



National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Log M-34B

Date: July 25, 1988

In reply refer to : M-88-47 and -48

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Commandant
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Washington, D.C. 20593

At 0201 local time on September 19, 1987, the captain of the 127-foot-long U.S. fishing vessel NORDFJORD broadcasted a distress message via single-side-band radio which was received by U.S. Coast Guard Radio Station, Kodiak, Alaska (COMMSTA Kodiak). However, the distress message did not state the position of the vessel or other details concerning the distress.

About 0430, the Coast Guard learned from the owner that the NORDFJORD was on a voyage from Seattle, Washington, to Unimak Pass, Alaska, and was somewhere in the middle of the Gulf of Alaska at the time of the distress message. Despite an 8-day search covering over 176,000 square miles by Coast Guard and Canadian Coast Guard aircraft, neither the vessel nor any debris that could be identified as coming from the NORDFJORD was found. Neither the captain nor any of the four crewmembers were ever seen or heard from again. ^{1/}

The lack of any position information in the NORDFJORD distress message and the lack of any known emergency position indicating radio beacons (EPIRB) distress signal from the NORDFJORD two manually-activated EPIRBs emphasizes the need for float-free, automatically-activated EPIRBs on fishing vessels. The National Transportation Safety Board believes that the NORDFJORD sank shortly after the distress message at 0201 on September 19. It is probable that the reason that no EPIRB signal was received by aircraft or a COSPAS-Search and Rescue Satellite-Aided Tracking (SARSAT) satellite was that the vessel sank before the crew could activate either of the vessel's two manually-operated EPIRBs. A float-free, automatically-activated EPIRB would have required no action on the part of the crew and its signal probably would have been detected by a COSPAS-SARSAT satellite. Had an EPIRB signal been received, the U.S. Coast Guard would then have known the general location of the NORDFJORD and probably would have been able to launch search and rescue aircraft immediately.

^{1/} For more detailed information, read Marine Accident Report--*Disappearance of the U.S. Fishing Vessel NORDFJORD in Gulf of Alaska, September 19, 1987* (NTSB/MAR-88/07).

Presently, there are no Coast Guard requirements for the carriage of EPIRBs on most fishing vessels. Since 1980, as a result of its investigation of the sinking of the fishing vessel LOBSTA-1, ^{2/} the Safety Board has recommended that the Coast Guard require EPIRBs on commercial fishing vessels. However, on September 3, 1987, the Coast Guard published proposed regulations to require the use of Federal Communications Commission (FCC)-type accepted float-free EPIRBs operating on the dedicated satellite frequency of 406 MHz on fishing vessels. The Notice of Proposed Rulemaking (NPRM) would permit the carriage of conventional float-free, automatically-activated EPIRBs operating on the frequencies 121.5 and 243 MHz for a 10-year period, but would not permit manually-activated EPIRBs. On October 19, 1987, the Safety Board commented on the NPRM stating that the Safety Board supports a shorter phase-out period of 6 years for conventional EPIRBs, the prohibition of the carriage of EPIRBs not complying with Federal Aviation Administration Technical Standard Order C91a during the phase-out period, and the prohibition of Class B and Class C EPIRBs during the phase-out period. However, the Coast Guard Navigation and Vessel Inspection Circular (NVIC) 5-86 regarding voluntary safety standards for fishing vessels recommends either the manually-activated EPIRBs or the float-free, automatically-activated EPIRBs, and the North Pacific Fishing Vessel Owners' Association (NPFVOA) *Vessel Safety Manual* makes no recommendation as to the type of EPIRB. The Safety Board believes that the Coast Guard should amend NVIC 5-86 to recommend only float-free, automatically-activated EPIRBs for fishing vessels and that the NPFVOA should also recommend only float-free, automatically-activated EPIRBs.

