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M-338A

National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Date: April 26, 1988

In reply refer to: M-88-24 through -26

Honorable Joe Frank Harris
Governor
State of Georgia
Atlanta, Georgia 30334

About 0112 on May 3, 1987, the 607-foot-long Polish bulk carrier ZIEMIA BIALOSTOCKA rammed the Sidney Lanier highway bridge in Brunswick, Georgia. At the time of the accident, the outbound vessel was under the control of a Georgia State pilot; the master was in the wheelhouse. There were no injuries or deaths. As a result of the accident, the ZIEMIA BIALOSTOCKA sustained minor damage. Damage to the Sidney Lanier Bridge has been estimated at $1.4 million. The highway bridge did not reopen for vehicular traffic until September 6, 1987, at an estimated cost to the public of $7.9 million. 1/

The pilot of the ZIEMIA BIALOSTOCKA stated that the ZIEMIA BIALOSTOCKA was "handling to me like any other ship" until the port turn from the East River to the Turtle River approach channel to the Sidney Lanier Bridge when the vessel did not respond as he had expected. However, based on the maneuvering information on board the vessel and the 1981 U.S. Coast Guard report comparing the tactical diameters of over 600 vessels, 2/ the Safety Board determined that the ZIEMIA BIALOSTOCKA had a turning track significantly larger than the turning track of most other vessels of similar size. The pilot stated that he did not read or request maneuvering information regarding turning tracks and stopping distances from the master because he could determine the maneuvering characteristics of a vessel by handling the vessel "in just a matter of a few minutes."

If the pilot of the ZIEMIA BIALOSTOCKA had read the maneuvering information on the vessels he previously had piloted and compared the maneuvering information with their actual turning tracks in shallow water, he may have been able to determine from the maneuvering information on board the ZIEMIA BIALOSTOCKA that the vessel had a larger turning track than most vessels and that some special precautions were needed in making the approach to the Sidney Lanier Bridge. However, even if he had not done so, he should have been able to determine

1/ For more detailed information, read Marine Accident Report--"Ramming of the Sidney Lanier Bridge by the Polish Bulk Carrier ZIEMIA BIALOSTOCKA, Brunswick, Georgia, May 3, 1987" (NTSB/MAR-88/03).
2/ U.S. Coast Guard Report No. CG-M-8-81, "Technical Basis for Maneuvering Performance Standards," December 1981.

from the vessel maneuvering information that the ZIEMIA BIALOSTOCKA's turning track was greater than the distance he normally allowed for the turn from the East River to the Turtle River.

The pilot's testimony indicated that he did not have knowledge of the technical parameters affecting the maneuvering characteristics of a vessel and that his practical knowledge of some vessel maneuvering characteristics was incorrect. The pilot was not familiar with standard marine terminology of "advance" and "transfer" for describing a vessel turning track. He stated that the vessel's 11-foot stern trim versus a normal stern trim of about 6 feet would decrease the ZIEMIA BIALOSTOCKA turning track; the increased stern trim actually would have increased the vessel turning track. He also stated that the ZIEMIA BIALOSTOCKA was not in shallow water during the port turn, when, in fact, there was about 40 feet of water in the channels and the vessel mean draft was about 27 feet 7 inches, or a ratio of water depth to draft of about 1.4. Coast Guard regulations define shallow water as a ratio of less than 2 for assessing maneuvering characteristics. Recent studies show that the turning tracks of a vessel can be increased from 50 to 100 percent in shallow water. Thus, although the pilot was experienced and was aware of the effects of shallow water on the turning track of a vessel, he apparently was unaware at what water depth these effects occur.

At the time the pilot obtained his Federal and State pilot licenses, he was not required to pass an examination on the technical parameters affecting vessel maneuvering or the use of maneuvering information posted on the bridges of vessels. Although the Coast Guard required pilots to pass an examination on shiphandling, these examinations were not standardized throughout the country and normally did not require a pilot to have knowledge of the technical parameters affecting vessel maneuvering or the use of various systems of measurement, such as the metric system. Since the pilot was licensed before the enactment of the Coast Guard regulations regarding maneuvering information, the pilot has never had to prove knowledge of these Coast Guard regulations. The Saint Simons and Saint Andrews Bars Board of Commissioners only required the pilot to pass the Coast Guard examination.

