

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

~~ADD~~
Log M-60

ISSUED: March 23, 1978

Forwarded to:

Admiral Owen W. Siler
Commandant
U.S. Coast Guard
Washington, D. C. 20590

SAFETY RECOMMENDATION(S)

M-78-10 through -13

About 1915, e.s.t., on November 10, 1975, the Great Lakes bulk cargo vessel SS EDMUND FITZGERALD, with 29 crewmen and fully loaded with taconite pellets, sank in eastern Lake Superior at 46°59.9'N, 85°06.6'W, approximately 17 miles from the entrance to Whitefish Bay, Michigan. The ship was en route from Superior, Wisconsin, to Detroit, Michigan, and was proceeding at a reduced speed in a severe storm. No distress call was heard, and no survivors or bodies were located, although the vessel's two inflatable liferafts, several personal flotation devices, and other debris were found.

Analysis of evidence developed in the Safety Board's continuing investigation of this accident indicates that water entered the cargo hold of the FITZGERALD through nonweathertight hatch covers. The FITZGERALD's minimum freeboard was reduced by the 1969, 1971, and 1973 amendments to the Great Lakes Load Line Regulations (46 CFR Part 45). This reduction allowed greater amounts of water to wash over the vessel's deck under the severe storm condition than would have under the previous freeboard requirements. This greater amount of water increased the rate that flooding water entered the FITZGERALD's cargo hold. The analysis indicates that this flooding reduced the vessel's freeboard, reduced its stability, and increased its list before it sank.

U.S. Coast Guard Marine Inspectors, during the winter of 1976 and the spring of 1977, and Safety Board personnel, during the summer of 1977, observed that hatch covers on some Great Lakes bulk cargo vessels were not weathertight as required by the Great Lakes Load Line Regulations. This nonweathertight condition existed even though the hatch covers were in place and their clamps were fastened. In order for the hatch cover to be weathertight, the hatch cover clamps must be properly adjusted. It was observed that many of the hatch cover clamps were not properly adjusted.

The investigation of this accident uncovered a problem related to the 1973 Great Lakes Load Lines Regulations. Because the reduced freeboard under these regulations increased the permitted drafts on Great Lakes vessels, and because of the shallow water at some loading and unloading docks and in restricted-depth waterways, "groundings" of vessels with these deeper drafts have become common. Damage or bottom wear caused by these "groundings" could initiate a massive structural failure in a seaway.

Since the annual inspections of Great Lakes bulk cargo vessels are currently in progress, the National Transportation Safety Board recommends that the U.S. Coast Guard:

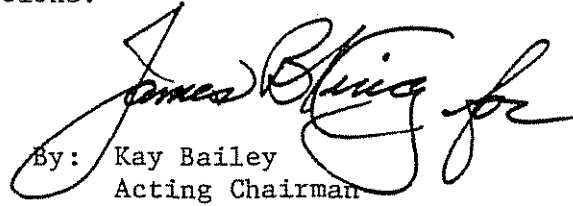
Insure that all hatch covers, hatch coamings, and vents are in good repair and are capable of being made weathertight at the annual inspections of all Great Lakes bulk cargo vessels before the spring shipping season and at inspections before the winter load line season. (Class II, Priority Action) (M-78-10)

Use the ship-rider program by Coast Guard Marine Inspectors and hatch cover inspections at cargo loading facilities to prevent sailings of any vessel found lacking in weathertight integrity. (Class II, Priority Action) (M-78-11)

Report the number of hatch cover inspections made of Great Lakes bulk cargo vessels and of sailings prevented or restricted due to nonweathertight closures over the next 2 years so that an accurate accounting can be made of the problem in reassessing minimum freeboard requirements. (Class II, Priority Action) (M-78-12)

Investigate, together with the American Bureau of Shipping, the effects that the deeper drafts permitted under the 1969, 1971, and 1973 amendments to the Great Lakes Load Line regulations, have had on the structural strength of Great Lakes bulk cargo vessels. Note any damage or bottom plating wear over the next 2 years caused by the "groundings" of these vessels during loading, unloading, or navigation in restricted-depth waterways. Evaluate the effect this damage and wear might have on the structural strength of these vessels in a seaway, and jointly report the findings. (Class II, Priority Action) (M-78-13)

BAILEY, Acting Chairman, McADAMS, HOGUE, and KING, Members,
concurred in the above recommendations.


By: Kay Bailey
Acting Chairman