The single distress call from the NORDFJORD received by COMMSTA Kodiak consisted of repeated "Maydays" and the name of the vessel without any further details. Thus, the distress call presented both location and identification problems for the Coast Guard. The Coast Guard North Pacific Search and Rescue Coordination Center (NPSC) did not know the position of the vessel, and it did not have any information regarding the owner or operator of the NORDFJORD. In addition, the NPSC did not know the nature of the NORDFJORD's distress or the serious nature of the problem. Since the distress message contained no information on the location of the NORDFJORD and COMMSTA Kodiak routinely receives radio signals from all over the world, the NPSC immediately began a communications search for persons who might have had information regarding the location of the vessel.

The communications search included issuing an Urgent Marine Information Broadcast (UMIB) at 0205 requesting that anyone with information regarding the NORDFJORD's position to notify the Coast Guard, contacting a representative of the vessel's owner at 0303, and contacting the harbor master in Dutch Harbor, Alaska at 0331. The resulting information was conflicting. The owner's representative's information placed the NORDFJORD in the middle of the Gulf of Alaska (about 600 miles southeast of Air Station Kodiak), and the information provided by the Dutch Harbor harbor master placed the NORDFJORD in Bristol Bay (about 400 miles southwest of Air Station Kodiak). The NPSC then contacted the vessel's agent who provided the name and telephone number of the owner.

^{2/} Marine Accident Report--*Fishing Vessel M/V LOBSTA-1 Capsizing and Sinking in the Atlantic Ocean, Point Judith, Rhode Island, September 23, 1978* (NTSB/MAR-80/06).

It was later determined that the information from sources in Dutch Harbor were incorrect. Since the NORDFJORD had not departed Neah Bay, Washington, until about 0400 on September 16 and the vessel's maximum speed was about 10 knots, the NORDFJORD would have proceeded only about 700 nmi by 0200 on September 19. The approximate distance from Neah Bay to Unimak Pass is 1,700 nmi. Thus, the information from Dutch Harbor may have either referred to another vessel named NORDFJORD or been based on old information that the NORDFJORD should have already been in Bristol Bay fishing.

At 0430, the NPSC contacted the owner by telephone and the owner informed the NPSC that he had talked with the vessel at 2100 on September 18, and at that time, the NORDFJORD was about 900 miles from Unimak Pass and that the vessel was on a "straight rhumb line transit" from Seattle to Unimak Pass. While the NPSC was evaluating the information from the owner regarding the probable location of the NORDFJORD, COMMSTA Kodiak received a distress call at 0503 from the fishing vessel AMBER DAWN that they were sinking near Atka Island (about 650 miles southwest of Kodiak). After evaluating the AMBER DAWN situation, the NPSC at 0525 ordered the "ready" C-130 aircraft at Air Station Kodiak launched to aid the AMBER DAWN.

After ordering the "ready" C-130 launched to aid the AMBER DAWN, the NPSC, based on the new information provided by the owner, had to decide whether or not to launch a second C-130 from Kodiak to search for the NORDFJORD. In the judgment of the NPSC, there was still conflicting information regarding the position of the NORDFJORD, and the information provided by the owner was not specific enough to conduct an effective search about 600 miles from Kodiak. Although the owner had provided an approximate trackline and distance from Unimak Pass, he did not provide an accurate position. At 0738, the owner's son-in-law informed the NPSC that the NORDFJORD had not proceeded on a "straight rhumb line route" from Seattle to Unimak Pass, but instead, it had proceeded about 140 miles along the Canadian coast before taking a straight route to Unimak Pass. Also, the owner had not obtained a position from the NORDFJORD at 2100 on September 18, but only the information that the vessel was "900 miles of Unimak Pass." This was only an approximate location and was not based on any navigational determination. At 0940, the NPSC decided to launch a C-130 to search for the NORDFJORD. The aircraft was launched at 1146.

