadsheets
- III. Graphs

Marine Safety Office San Francisco Bay Loss of Propulsion Casualty Analysis 2002 to 2004

I. Introduction

Over the past several months, the number of vessels suffering loss of propulsion, loss of steering and loss of electrical power casualties appears to be on the rise. These types of casualties obviously pose a significant problem to the respective vessels as well as other vessels transiting San Francisco Bay and it's surrounding waters. An increase in these types of casualties have in the past been attributed to a number of factors including, increasing age of the vessels, poor maintenance practices by the operating companies and the lack of a knowledgeable crew to name a few. This apparent increase in the number of these types of cases has drawn the attention of various safety groups, including the San Francisco Bay Harbor Safety Committee.

II. Data Collection

In order to better understand the nature and extent of the possible problem we reviewed hard copies of all reported marine casualties for the years 2002, 2003, and 2004 that occurred in the Marine Safety Office (MSO) San Francisco Bay Area of Responsibility (AOR). The current capabilities of MISLE do not enable us to sort the existing electronic database to elicit this type of information. Moreover, while the specific type of casualty is generally described in the title of the case, there is no formal nomenclature prescribed for labeling Marine Safety Information for Safety and Law Enforcement (MISLE) cases. Thus, conducting a "hand search" is the most reliable, although time consuming, method to ensure all cases involving these types of casualties are identified. The MSO San Francisco Investigations Department, currently maintains three full years of completed marine casualty investigations on hand in addition to the current operating year. When the current operating year comes to a close, the oldest year's cases are inventoried, boxed and then forwarded to the National Archives storage facility in San Bruno in accordance with applicable Federal Regulations.

III. Analysis

In evaluating the applicable data, we focused our review efforts on a number of pertinent traits. Among the factors we considered significant were the total number of marine casualties reported, the total number of loss of propulsion casualties reported, the relative ratio of the two numbers, year-to-year trends within this class of casualty, the type of failure, the type of vessel involved, the location of the casualty and finally, common causal factors.

IIIa. Loss of Propulsion Cases Year-To-Year <u>Table 1</u>

The total number of loss of propulsion cases reported during the period 2002 to 2004 was 72. However, the trend has been a decrease in the number of this type of casualties being reported. In 2002 there were 30 loss of propulsions cases, 26 in 2003 and only 16 in 2004. Thus, the total number of loss of propulsion cases has decreased from roughly two per month to one per month. As a percentage of all reported marine casualties, the percentage of "loss of propulsion cases" has also declined since 2002. In 2002, loss or propulsion cases represented just over 15% of all marine casualties. In 2003, that number had dropped to 14.4% of all casualties. By 2004, loss of propulsion cases had decreased to only 12.8% of all marine casualties reported to MSO San Francisco.

IIIb. Loss of Propulsions Cases by Casualty Type <u>Table 2</u>

The relative make-up of the types of loss of propulsion cases has remained relatively constant over the period 2002 to 2004. In 2002, 73% of the reported casualties were classified as "loss of propulsion" with the remaining 28% classified as "loss of steering". In 2003, the percentage of "loss of propulsion" cases remained constant at 73%. The relative number of "loss of steering" cases declined to 19% and a new category of "loss of electrical power" was added and accounted for the remaining 8%. In 2004, the number and relative percentage of casualties identified as loss of propulsion as a part of all "loss of propulsion" casualties increased from 73% in 2003, to 88% in 2004. However, while making up a larger portion of the "loss of propulsion" casualties, the total number of this type of casualties decreased from 19% in 2003, to only 14% in 2004. In reviewing the 3-year trend, the average number of loss propulsion cases has remained relative stable, varying from a high of 22 cases in 2002, to a low of 14 cases in 2004. However, as a measure of the relative percentage of all "loss of propulsions" cases, while the annual percentage has varied from 73% in 2002 and 2003, to 88% in 2004, taken as a whole for the entire period, these types of cases comprise 76% of all "loss of Propulsion" cases.

IIIc. Loss of Propulsion Cases by Vessel Type <u>Table 3</u>

During the period in question, loss of propulsion cases have been reported for 6 different categories of vessels for 2002 and 2003, and for 8 different vessel categories in 2004. In 2002, the greatest number of loss of propulsion cases was reported by passenger vessels (P/V). Of the 30-reported loss of propulsion cases, 10 were associated with passenger vessels. This represented 33% of all loss of propulsion cases for the year 2002. By comparison, in 2003 there were 26 loss of propulsion cases, and passenger vessels once again reported 10 of those cases. These 10 cases represented more than 38% of all the reported loss of propulsion cases for the year 2003. In the year 2004, there was a noticeable decrease in the total number of loss of propulsion casualties. There were only 16 loss of propulsion casualties reported in 2004, and there were no more than 4 associated with any particular class of vessel; the number of loss of propulsion casualties was fairly evenly distributed across all categories of vessels. The breakdown for the year

was as follows; passenger vessels 2, tugs 4, motor vessels 4, tank vessels 2 and motor tankers 3. While the distinction between tank vessels and motor tankers is not clear, even if tank vessels and motor tankers were consolidated as a single class of vessel, they would represent roughly 31 % of the loss of propulsion casualties reported.

