

Log M-177B -
AI-4

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: February 18, 1982

Forwarded to:

Mr. Leonard Piekarsky
Commissioner
Department of Marine and Aviation
City of New York
Battery Maritime Building
New York, New York 10004

SAFETY RECOMMENDATION(S)

M-82-4 through -7

About 0716 e.d.t. on May 6, 1981, the Norwegian cargo vessel M/V HØEGH ORCHID, inbound from sea to a berth in Brooklyn, opposite The Battery, collided with the New York City ferry AMERICAN LEGION in dense fog in Upper New York Bay near buoy No. 24. The ferry was en route from Staten Island to Manhattan with approximately 2,400 passengers aboard. The ferry was damaged from below the main deck up to and including the bridge deck, the uppermost passenger deck. A total of 71 passengers were treated for injuries; 3 passengers were hospitalized. The HØEGH ORCHID suffered minor damage, and there were no injuries to persons aboard. The estimated cost of repairs to both vessels was \$520,000. 1/

The master of the AMERICAN LEGION, by not notifying Coast Guard Group New York on VHF-FM channel 16 (156.8 MHz) immediately after assessing the damage to his vessel, precluded the Coast Guard from fully evaluating the situation after it received notice of the collision from the pilot of another vessel via the Vessel Traffic Center (VTC). Although the master had the capability, he failed to call the Coast Guard and inform it of his status. The Safety Board believes that the ferry master should have immediately informed the Coast Guard by radio of the accident and kept it advised as to his evaluation of the situation. Presently, the Staten Island ferries do not have the capability to communicate with the VTC over VHF-FM channel 12 (156.6 MHz) which, under the present limited mission of the VTC, is the frequency it guards to monitor the Federal anchorages in Upper New York Bay. Even though the establishment of a fully operational Vessel Traffic Service (VTS) lies somewhere in the future, the Safety Board believes that the Staten Island ferries should have the capability of communicating with the VTC on VHF-FM channel 12 to avail themselves of any pertinent information that the VTC may have.

1/ For more detailed information read "Marine Accident Report—Norwegian Cargo Vessel HØEGH ORCHID and New York Ferry AMERICAN LEGION Collision, Upper New York Bay, May 6, 1981" (NTSB-MAR-82-1).

The U.S. Coast Guard granted a deviation ^{2/} from the requirements of the Navigation Safety Regulations, Title 33, Code of Federal Regulations, Part 164.35 for the ferries owned and operated by the city of New York on the Staten Island/Manhattan ferry route. Ferries may operate on this specified route without a gyrocompass, illuminated gyrocompass repeater, echo depth sounding device, and a device for recording soundings. With the addition of larger capacity vessels in the Staten Island ferry fleet, the number of passengers in transit, especially during the "rush hour" periods, will ultimately increase. Any upgrading of the ferry system should also include a review of the type of equipment and the methods used to navigate the ferries over the established route. The modern collision avoidance systems and stabilized radars that are available together with a modern gyrocompass would provide additional navigational safety for the passengers and greatly enhance the all-weather capabilities of the ferries.

The master of the AMERICAN LEGION testified that with the present method of navigating the ferries, plotting of targets on a radarscope is not done nor is it practical. With the present equipment in the pilothouse of the ferries, this may be a reasonable conclusion. The basic function of radar in limited visibility is to provide information to the observer that can be used to determine if risk of collision exists with one or more approaching vessels. To achieve this with any degree of accuracy depends on the ability of the operator to reduce radar contact error. It is difficult to observe accurate radar bearings when the vessel is not held to a steady course or when in a yawing condition. Radar ranging or distance measuring is not affected by the yawing effect. Presently, the radar observer on the ferries must request the compass heading from the pilot or helmsman while he obtains a relative bearing of a contact on the radar. To make a projection of its relative motion, another bearing must be taken after an interval of time. Because the nonstabilized presentation on the radarscope rotates with any change of heading of the vessel, the radar observer must again request a compass heading from the helmsman and apply any angular difference between this heading and the heading of the vessel at the time of the first bearing. Meanwhile, because the heading of the vessel may not be steady enough to allow a clear image to be imprinted on the radarscope, a blurred radar image may result. If multiple contacts are present, which most likely would be the condition in New York Harbor, the process is time-consuming and requires complete concentration by the observer. Meanwhile, the same radar is also used to determine courses to steer and to monitor navigational aids. As a result, the effectiveness of the ferry's radar as an anticollision device is limited.

If the ferries were equipped with a gyrocompass, radar contact error could be significantly reduced. A radar, stabilized with a gyro input, would be more effective in monitoring radar contacts. It would also give the ferry master the means to further utilize the advantages of a gyrocompass by establishing courses to steer directly from the gyrostabilized radar during periods of limited visibility in a more accurate manner. Providing a gyro input to the radar unit would also furnish a key element necessary for adding an automatic radar plotting aid (ARPA).

^{2/} Letters to the Commissioner of Marine and Aviation, City of New York from the U.S. Coast Guard Captain of the Port of New York, dated October 19, 1977, and December 5, 1978.

The Safety Board believes that the city of New York, through its Department of Marine and Aviation, should provide and install a gyrocompass aboard the Staten Island ferries and upgrade the radar units aboard the ferries to include a gyrostabilized presentation and that the Coast Guard should withdraw the deviation permitting the ferries to operate without a gyrocompass and illuminated gyrocompass repeater and require this equipment to be installed. The Safety Board further believes that an evaluation should be conducted to determine the feasibility of the use of an ARPA in conjunction with the stabilized radar presentation.

As a result of its investigation, the National Transportation Safety Board recommends that the Department of Marine and Aviation, City of New York:

Provide the Staten Island ferries with the capability to transmit and receive over VHF-FM channel 12 to allow ferry masters to communicate with the New York Vessel Traffic Center. (Class II, Priority Action) (M-82-4)

Equip the Staten Island ferries with a gyrocompass and an illuminated gyrocompass repeater. (Class II, Priority Action) (M-82-5)

Modify the radar units to provide a gyrostabilized presentation so that the radar can be used more effectively to avoid collisions and as an aid to navigation. (Class II, Priority Action) (M-82-6)

Evaluate the benefits of an automatic radar plotting aid (ARPA) in the operation of the Staten Island ferries, particularly in periods of reduced visibility, and install the equipment if the evaluation is favorable. (Class II, Priority Action) (M-82-7)

BURNETT, Acting Chairman, and McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.



By: Jim Burnett
Acting Chairman