Even if the NPSC had decided to launch a second C-130 to search for the NORDFJORD after the "ready" C-130 was ordered launched at 0525, Air Station Kodiak probably could not have launched a second C-130 aircraft to search for the NORDFJORD before about 0730 because the air station only maintains one "ready" C-130, and it takes about 2 hours to recall the crew and prepare a second C-130 for flight. The Safety Board believes that the immediate actions taken by the NPSC to initiate a UMB and otherwise attempt to determine the last known position of the NORDFJORD were appropriate. Because the information received by the NPSC between 0253 and 0420 was conflicting and the information received by the NPSC from the owner at 0430 was imprecise and placed the NORDFJORD about 600 miles (about 2 hours flying time) from the nearest Coast Guard air station at Kodiak, the Safety Board believes that the decision by the NPSC to wait to launch an aircraft until more information could be obtained was reasonable.

The Safety Board considered what effect the decision by NPSC to wait until 0940 before ordering an air search may have had on the survival of the crew of the NORDFJORD. Because there was only one brief distress call and there was no

vessel debris found, the Safety Board believes that the NORDFJORD probably sank within minutes of the distress call at 0201. Assuming that the NPSC had made a decision to launch an aircraft about 0530 after the "ready" C-130 was ordered launched to aid the AMBER DAWN, another aircraft could not have been launched until about 0730 and would not have reached the estimated position of the NORDFJORD until about 0930 or about 7.5 hours after the vessel probably sank. Since the survival time without thermal protection in the approximately 50°F water was 1 to 6 hours, even an aircraft launched at 0730 would have been on scene too late to render any assistance.

Since the cloud ceiling in the search area was about 1,300 feet above the water, the search altitude of the aircraft and the visual detection range of the crew was limited. Consequently, the Safety Board believes that even if the initial search datum had been based on accurate information, the probability of rapidly spotting survivors without an extended search would have been minimal. Moreover, if a C-130 had found a survivor in the water, the aircraft had no rescue capability and could only have dropped a liferaft or directed a vessel to the survivor. Had the crew donned exposure suits or had been able to enter the vessel's liferaft, the approximately 4-hour time difference between the actual launch time of the first search aircraft for the NORDFJORD at 1146 and a launch time of about 0730 probably would not have affected survival. The expected survival time for persons wearing exposure suits is 21 to 37 hours, and the first aircraft was on scene searching within 12 hours; persons in a liferaft can survive for several days. However, since there were no known EPIRB signals and the vessel's liferaft was reportedly equipped with an EPIRB, it is likely that the crew were not able to board the liferaft. Therefore, the Safety Board does not believe that the decision to wait until 0940 to launch a search was critical to the survival of any crewmember.

However, the Safety Board also believes that after ordering the "ready" C-130 launched to aid the AMBER DAWN at 0525, the NPSC should have directed Air Station Kodiak to place another aircraft in the "ready" status, pending receipt of more accurate or confirming information of the NORDFJORD's position. After the "ready" C-130 was launched, Air Station Kodiak followed normal Coast Guard procedures and took no immediate action to alert a second flightcrew or prepare a second aircraft to assume a "ready" status. The Safety Board believes that this policy should be revised. If Air Station Kodiak or the NPSC had anticipated the need for a search aircraft for the NORDFJORD case and began recalling a flightcrew and preparing a second aircraft as soon as the "ready" aircraft was launched, the airborne search for the NORDFJORD could have been initiated sooner. Although the Safety Board does not believe that the actual launch time in the NORDFJORD case was critical to survival of the crewmembers, it could be critical in other cases. Therefore, the Coast Guard should revise its policy of having only one "ready" aircraft when more than one life-threatening search and rescue case is occurring at the same time.

