

available to maintain an accurate plot, and the absence of a positive indication of the center of the main ship channel through the Golden Gate.

The radar system by which the vessels could have avoided each other failed because the ARIZONA STANDARD did not obtain and evaluate correctly information from radar pertaining to the movements of the OREGON STANDARD, and the OREGON STANDARD did not check periodically at least one of the radarscopes, set on a sufficiently long range scale, to ensure the prompt detection of the ARIZONA STANDARD.

The whistle signal system of avoiding collision failed because neither vessel heard the other vessel's fog signals. A contributing factor was the high noise level caused by the diaphone and fog horns located on the Golden Gate Bridge.

The Harbor Advisory Radar system was inadequate to prevent the collision. The inadequacy arose from the decision of the OREGON STANDARD not to guard channel 18A, which precluded its participation in the system, and the prohibition of Harbor Advisory Radar operators from providing interpretative information or direction to vessels. The underlying and most significant inadequacy of the Harbor Advisory Radar was the lack of authority of the Coast Guard to regulate this traffic, which prevented a publicly financed facility from protecting the public against loss.

RECOMMENDATIONS

The National Transportation Safety Board concurs in the action planned by the Commandant with respect to Recommendation No. 2 of the Marine Board. With regard to Recommendation No. 1, this is the third major marine casualty report in which the Safety Board has commented upon the need for legislation to require bridge-to-bridge radio. In our special study of "Collisions of Radar-Equipped Merchant Ships and Preventive Recommendations," we referred to the effectiveness of this type of communications on the Great Lakes.

The Safety Board commends Congress for the recent passage of the "Vessel Bridge-to-Bridge Radiotelephone Act." This Act will provide a very helpful tool for the prevention of collisions.

The Safety Board further recommends that:

1. Congress enact legislation such as the proposed "Ports and Waterways Safety Act of 1971" (H.R. 8140) which would

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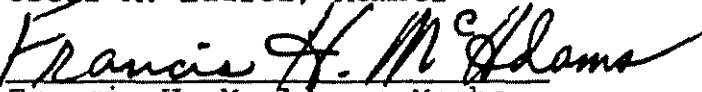
provide explicit statutory authority for the U.S. Coast Guard to establish and operate marine traffic regulation systems in the congested port waters of the United States. ~~M-71-15~~
M-71-15

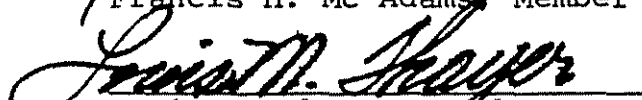
2. The Coast Guard continue to develop the Marine Traffic System in San Francisco Bay. Successful development of this system should lead to the eventual establishment of similar effective systems in other congested ports and waterways in the United States. ~~M-71-16~~ M-71-16
3. The Coast Guard study the feasibility of developing a method of traffic separation for inbound and outbound traffic in the Golden Gate Channel. ~~M-71-17~~ M-71-17
4. The Radio Technical Commission for Marine Services actively support and encourage the maritime and electronic industries' efforts to develop and utilize collision-avoidance systems. ~~M-71-18~~ M-71-18
5. Vessel operators, the American Institute of Merchant Shipping, and the Society of Naval Architects and Marine Engineers give due consideration to the development of coordinated bridge workspace arrangements and task assignments in the formulation of vessel specifications and designs as highlighted in the recent General Dynamics study. ~~M-71-19~~ M-71-19

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

Adopted this 28th day of July, 1971:


Oscar M. Laurel, Member


Francis H. Mc Adams, Member


Louis M. Thayer, Member

Chairman Reed and Member Burgess were absent, not voting.