

# Harbor Safety Committee

of the San Francisco Bay Region

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

May 6, 2008

Mr. Barton Newton  
State Bridge Maintenance Engineer  
California Department of Transportation  
1801 30<sup>th</sup> Street  
Sacramento, CA 95816

Subject: Fendering of Bridges Adjacent to San Francisco Bay Area Shipping Lanes

Dear Mr. Barton:

On behalf of the Harbor Safety Committee of the San Francisco Bay Region, I thank you and Ken Brown for briefing the Committee at our April 10, 2008 meeting on “Fendering of Bridges Adjacent to San Francisco Bay Area Shipping Lanes.”

State law established the 21-member Harbor Safety Committee (HSC) in 1991 to make recommendations to prevent vessel accidents in the Bay, which might lead to an oil spill. The Committee consists of representatives of four Port Authorities; Bar Pilots, tanker, cargo, tug and barge and oil terminal operators; labor; recreational boaters; commercial fishing nonprofit environmental agency; BCDC, NOAA, Corps of Engineers and the Coast Guard Captain of the Port. Our monthly meetings, publicly noticed, are well attended by the maritime community.

Since the Cosco Busan incident, the Committee has focused on the implications of the incident to recommend prevention measures as part of “lessons learned”. During earlier discussions, the Bar Pilots raised the issue of whether bridge fendering systems might also be designed to prevent a large vessel from rupturing, while protecting the integrity of the bridge.

You referenced the American Association of State Highway and Transportation Officials (AASHTO) Guide Specifications for Vessel Collision Design of Highway Bridges, adopted in 1991, which stated the primary purpose of fendering is to minimize the susceptibility of a bridge collapse in the event of a vessel collision. You noted that AASHTO is currently updating national guidelines, based on lessons learned and results from barge and ship collision research conducted. You also noted your intent to apply to AASHTO to prioritize a national study to assess bridge fendering technologies for bridges subject to maritime traffic such as San Francisco Bay. However, the results of such a study are at least three to five years into the future.

The Committee noted these national guidelines for bridge fendering do not take into consideration minimizing the impact on a large vessel hitting a bridge support that might cause a rupture to the fuel tanks. Ship and barge designs have evolved since many of the Bay Area bridges were built, leading to

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much larger vessels with differing hull features than when most fendering systems were installed. Likewise, design criteria, including fendering systems for Marine Oil Terminals is now regulated under the California Building Code, is the subject of much research that may have relevance in providing options for design consideration.

While most bridge allisions involve tugs and tows, larger vessels inflict more damage per incident and pose more risk. Attached is a summary of Bridge Allision Statistics for the Bay Area and Delta from 1991-2007, prepared by the U.S. Coast Guard Sector, San Francisco, Waterways Management. Within this time period an average of three deep draft vessels and tugs with tows hit bridges in the Bay Area. Further analysis by the Coast Guard revealed that, while 66% of allisions were tugs with tows, tank ships (3), bulk carriers (3), container ships (2), ro-ro (3) and passenger ships (5) hit Bay Area bridges within the last sixteen years.

Recommendation: Therefore we recommend that California Department of Transportation engineers independently analyze the energy- absorbing capacities of key bridge fendering protection systems adjacent to high volume shipping lanes in the San Francisco Bay Region to ensure adequate protection of the structural integrity of the bridges, especially in the event of a direct allision, and to minimize damage to the vessel, thus reducing the chance of a possible oil spill into California waters.

Your informal briefing and dialogue with the committee and public were most productive. We would be pleased to work with you in this regard as a resource for data about bridge allisions, for vessel information and for maritime expertise navigating the many bridges. Please call me at (415) 461-4566 if you have questions in this regard.