In 1985, the Coast Guard established a voluntary safety program aimed at promoting voluntary vessel and crew safety in the U.S. fishing industry. Despite the Coast Guard's publication of voluntary vessel and crew operating standards in 1985, the publication of the NPFVOA *Vessel Safety Manual* in 1986, and the establishment of industry-sponsored safety courses, the owner of the NORDFJORD was not even aware of the Coast Guard voluntary fishing vessel safety program at the time of the accident. In addition, the captain of the NORDFJORD had had no training in vessel safety. Since the normal measure of a captain's worth is the ability to locate and catch fish for the owner, there is little, if any, incentive for a

fishing vessel captain to take time off from fishing and pay for safety training. Similarly, there is little or no incentive for fishing vessel crewmembers to seek safety training. The Safety Board has addressed the need for the licensing of commercial fishing vessel captains and the training of fishing vessel captains and crewmembers in a number of accident reports ^{3/} and in its 1987 commercial fishing vessel safety study. ^{4/} In its 1985 report on the AMAZING GRACE accident, the Safety Board issued a recommendation to the Coast Guard:

M-85-68

Seek legislative authority to require the licensing of captains of commercial fishing vessels, including a requirement that they demonstrate minimum qualifications in vessel safety including rules of the road, vessel stability, firefighting, watertight integrity, and the use of lifesaving equipment.

This recommendation was also reiterated in the Safety Board's reports on the SANTO ROSARIO, the AMERICUS/ALTAIR, and the LARK accidents and in the Safety Board's fishing vessel safety study.

In its response of January 8, 1986, the Coast Guard replied that it did not concur with this recommendation. The Coast Guard has emphasized a voluntary approach based on a set of voluntary guidelines and a training program developed by the NPFVOA. Based on the Coast Guard response, the Safety Board on April 3, 1986, classified the recommendation "Open--Unacceptable Action" and asked the Coast Guard to reconsider its position because such voluntary programs have not been successful in the past, and the Safety Board believes that mandatory licensing would be more effective. On October 15, 1986, the Coast Guard replied that it still did not concur with this recommendation and stated, "Our voluntary approach to fishing vessel safety and training is a viable alternative to seeking legislative authority to require the licensing of captains of commercial fishing vessels." On October 9, 1987, the Safety Board again requested the Coast Guard to reconsider Safety Recommendation M-85-68 based on the information contained in the Safety Board's fishing vessel safety study. On March 11, 1988, the Coast Guard replied:

This recommendation is not concurred with.

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The Coast Guard feels [that its] voluntary program has the potential for significantly improving safety in the commercial fishing industry. It is not a panacea, but before taking the more radical step of

^{3/} Marine Accident Reports--Loss of the U.S. Fishing Vessel AMAZING GRACE about 80 Nautical Miles East of Cape Henlopen, Delaware, about November 14, 1984 (NTSB/MAR-85/07); Capsizing of the U.S. Fishing Vessel AMERICUS and Disappearance of the U.S. Fishing Vessel ALTAIR, Bering Sea, North of Dutch Harbor, Alaska, February 14, 1983 (NTSB/MAR-86/01); Sinking of the U.S. Fishing Vessel SANTO ROSARIO, about 35 Nautical Miles East of New Smyrna Beach, Florida, July 23, 1984 (NTSB/MAR-86/06); and Capsizing and Sinking of the U.S. Fishing Vessel LARK, Atlantic Ocean Near Nantucket Island, Massachusetts, October 9, 1987 (NTSB/MAR-88/05).

^{4/} Safety Study--Uninspected Commercial Fishing Vessel Safety (NTSB/SS-87/02).

requiring these masters to be licensed, the voluntary program should be given a chance to demonstrate how effective it can be. Since implementing this program, fishing vessel casualty rates for 1986 and 1987 have decreased. In our view, part of this improvement may be attributed to the voluntary program.

Another factor to be considered is the cost to the Federal government necessary to accomplish this goal. For the 30,165 fishing vessels over 5 net tons and the approximately 100,000 persons in the fishing industry, it is estimated that 75,000 new licenses would be issued. At 4.5 hours per license and 1500 hours per licensing official available annually, this would require 225 staff years of additional effort by the Coast Guard. Using an average salary of \$40,000 per official, this represents a cost of \$9 million. In addition, the renewal of those licenses would require an additional 100 staff years over each five year period, or an additional \$800,000 annually. It is unlikely that additional resources of this magnitude will be forthcoming, especially when the gain in overall safety is questionable. Accordingly, the Coast Guard does not intend to seek any other legislative authority concerning this issue, nor are there plans to further pursue the matter should H.R. 1841/S. 849 fail. We therefore request that this recommendation be classified as closed.