IIId. Loss of Propulsion Cases by Location <u>Table 4</u>

In examining the locations of the various loss of propulsion cases during the years 2002 to 2004, there does not appear to be any particular location that is more likely to have a casualty occur in it's respective locale. In 2002, the greatest number of loss of propulsion casualties occurred in Oakland Harbor-8, and in San Francisco Bay-2. However, 2 of the casualties that occurred in Oakland Harbor happened on the same ship on back-to-back days and involved the same causal factors. In 2003, there were 3 loss of propulsion cases in Humboldt Bay, 2 in Oakland Harbor, 5 in San Francisco Bay and 4 at Larkspur. All 3 of the loss of propulsion casualties that occurred in Humboldt Bay were associated with fishing vessels fouling their nets in their props, which would be expected based upon the fleet of vessels in the area. All 4 of the loss of propulsion casualties in Larkspur were associated with passenger vessels (ferries), which again would be expected based upon the nature of the vessels that operate in the area. 2 of the casualties that occurred in Larkspur involved the same type of failures on two sister-ships. Finally, in 2004 there were 4 loss of propulsion casualties in Oakland, 4 in San Francisco Bay and 4 on the waters immediately West of the Golden Gate Bridge on outbound vessels. Of the 4 casualties in Oakland, 2 involved tugs and 2 involved tankers. Of the 4 casualties that occurred in San Francisco Bay, 1 involved a tug and 2 involved the same vessel and identified the same causal factors. All 4 of the loss of propulsion casualties involving outbound vessels were attributed to various fuel and air start control issues.

IIIe. Loss of Propulsion Cases by Causal Factors <u>Table 5</u>

In reviewing the casual factors associated with loss of propulsion cases, the one thing that appears clear is that there really are no clear-cut answers for these types casualties. Table 5 summarizes the 4 most common factors typically associated with loss of propulsion casualties. Those factors include air start system problems, fouled nets, fuel related problems and overheating. In reviewing the other causal factors listed with these types of casualties, no other common factor could be identified. In looking at 2002, the number of loss of propulsion casualties associated with each of the most common factors was roughly the same (2), with the exception that fuel related problems comprised the largest number of casualties (7). However, even taken as a whole, these four factors explained less than half of all of the loss of propulsion casualties. In 2003, only 5 of the total 26 loss of propulsion casualties could be explained by these 4 factors, and only 1 air start and 4 fuel related causes were listed. Finally, in 2004, air start problems were the primary factor in loss of propulsion cases making up nearly 50% of all loss of propulsion cases. In looking at loss of propulsion cases across the entire period, air start system and fuel related problems account for the largest number of casualties, accounting for 13.8% and 18.1 % respectively. However, these two factors only account for just over 30% of all of the loss of propulsion cases over the three years. More than 60% of all loss of propulsion cases are attributed to a wide-variety of casual factors.

Conclusions:

Having reviewed all for the data for the three years in question, we are able to draw a number of conclusions concerning loss of propulsion casualties occurring in the MSO San Francisco Bay Area or Responsibility.

- The relative number of loss of propulsion casualties as a percentage of total casualties has remained relatively constant. The number of loss of propulsion casualties ranged from a low of 16 in 2004 to a high of 30 in 2002. However, loss of propulsion cases as a percentage of total casualties has remained relatively constant, only varying from a high of 15.2 % in 2002 to a low of 12.8% on 2004. Taken as a whole, loss of propulsion cases comprised only 14.5% of all reported casualties (504) during the period 2002 to 2004.
- The relative distribution of loss of propulsion cases, including loss of propulsion, loss of steering and loss of electrical power, has remained relatively unchanged. Loss of propulsion cases represented 76% of all loss of propulsion cases in both 2002 and 2003, showing a slight increase in 2004. However, across the three-year period, loss of propulsion cases accounted for a stead 76% of all "loss of propulsion" cases. Loss of steering cases, while comprising the second largest proportion of the total number of cases, still represents a mere 20% of the total, with widely varying annual totals.
- Passenger vessels followed by motor vessels and tankers, followed by tugs appear to be the most likely vessels to suffer loss of propulsion casualties. Passenger vessels (30.5%) were the most likely vessels to suffer a loss of propulsion casualty, although 2004 was an exception. These numbers make sense based upon the number of passenger vessels operating in the AOR and the number of transits involved. Motor vessels (when combined with tank vessels) comprised the second largest category of vessels to suffer a loss of propulsion casualty. Once again, based upon the mix of vessels transiting San Francisco Bay, these numbers make sense. The relative percentage these vessels comprise of the total loss of propulsion category has remained relative constant across the three-year period (22.2%).
- If a loss of propulsion casualty is going to occur in MSO San Francisco' AOR, it will likely occur in Oakland (including Richmond) or San Francisco Bay. More than 35% of all loss of propulsion casualties occurred in these two zones. The relative percentage of these cases happening in these two areas is fairly constant during this there-year period. While recently there have been several loss of propulsion casualties on outbound vessels, these appear to be the exception to the rule. Moreover, since most of these casualties occur in San Francisco Bay or Oakland, many times these vessels have tugs tethered or standing by to assist when the casualties happen.

