



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** October 9, 2009

**In reply refer to:** M-09-9 and -10

Admiral Thad Allen  
Commandant  
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On March 23, 2008, the U.S. fish processing vessel *Alaska Ranger* sank in the Bering Sea 120 nautical miles west of Dutch Harbor, Alaska. The vessel, a 35-year-old freezer-trawler owned by Fishing Company of Alaska, Inc., of Seattle, Washington, was part of the Seattle-based “head-and-gut” (H&G) fleet that operates in Alaskan waters. The *Alaska Ranger* had departed Dutch Harbor the day before to fish for mackerel at Petrel Bank, 500 miles to the west.

Forty-seven people were on board the *Alaska Ranger*, including two deck officers (a master and a mate), three engineering officers (a licensed chief engineer and two assistant engineers, one licensed and one unlicensed), five Japanese fishery specialists, and two observers from the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration. Most of those on the vessel worked in the factory space as fish processors. Five of those on board died in the accident—the master, the mate, the chief engineer, the fishmaster, and one of the fish processors.

The sinking of the *Alaska Ranger* was investigated jointly by the U.S. Coast Guard and the National Transportation Safety Board (NTSB), with the Coast Guard as the lead investigative agency. The NTSB participated fully in the Coast Guard Marine Board of Investigation that convened immediately after the sinking and prepared an independent report on the accident.<sup>1</sup> The NTSB determined that the probable cause of the sinking of the *Alaska Ranger* was uncontrolled, progressive flooding due to a lack of internal watertight integrity and to a breach of the hull’s watertight envelope, likely caused by a physical rudder loss. Contributing to the loss of life was the vessel’s movement astern, which likely accelerated the flooding and caused the liferafts to swing out of reach of many crewmembers.

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<sup>1</sup> *Sinking of U.S. Fish Processing Vessel Alaska Ranger, Bering Sea, March 23, 2008*, Marine Accident Report NTSB/MAR-09/05 (Washington, DC: National Transportation Safety Board, 2009). The report will be available on the NTSB’s website at <<http://www.nts.gov/publictn/2009/MAR0905.htm>>.

## Licensing and Manning

As part of its investigation of the accident, the NTSB analyzed the licensing and manning requirements applicable to the *Alaska Ranger*, consulting both the regulations pertaining to manning of uninspected vessels (46 *Code of Federal Regulations* [CFR] Part 15) and the regulations regarding licensing of deck and engineering officers (46 CFR Part 10, subparts D and E). NTSB investigators determined that both the master and the mate were properly licensed for their positions and that the *Alaska Ranger* met the manning requirements for masters at 46 CFR 15.805 and for mates at 46 CFR 15.810.

Although the *Alaska Ranger* was not required by Coast Guard regulations to carry a chief engineer, because it did so, that officer was required to be properly licensed. The chief engineer was licensed to work on fishing vessels of not more than 6,000 horsepower. According to the *Alaska Ranger's* documentation, its engines had a peak horsepower rating of 7,000, and company claims that the engine rating had been reduced to 6,000 horsepower were not substantiated. The chief engineer's license therefore did not permit him to serve in that capacity on a vessel of the *Alaska Ranger's* horsepower.

The two assistant engineers stood the engineering watch rotation of two 12-hour watches. Coast Guard regulations at 46 CFR 15.825(a) require crewmembers in charge of an engineering watch to "hold an appropriate license authorizing service as an assistant engineer." The assistant engineer who stood the watch from 0700 until 1900 every day (the day-watch assistant engineer) was licensed to serve as assistant engineer of uninspected fishing industry vessels of not more than 4,000 horsepower. Because the *Alaska Ranger* was rated at 7,000 horsepower, the day-watch assistant engineer's license was not appropriate for standing watch on that vessel.

The unlicensed assistant engineer (the night-watch assistant engineer) stood the 1900-0700 watch and was on watch at the time of the accident. The night-watch assistant engineer had worked for Fishing Company of Alaska for 17 years, was the officer with the most experience on the *Alaska Ranger*, and had substantially more than the 3 years of engineroom service required to obtain a Coast Guard license. The night-watch assistant engineer told investigators that he was in the process of applying for a license. Although the night-watch assistant engineer's actions on the night of the accident indicate that he was well-versed in the *Alaska Ranger's* engineroom equipment, regulations did not authorize him to stand an engineering watch because he was not licensed. The NTSB concluded that Fishing Company of Alaska had failed to ensure that its engineering officers met Coast Guard requirements for licensing and manning. The NTSB found no evidence, however, that the qualifications of the engineering crewmembers played a role in the accident.

In January 2008, the *Alaska Ranger* underwent a voluntary dockside examination in Dutch Harbor, conducted by a civilian Coast Guard commercial fishing vessel examiner. The same engineers were on board during the examination as at the time of the accident. The Coast Guard summary of the examination indicated that the "Documentation" and "Personnel" components passed inspection. The NTSB concluded that the Coast Guard failed to identify that the *Alaska Ranger's* engineers were not properly certificated during the January 2008 dockside examination. As a result, the NTSB recommends that the Coast Guard conduct refresher training

for its marine inspectors and commercial fishing vessel examiners on the licensing and manning regulations that apply to commercial fishing industry vessels.