On June 7, 1988, the Safety Board notified the Coast Guard that the Board would continue to classify Safety Recommendation M-85-68 "Open--Unacceptable Action."

The Safety Board believes that the apparent lack of any formal safety training of the captain and crew of the NORDFJORD is additional evidence of the limitations of the Coast Guard voluntary safety program and thus the need for the licensing of fishing vessel captains. A mandatory program would require captains to obtain minimum safety training and would require owners to hire only licensed captains. Coast Guard statistics show that between 1981 and 1984 about 250 commercial fishing vessels a year were lost and 75 fishermen per year lost their lives. Between 1978 and 1987, the Safety Board investigated 207 fishing vessel accidents with a total estimated property loss of over \$165 million. There were 147 deaths and 30 injuries as a result of these accidents. Thus, the annual property loss of fishing vessels is about \$200 million per year plus an additional \$30 million per year in lives lost based on a value of \$400,000 per person. The Safety Board believes that the Coast Guard estimated cost of a licensing program for fishing vessel captains is reasonable in light of the large property loss to fishing vessels each year. The Safety Board suggests that the direct cost to the Coast Guard could be recovered if the Coast Guard charged a license fee. Based on the Coast Guard cost estimates, the 5-year license fee would be less than \$175 per license. Therefore, the Safety Board again reiterates Safety Recommendation M-85-68.

As a result of its fishing vessel safety study, the Safety Board issued safety recommendations regarding the training of commercial fishing vessel crewmembers:

M-87-51

Establish minimum safety training standards for all commercial fishermen, commensurate with their responsibilities, for all types of uninspected commercial fishing vessels.

M-87-52

Seek legislative authority to require uninspected commercial fishing vessel captains/owners to provide safety training to all crewmembers.

On March 11, 1988, the Coast Guard replied:

This recommendation [M-87-51] is partially concurred with. The establishment and use of industry training courses as discussed in Voluntary Standards for U.S. Uninspected Commercial Fishing Vessels (NVIC 5-86) and the use of the *Vessel Safety Manual* will accomplish this goal. The *Vessel Safety Manual*, which was written by and for fishermen, establishes recommended training standards for emergency procedures; for fire prevention, detection and extinguishment; and for other safety practices aboard fishing vessels. Accordingly, no further Coast Guard action on this recommendation is anticipated, and we therefore request it be classified as closed.

This recommendation [M-87-52] is partially concurred with. The Coast Guard feels it is important to raise the overall level of safety on commercial fishing vessels. However, we believe the establishment and use of industry training courses as discussed in Voluntary Standards for U.S. Uninspected Commercial Fishing Vessels (NVIC 5-86) and the use of the *Vessel Safety Manual* will accomplish this goal. The *Vessel Safety Manual* is specifically designed for crewmembers and establishes recommended training standards for emergency procedures; fire prevention, detection and extinguishment; and, safety aboard fishing vessels. The NPFVOA now has its Safety & Survival at Sea videotapes available to the public. They are based on the NPFVOA Crew Training Program and complement the *Vessel Safety Manual* by bringing this important part of safety to the vessel and its crew. Only after these voluntary programs have been given a chance to work can we determine if we need legislative authority to provide an adequate level of safety training on commercial fishing vessels.

On June 7, 1988, the Safety Board classified Safety Recommendations M-87-51 and -52 "Open--Unacceptable Action."