- The casual factors associated with loss of propulsion casualties appear to be widely varying. The two mostly likely causes of loss of propulsion failures are fuel related problems (all types) and air start systems problems. These two factors represent 18.1% and 13.8% of all loss of propulsion casualties respectively. However, it should be noted that grouped within the "fuel related problems" category, there are a number of widely varying factors including, fuel line leaks, blown fuel pumps, contaminated fuel (water) and loss of fuel supply due to other reasons. Thus, even within these two categories, there is wide variation making identification of the most likely causes difficult at best.
- In summary, despite some evidence to the contrary, the actual number and percentage of loss of propulsion casualties as a measure of total casualties, has been decreasing over the past several years. Loss of propulsion casualties make up just slightly more than 14% of all reportable casualties in MSO San Francisco Bay's AOR. Passenger vessels comprise the largest portion of loss of propulsion casualties 30%, with tugs and motor vessels close behind at 15% and 22% respectively. If a loss of propulsion casualty happens in our AOR, it will likely occur on San Francisco Bay or Oakland Harbor (including Richmond). These two locations represent 19% and 15% of all reported loss of propulsion casualties. Finally, in reviewing the most likely causes of these types of casualties, "other" seems to be the best explanation. While air start problems and fuel related problems are the most frequent causes, the relatively low occurrence rates, 14% and 18% respectively, make it difficult to place much confidence in these two factors.

Recommendations:

An analysis of the casualty data for the past three years yields virtually the same conclusions as those summarized in the San Francisco Bay Harbor Safety Committee's brochure, <u>Safe Transit Program</u>. While the brochure does not go into the same depth of analysis as we have here with respect to vessel classes, locations, and causal factors, their conclusions as to most significant factors are nonetheless equally as valid. Thus, based upon the foregoing analysis, I recommend the following actions be initiated or continued as the case may be:

- Continue to forward the <u>Safe Transit Program</u> brochure to all vessel operators that suffer loss of propulsion casualties in MSO San Francisco Bay's AOR. This brochure serves as a valuable general reminder of the need to maintain and service all operating systems on a regular basis in order to avoid the types of casualties.
- Continue to monitor casualty data and look for new trends or changes in reporting characteristics. While the data for the years 2002, 2003 and 2004 is considered reliable, many of the categories and potential underlying casualty causes comprise such a small portion of the total casualty population they would be considered unreliable in a strict statistical sense.

• Upon completion of the 2005 reporting cycle, review the annual data for changes in characteristics and patterns and modify the above recommendations accordingly.

Table 1								
	2002	%	2003	%	2004	%	Total	%
Total Casualties:								
Loss of Propulsion	30	15.2	26	14.4	16	12.8	72	14.3
Other Types	168	84.8	155	85.6	109	87.2	432	85.7
Total	198	100	181	100	125	100	504	100

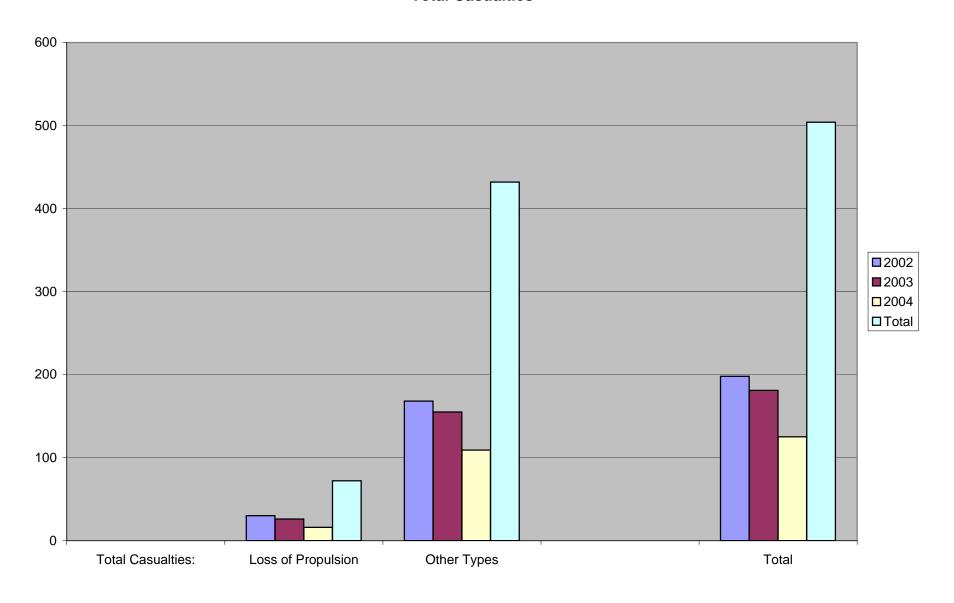
Table 2								
	2002	%	2003	%	2004	%	Total	%
Type of Casualty:								
Propulsion	22	73	19	73	14	88	55	76
Steering	8	27	5	19	1	6	14	20
Electrical Power	0	0	2	8	1	6	3	4
Total	30	100	26	100	16	100	72	100