New Coast Guard licensing regulations, which were effective on December 1, 1987, will require all pilots to pass an examination on certain ship maneuvering and handling subjects but will not require pilots to have knowledge of the technical parameters affecting vessel maneuvering or the use of the maneuvering information currently required aboard vessels. The new regulations will require masters and mates, but not pilots, to prove knowledge of these subjects. The Safety Board believes that these subjects are just as important for pilots as masters and mates. To effectively use the maneuvering information required on vessels over 1,600 gross tons in U.S. waters, pilots must understand the parameters that affect the maneuverability of a vessel and how to interpret and use the posted maneuvering information. Pilots also need a working knowledge of various systems of measurement, including the international metric system, to interpret maneuvering information on vessels. Foreign vessels normally show maneuvering information in the metric system, and most vessels entering U.S. ports are foreign vessels. The pilot stated that 99 percent of the large vessels entering Brunswick Harbor are foreign vessels. The Safety Board believes that the maneuvering information required on large U.S. and foreign vessels can be an effective tool in preventing accidents in harbors if pilots use the information. Therefore, the Safety Board believes that before issuing pilot licenses, the State of Georgia should require applicants to pass an examination on the technical parameters affecting vessel maneuvering and on how to

interpret the maneuvering information available on vessels, including the use of various systems of measurement. Also, the State of Georgia should require licensed pilots to pass a one-time examination on the same topics.

The fenders for the Sidney Lanier Bridge were not adequate to prevent major damage to the bridge despite the low speed of the ramming by the ZIEMIA BIALOSTOCKA. Although the vessel was going only 1 to 2 knots at impact and the fenders stopped the underwater hull from hitting the bridge, the vessel bow caused $1.4 million damage to the bridge and the bridge was closed to highway traffic for 4 months at an estimated cost of $7.9 million to the public who had to detour around the bridge. Large vessels pass through the Sidney Lanier Bridge only during high water when the tops of the bridge fenders are about 10 feet above the water level. At the time of the ramming, the vessel's forecastle deck was about 33 feet above the water and the anchors were about 26 feet above the water. The ZIEMIA BIALOSTOCKA had a standard bow which flared outboard about 10 feet from the waterline to the forecastle deck level near the anchors. Since the bridge fenders were located only about 6 feet from the bridge footings, the vessel's forecastle deck and starboard anchor damaged the steel structure of the bridge located on top of the footings, although the fenders stopped the vessel. The fenders on the Sidney Lanier Bridge are effective for smaller vessels or when large vessels impact the fenders at low speeds with their straight sides where there is no overhang or anchors, but not when the bows of large modern vessels impact the fenders.

The Safety Board believes that an effective fender system could be installed to protect the Sidney Lanier Bridge from the low-impact rammings by the bows of large modern vessels by either moving the existing fenders or installing new fenders. The cost of such a fender system would be low in comparison to the estimated $1.4 million damage to the Sidney Lanier Bridge and the additional cost to highway users who had to detour around the closed bridge for 4 months. The Safety Board believes that the State of Georgia should review the adequacy of the protection systems on other State bridges and that the State should modify the protection systems as necessary to protect the bridge structure from vessel low-impact rammings.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the State of Georgia:

> Require State pilots and applicants for State pilot licenses to pass a one-time examination on the technical parameters affecting vessel maneuvering and the use of maneuvering information, including the use of various systems of measurement, currently required aboard U.S. vessels and foreign vessels over 1,600 gross tons entering U.S. ports. (Class II, Priority Action) (M-88-24)
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> Modify the fenders on the Sidney Lanier Bridge to protect the bridge from the minor impact of large vessels. (Class II, Priority Action) (M-88-25)
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> Review the fenders on other Georgia bridges and modify the fenders to protect the bridges from minor impacts of large vessels. (Class II, Priority Action) (M-88-26)

Also, the Safety Board issued Safety Recommendations M-88-18 through -23 to the U.S. Coast Guard; M-88-27 and -28 to the American Pilots Association; and M-88-29 to the National Oceanic and Atmospheric Administration.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "... to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-88-24 through -26 in your reply.

BURNETT, Chairman, and LAUBER, NALL, and KOLSTAD, Members, concurred in these recommendations.

By: Jim Burnett
Chairman