Sincerely,

Joan Lundstrom, Chair  
Harbor Safety Committee  
San Francisco Bay Region

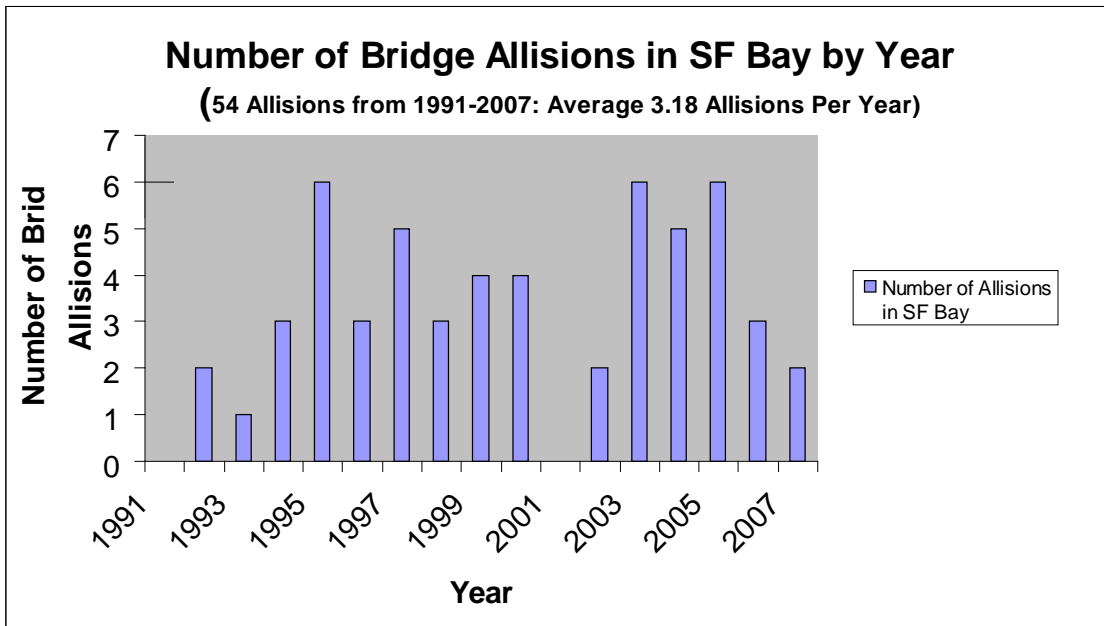
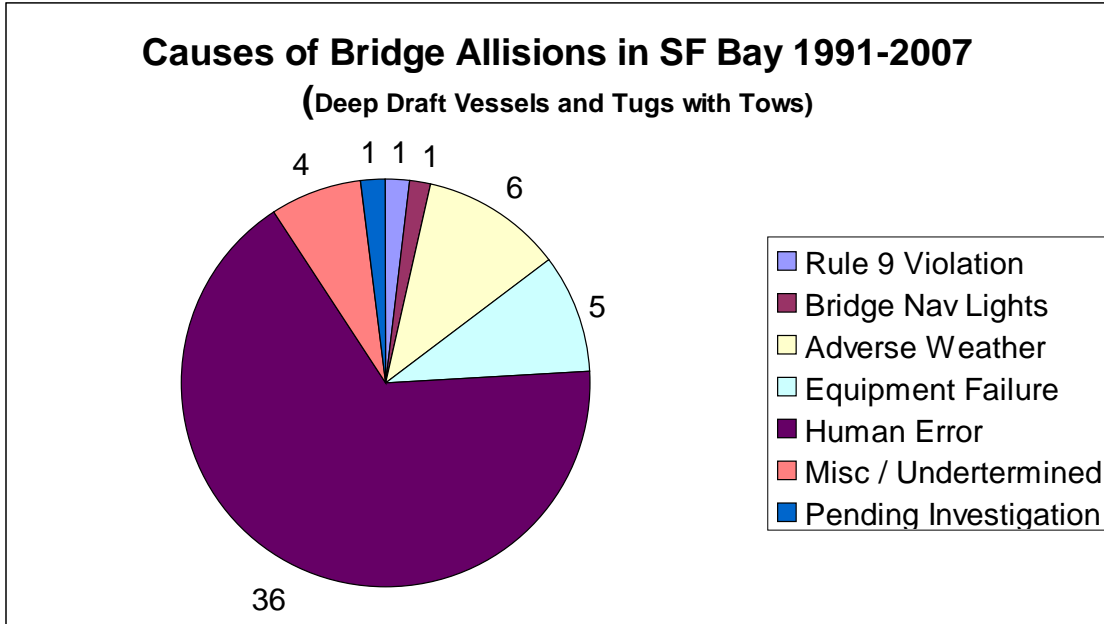
Attachment: Bridge Allision Statistics for Bay Area and Delta from 1991-2007; U.S. Coast Guard Sector San Francisco, Waterways Management

Cc: Harbor Safety Committee  
Jim Bourgart, Deputy Secretary for Transportation and Infrastructure  
Captain Paul Gugg, U.S. Coast Guard Captain of the Port  
Lisa Curtis, OSPR Administrator

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# Bridge Allision Statistics for Bay Area and Delta from 1991-2007

Total allisions: 288  
 Total allisions involving bridges: 54  
 Number of bridges over shipping lanes: 31



Note: No data exists for \$\$ amount of damage to bridges, but a 2003 National Coast Guard Study indicates only 14% of allisions resulted in more that \$25,000 in damage.

Data source: U.S. Coast Guard Sector San Francisco, Waterways Management