Table 3								
	2002	%	2003	%	2004	%	Total	%
Vessel Type:								
Passenger Vessel (P/V)	10	33	10	38.5	2	12.5	22	30.5
Tug	3	10	4	15.4	4	25	11	15.3
Motor Vessel (M/V)	8	26.7	4	15.4	4	25	16	22.2
Steam Ship (S/S)	2	6.7	3	11.5	0	0	5	6.9
Fishing Vessel (F/V)	5	16.7	5	19.2	1	6.3	11	15.3
Pleasure Craft (P/C)	2	6.7	0	0	0	0	2	2.8
Tank Vessel (T/V)	0	0	0	0	2	12.5	2	2.8
Motor Tanker (M/T)	0	0	0	0	3	18.7	3	4.2
Total	30	100	26	100	16	100	72	100

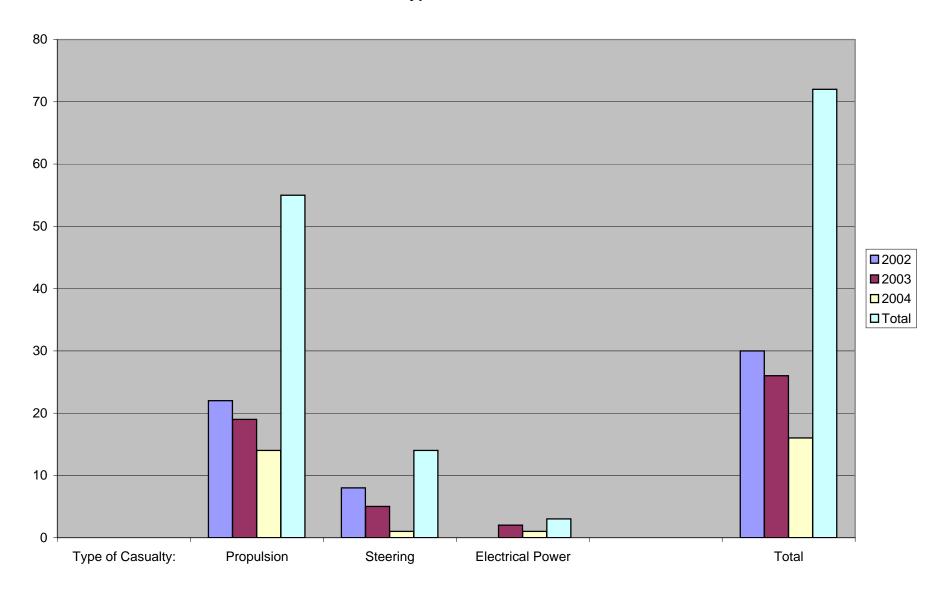
Table 4								
	2002	%	2003	%	2004	%	Total	%
Casualty Location:								
Oakland	8	26.7	2	7.7	4	25	14	19.4
San Francisco Bay	2	6.7	5	19.2	4	25	11	15.2
Outbound	0	0	0	0	4	25	4	5.6
Humboldt Bay	1	3.3	3	11.5	0	0	4	5.6
Larkspur	0	0	4	15.4	0	0	4	5.6
Other	19	63.3	12	46.2	4	25	35	48.6
Total	30	100	26	100	16	100	72	100

Table 5								
	2002	%	2003	%	2004	%	Total	%
Casualty By Cause:								
Air Start System	2	6.7	1	3.8	7	43.7	10	13.8
Fouled Nets	2	6.7	0	0	0	0	2	2.8
Fuel Related	7	23.3	4	15.4	2	12.5	13	18.1
Overheating	2	6.7	0	0	1	6.3	3	4.2
Other	17	56.6	21	80.8	6	37.5	44	61.1
Total	30	100	26	100	16	100	72	100