As part of the Safety Board's 1987 fishing vessel safety study, persons who worked on the *Safety Notes for the Alaskan Fisherman* and the *Atlantic Fisherman's Handbook* were interviewed. These individuals stated that both documents were developed and published to address the high number of fishing vessel losses during the 1973-74 fishing season. These persons commented that a continuing, mandatory training program rather than a voluntary program would improve safety, and that voluntary efforts are good, but do not have the staying power to focus on an issue. They believed that the NPFVOA training program and the *Vessel Safety Manual* would be helpful, but that the training program and safety manual would have very little impact over the long term because most owners, operators, captains, and crewmembers would not or could not attend due to the cost and inconvenience. The Safety Board agrees with their assessment that a mandatory safety training program is necessary for all commercial fishing vessel crewmembers and that the Coast Guard voluntary program is inadequate to reduce the continued high loss rate of fishing vessels. As of the date of this report, only a small percentage of the

estimated 100,000 persons in the commercial fishing vessel industry have attended safety training courses. Neither the captain nor crew of the NORDFJORD had any safety training, and there was no indication from the owner that he would require safety training for the crews of his vessels despite the Coast Guard voluntary program. Therefore, the Safety Board reiterates Safety Recommendations M-87-51 and -52.

As a result of its 1987 fishing vessel safety study, the Safety Board found there is a need for the Coast Guard or its recognized representative to periodically inspect and certify commercial fishing vessels for compliance with mandatory Federal regulations and issued a recommendation to the Coast Guard:

M-87-64

Seek legislative authority to require that all uninspected commercial fishing vessels be certified and periodically inspected by the Coast Guard or its recognized representative to ensure that the vessels meet all applicable Federal safety standards.

On March 11, 1988, the Coast Guard replied:

This recommendation is not concurred with. Fishing vessel safety legislation has been introduced in Congress over the past few years (H.R. 1841, 1836, 4407, 4415, and S. 849) containing requirements ranging from mandatory carriage of basic safety equipment to full Coast Guard inspection. One of the two bills receiving serious consideration, H.R. 1841, may place existing fish processing vessels under Coast Guard inspection.

The Coast Guard supports the emphasis on lifesaving equipment in proposed legislation. During recent congressional hearings, however, the Coast Guard stressed voluntary construction/maintenance standards versus mandatory standards. Most fishing vessel accidents are not caused by poor design or maintenance. Much of the fishing vessel fleet is actually well maintained. Most fishing vessel casualties are caused by human errors, and therefore would not be effectively prevented by a periodic inspection program. In addition, the Coast Guard does not have the resources to establish and conduct a periodic inspection program for the more than 30,000 existing commercial fishing vessels, or even to oversee the delegation of inspection authority to other organizations.

On June 7, 1988, the Safety Board classified Safety Recommendation M-87-64 "Open--Unacceptable Action."

Although the Safety Board can not determine the cause of the sinking of the NORDFJORD in the middle of the Gulf of Alaska because of the lack of any evidence, the disappearance of the NORDFJORD does support the need for mandatory certification and inspection. The NORDFJORD had just completed an extensive shipyard maintenance period when it sank, but there was no independent inspection of the condition of the vessel or the adequacy of the repairs. Consequently, the Safety Board had to rely on information from the owner and employees of the owner concerning the condition of the NORDFJORD at the time of its disappearance. In addition, the NORDFJORD was not required to meet any

government or industry construction or repair standards from the time it was built in 1979. Therefore, the Safety Board reiterates Safety Recommendation M-87-64.

As a result of its investigation of this accident, the National Transportation Safety Board also recommends that the U.S. Coast Guard:

Amend Coast Guard Navigation and Vessel Inspection Circular No. 5-86, Voluntary Standards for U.S. Uninspected Commercial Fishing Vessels, to recommend float-free, automatically-activated emergency position indicating radio beacons be installed on commercial fishing vessels. (Class II, Priority Action) (M-88-47)

Amend Coast Guard search and rescue procedures, to require that a second crew and aircraft be placed in the "ready" status whenever the primary "ready" aircraft would not be available for other search and rescue missions such as if the primary "ready" aircraft was on an extended flight or when concurrent search and rescue missions can be anticipated. (Class II, Priority Action) (M-88-48)

Also as a result of its investigation, the Safety Board issued Safety Recommendations M-88-49 through -51 to the North Pacific Fishing Vessel Owners' Association.

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


By: Jim Burnett
Chairman