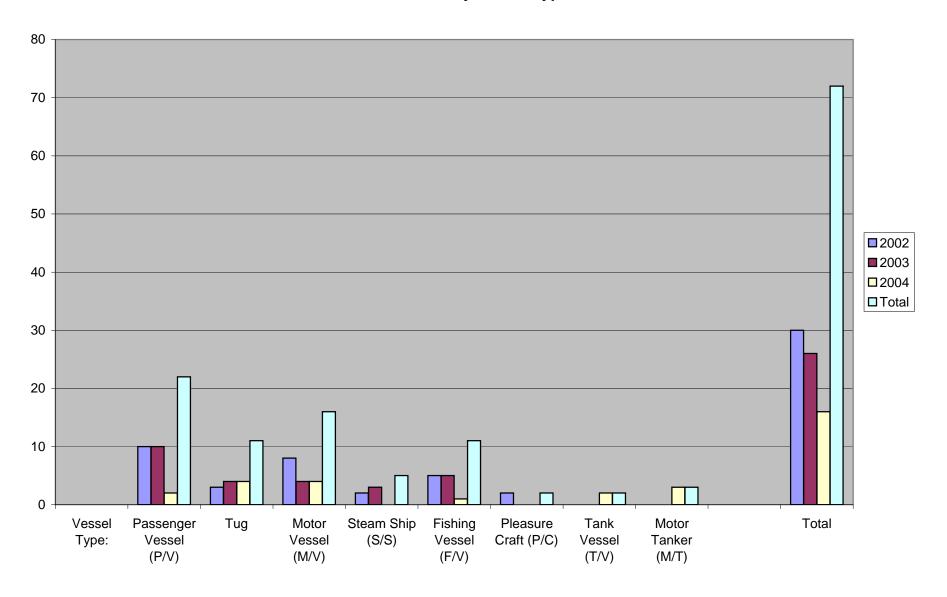
Total Casualties



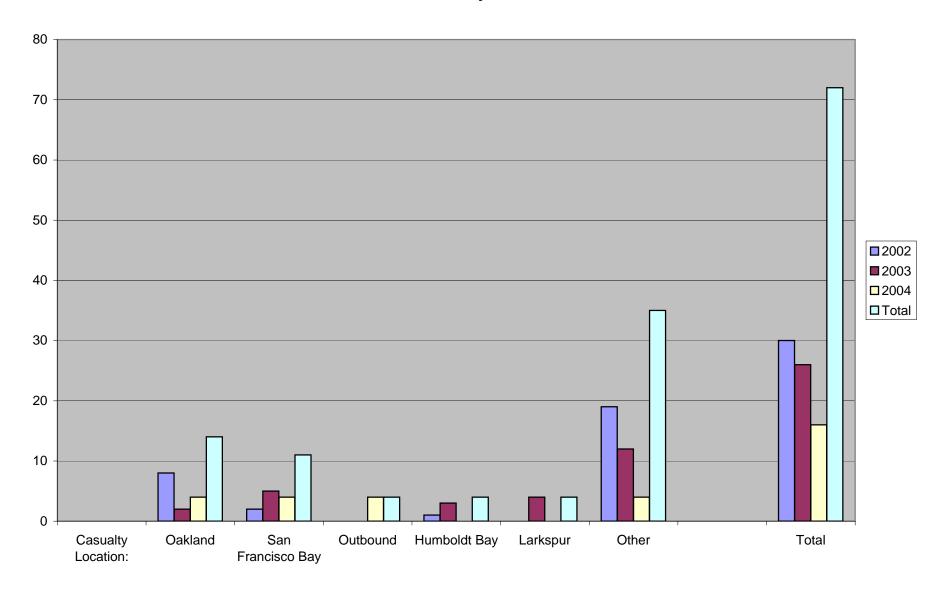
Type of Casualties



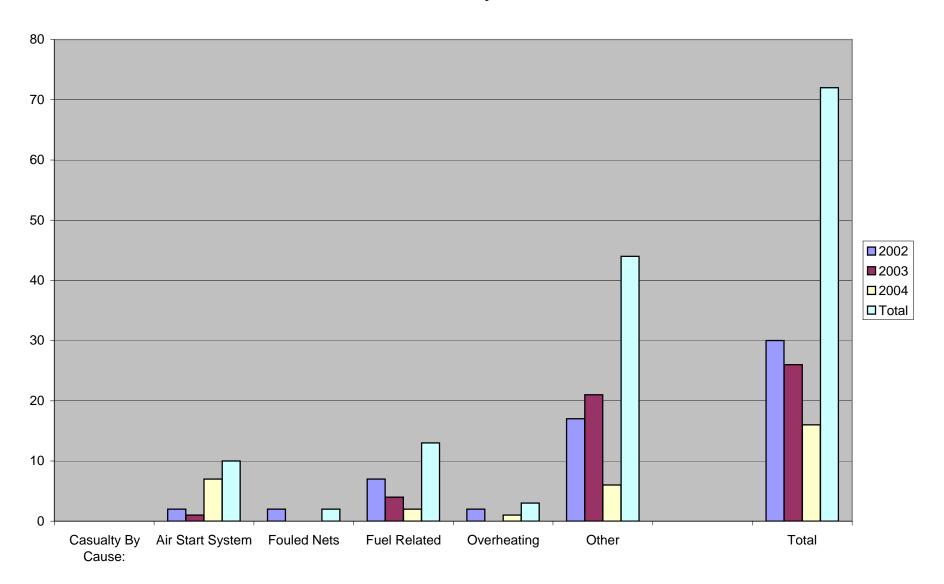
Casualties By Vessel Type



Casualties By Location



Casualties By Cause



San Francisco Bay Clearinghouse Report For March 2005

San Francisco Bay Region Totals

			2004
Tanker arrivals to San Francisco Bay	62		54
Tank ship movements & escorted barge movements	325		286
Tank ship movements	181	55.69%	158
Escorted tank ship movements	80	24.62%	75
Unescorted tank ship movements	101	31.08%	83
Tank barge movements	144	44.31%	128
Escorted tank barge movements	73	22.46%	64
Unescorted tank barge movements	71	21.85%	64

Percentages above are percent of total tank ship movements & escorted barge movements for each item.

Escorts reported to OSPR

1 6

Movements by Zone	Zone 1	%	Zone 2	%	Zone 4	%	Zone 6	%	Total	%
Total movements	207		294		0		170		671	
Unescorted movements	97	46.86%	154	52.38%	0	0.00%	81	47.65%	332	49.48%
Tank ships	67	32.37%	100	34.01%	0	0.00%	46	27.06%	213	31.74%
Tank barges	30	14.49%	54	18.37%	0	0.00%	35	20.59%	119	17.73%
Escorted movements	110	53.14%	140	47.62%	0	0.00%	89	52.35%	339	50.52%
Tank ships	59	28.50%	77	26.19%	0	0.00%	44	25.88%	180	26.83%
Tank barges	51	24.64%	63	21.43%	0	0.00%	45	26.47%	159	23.70%

Notoe

- 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 2005

San Francisco Bay Region Totals

<u> </u>			2003
Tanker arrivals to San Francisco Bay	175		690
Tank ship movements & escorted barge movements	985		3,229
Tank ship movements	542	55.03%	1,869
Escorted tank ship movements	252	25.58%	917
Unescorted tank ship movements	290	29.44%	952
Tank barge movements	443	44.97%	1,360
Escorted tank barge movements	228	23.15%	703
Unescorted tank barge movements	215	21.83%	657

Percentages above are percent of total tank ship movements & escorted barge movements for each item.

Escorts reported to OSPR

5

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Movements by Zone	Zone 1	%	Zone 2	%	Zone 4	%	Zone 6	%	Total	%
Total movements	587		894		0		509		1,990	
Unescorted movements	269	45.83%	456	51.01%	0	0.00%	249	48.92%	974	48.94%
Tank ships	178	30.32%	286	31.99%	0	0.00%	138	27.11%	602	30.25%
Tank barges	91	15.50%	170	19.02%	0	0.00%	111	21.81%	372	18.69%
Escorted movements	318	54.17%	438	48.99%	0	0.00%	260	51.08%	1,016	51.06%
Tank ships	166	28.28%	234	26.17%	0	0.00%	123	24.17%	523	26.28%
Tank barges	152	25.89%	204	22.82%	0	0.00%	137	26.92%	493	24.77%

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

April 14, 2005

1. CORPS 2005 O&M DREDGING PROGRAM

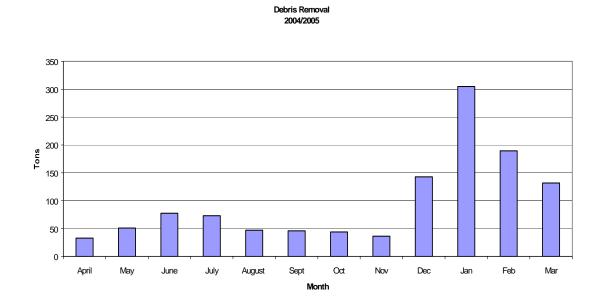
The following are this years O & M dredging program for San Francisco Bay.

- a. **Main Ship Channel** Project is scheduled to be accomplished by the Government Dredge "Essayons". Dredged material disposal will be at SF-8. Anticipated start date is end of May. The Corps is investigating disposing of the material closer to Ocean Beach in order to reduce beach erosion. No testing required this year.
- **b.** Richmond Outer Harbor and Southampton Shoal Project is scheduled to be accomplished by the Government Dredge "Essayons". Dredge material disposal is scheduled for in bay at the Alcatraz Dredged Material Disposal Site (SF-11). Work is anticipated to start the first part of June. No testing required this year.
- c. **Richmond Inner Harbor** Corps has contract in place with Great Lakes Dredging with an option that the Corps could exercise to do this years dredging. However, the Corps has determined that it will not exercise this option year and will instead solicit for a new contract. The solicitation should be out shortly. Anticipate that the dredged material will be disposed of at the ocean disposal site. Dredging window opens June 1, 2005.
- **d. Oakland Outer and Inner Harbor** Corps has contract in place with Great Lakes Dredging with an option that the Corps could exercise to do this years dredging. The Corps has determined that it will not exercise the option year on this contract. The maintenance material will be included with the deepening contract. Anticipate that the dredged material will be disposed of at the ocean disposal site. Dredging window opens August 1, 2005.
- e. **Suisun Bay Channel** Need to advertise for a new dredging contract this year. Dredging window opens June 1, 2005. The solicitation for this contract should go out in the next several weeks. No testing required this year.

- f. **Pinole Shoal** Requires a new dredging contract. The solicitation for this contract should go out in the next several weeks. Dredging window is from June 1 to 30 November. No testing required this year. There may not be sufficient funds to dredge this entire project. The Corps has committed to consulting with the Bar Pilots and the Coast Guard before we dredge in order to determine where the dredging should take place so we maintain the channel in the safest manner possible under these conditions.
- g. **Redwood City** UNFUNDED Corps plans to perform full testing on this material this year Do to funding limitations and the fact that this project is unfunded this year the material may have to be disposed of in bay if any funding is found. If Bair Island becomes available, it may be more economical to take the material to Bair Island. Dredging window is from June 1 to November 30.

2. DEBRIS REMOVAL

The total tonnage of debris collected on the San Francisco Bay for March 2005 was 132 tons. This is 58 tons less than the 190 tons collected in the month of February 2004.



3. UNDERWAY OR UPCOMING HARBOR IMPROVEMENTS

a. Oakland 50-ft -

The project goals are to get the Outer Harbor down to 46 feet first, then to get the Inner Harbor down to 46 feet. After the 46 foot depth is achieved, then we will take the project down to the 50-foot depth. By phasing the project in this way the project sponsor will get a greater utilization until the 50-foot depth is achieved. The Corps will receive approximately 24.75 million dollars in this year's budget less savings and slippage. The Corps has three contracts underway. The first contract is for the containment structure for middle harbor. The driving of sheet piling for the middle harbor containment structure is well under way and this contract is scheduled to complete shortly. The second one was the dredging contact. It combined the dredging of the Outer Harbor to an interim depth of 46 feet and the Inner Harbor to an interim depth of 46 feet. We have dredged approximately 900,000 cubic yards or more under this contract. The third contract is a marine construction contract for the last phase on the Inner Harbor Turning Basin. The actual physical work on this contract has not started. We have completed the evaluation of an alternative proposal for the bulkhead design and have found that we can accept the alternative design with some modifications. One issue with these contracts is that the Corps does not have sufficient Federal funds to support them. The Port of Oakland, the project sponsor, will fund these contracts. Congress has approved the sponsor funding these contracts and therefore we have amended the Project Cooperation Agreement (PCA) between the Port and the Corps and it has been signed. This project had a workboat that sank and the operator was lost. This accident is under investigation.

4. EMERGENCY (URGENT & COMPELLING) DREDGING

There was no 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, in FY 2004 we continued to perform advanced maintenance in the Suisun Channel at Bull's Head Reach.

5. OTHER WORK

San Francisco Bay to Stockton

Project continues to move forward

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 year the Corps has received approximately \$250,000 for this project and we are attempting to reprogram additional fund. The Corps has finalized the scope for the full General Re-evaluation Report (GRR) and we have completed the Project Management Plan. The Project Management Plan and the Design Agreement were approved by the Port of Stockton's Board on April 5, 2004. Contra Costa County has existing agreement in place with the Port of Stockton that they can utilize for this project. The goal is to complete the GRR by 2007. The San Francisco District has brought in the Corps Engineer Research and Development Center (ERDC) to address the issue of no return water from a dredge material disposal site that is being required by the Central Valley Regional

Water Quality Control Board. The hydrographic survey has been completed and a salinity model is being run. We are have flown the orthophotos (corrected photo map) of the project while the vegetation was at a minimum. We lack the funds to process the photos and analyze the date. We are trying to reprogram funds to enable us to complete this work.

The San Francisco District is working with the Sacramento District to help develop a Long Term Management Strategy (LTMS) the dredging and disposal of dredged material for the Delta. We have met with the agencies that developed the San Francisco Bay LTMS to see the best was to go about this and to learn from their experiences.

Sacramento River Deep Water Ship Channel Deepening

Status – Project is now on hold because the non-federal sponsor is unable to provide their portion of the required cost share for this project.

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 has received approximately \$350,000 for this year. 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. We are continuing to work on this project. We have awarded the contract for the salinity model and have received the draft report. The initial estimate is we will need capacity to dispose of approximately 6.5 million cubic yards of material. In reviewing the project we have had to reestablish the channel location and the review shows that some portions of the channel were never built to the required specifications. The San Francisco District has brought in the Corps Engineer Research and Development Center (**ERDC**) to address the issue of no return water from a dredge material disposal site that is being required by the Central Valley Regional Water Quality Control Board. We are have developed a sampling and analysis plan (SAP) for sediment testing and it has been submitted to the Central Valley Regional Water Quality Control Board for review and approval. We have flown the orthophotos (corrected photo map) of the project while the vegetation was at a minimum. However, the data has not been processed.

The San Francisco District is working with the Sacramento District to help develop a Long Term Management Strategy (LTMS) the dredging and disposal of dredged material for the Delta. We have met with the agencies that developed the San Francisco Bay LTMS to see the best was to go about this and to learn from their experiences.

Address of Corps' web site for completed hydrographic surveys

http://www.spn.usace.army.mil/hydrosurvey/

SF-VMAP

SF Bay Vessel of Mutual Assured Protection

Jeff McCarthy
Deputy Executive Director
San Francisco Marine Exchange

SF-VMAP History

- □ Program started in 1996 as an agreement between the ferryboat operators and the USCG to provide assistance in the case of a casualty involving large numbers of people
- □ Folded in to the USCG area disaster plan
- Currently operated and authorized by the USCG

Current Emergency Asset Database

- Vessel Name
- Vessel Phone Number
- Company Contact Name(s)
- Passenger Capacity
- Primary Lifesaving Equipment

Current SF-VMAP Participants

- Blue and Gold Fleet (10)
- Golden Gate Ferry (6)
- Red and White Fleet (3)
- Angel Island Ferry (1)
- Harbor Bay Maritime (1)
- Hornblower Cruises (3)
- Signature Yachts (1)

Proposed SF VMAP Expansion

- Increase Participation
- Enhance Emergency Equipment Database
- Integration of with AIS to facilitate real time emergency situational awareness and data query capabilities

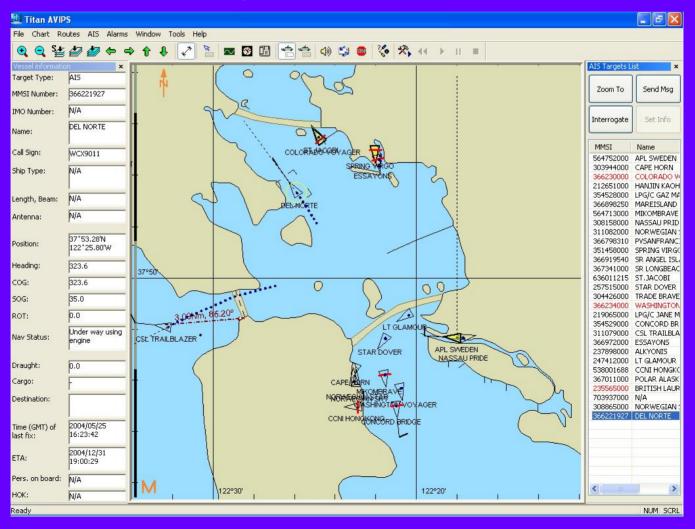
Current SF-VMAP Participants w/expanded asset database

- Ferry's (9 vessels)
 - Golden Gate Ferry (6)
 - Hornblower Cruises (3)
- Tug Boats (5 vessels)
 - SeaRiver Maritime (2)
 - Bay Delta Maritime (3)
- Other (7 vessels)
 - S.F. Bar Pilots (3)
 - Crowley ITB's (4)

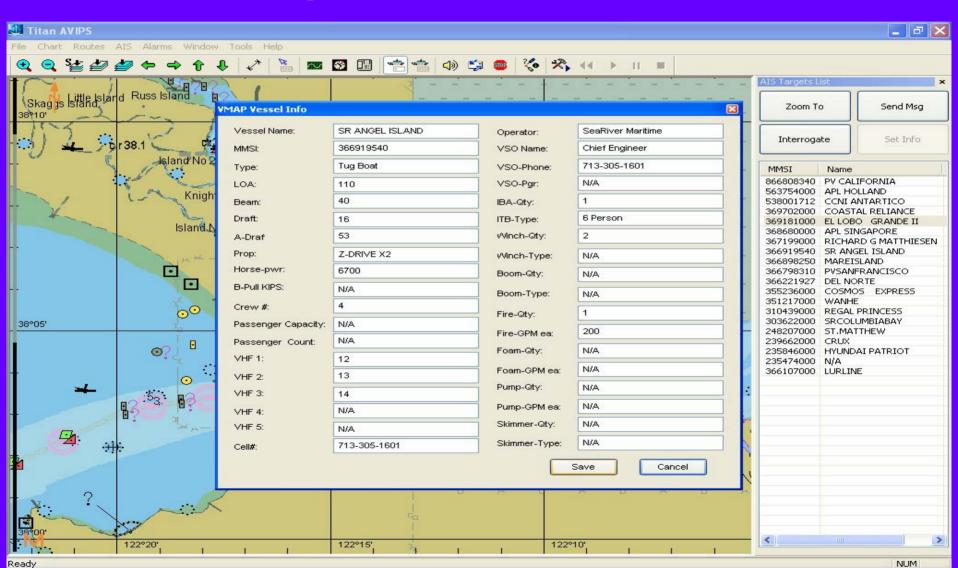
Proposed SF-VMAP Participants

- Water Transit Authority
- Remaining SF Bay Tug/Escort Vessel Operators
 - □ Brusco Tug
 - □ Crowley Maritime
 - □ Foss Maritime
 - Starlight Marine
 - Neimeth Towing
 - ☐ Westar Marine
- Oil Spill Response Organizations (OSRO's)
 - National Response Corporation
 - MSRC
- Government Vessels
 - □ City and County Fire/Police
 - □ MARAD ready reserve Vessels (Generators etc..)

SF Bay Automatic Information System (AIS)



SF VMAP Data integrated with AIS w/expanded asset Database



SFMX request:

SF HSC to include in the Harbor Safety Plan update, a request for OSPR to support the facilitation and expansion of SF-VMAP.

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