### **Coast Guard Inspection Authority**

In 1987, the NTSB published a study addressing the safety of uninspected commercial fishing vessels.<sup>2</sup> The study reviewed 203 fishing vessel accidents investigated by the NTSB over an 18-year period. The study was prompted by Coast Guard data indicating a dramatic rise in fatalities from such accidents. In its study, the NTSB addressed licensing requirements for masters, training requirements for masters and crewmembers, minimum standards for vessel stability, requirements for basic safety equipment, alcohol and drug use in commercial fishing vessel operations, and oversight of fishing vessel safety. The study concluded that “the commercial fishing vessel industry is one of the highest risk industries in the world and has the poorest safety record of any industry in the United States.”

A year after the NTSB published its safety study, Congress passed the Commercial Fishing Industry Vessel Safety Act of 1988. The Coast Guard’s new regulations for commercial fishing vessels incorporated many of the recommendations in the NTSB’s safety study, including requirements for commercial fishing vessels to have basic lifesaving equipment and emergency position-indicating radio beacons on board. According to the Coast Guard, fatalities among fishermen have decreased from an average of 120 per year before the act was passed to about 42 per year.<sup>3</sup>

In its 1987 safety study, the NTSB asked the Coast Guard to 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 (Safety Recommendation M-87-64). The NTSB reiterated the recommendation four times, as a result of its investigations of a series of fatal accidents involving uninspected vessels in the Alaska fishing fleet: the sinking of the *Uyak II* in 1987, the sinking of the *Wayward Wind* in 1988, the sinking of the *Aleutian Enterprise* in 1990, and the sinking of the *Sea King* in 1991.<sup>4</sup>

In November 1992, the Coast Guard, stating that “the material condition of the vessel and equipment was a direct cause for over 85 percent of the known vessel-related casualties,” submitted a plan to Congress to require inspection of all commercial fishing industry vessels.

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<sup>2</sup> *Uninspected Commercial Fishing Vessel Safety*, Safety Study NTSB/SS-87/02 (Washington, DC: National Transportation Safety Board, 1987).

<sup>3</sup> Statement by Coast Guard Assistant Commandant for Prevention to Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, U.S. House of Representatives, April 25, 2007, p. 8.

<sup>4</sup> *Capsizing and Sinking of the U.S. Fishing Vessel Uyak II in the Gulf of Alaska Near Kodiak Island, Alaska, November 5, 1987*, Marine Accident Report NTSB/MAR-88/08 (Washington, DC: National Transportation Safety Board, 1988); *Sinking of the U.S. Fishing Vessel Wayward Wind in the Gulf of Alaska, Kodiak Island, Alaska, January 18, 1988*, Marine Accident Report NTSB/MAR-89/01 (Washington, DC: National Transportation Safety Board, 1989); *Capsizing and Sinking of the Fish Processing Vessel Aleutian Enterprise in the Bering Sea, March 22, 1990*, NTSB/MAR-92/03 (Washington, DC: National Transportation Safety Board, 1992); and *Capsizing and Sinking of the U.S. Fishing Vessel Sea King Near Astoria, Oregon, January 11, 1991*, Marine Accident Report NTSB/MAR-92/05 (Washington, DC: National Transportation Safety Board, 1992).

The plan recommended a risk-based inspection program based on the length of a vessel rather than on whether it was defined as a fishing vessel, fish processing vessel, or fish tender vessel. Congress failed to grant legislative authority to the Coast Guard for its inspection plan. On August 20, 1993, the NTSB classified Safety Recommendation M-87-64 “Closed—Acceptable Alternate Action,” on the grounds that the Coast Guard’s submittal of the plan had fulfilled the intent of the recommendation. The Board noted that it considered the Coast Guard’s action “an important first step” toward improving commercial fishing vessel safety and further, that “an effective validation or oversight program is the only way to ensure that fishing vessels meet the intended safety standards.”

The safety requirements resulting from the Commercial Fishing Industry Vessel Safety Act of 1988 have had a positive effect. Nevertheless, the commercial fishing industry continues to have the worst safety record of all U.S. industries. A Coast Guard study of fishing vessel casualties published in 2008 found that over three-quarters of fishing vessel fatalities between 1992 and 2007 resulted from water exposure, and that the primary event leading to fatality from water exposure was vessel loss.<sup>5</sup> The study concluded: “Factors leading to vessel loss will have to be addressed in order to reduce some fatalities below current levels, especially for incidents that occur suddenly, such as sinkings and capsizings.”

Although Congress did not authorize the inspection plan submitted by the Coast Guard 17 years ago, the NTSB continues to believe that an inspection program is the best way to ensure that fishing vessels will be designed, constructed, equipped, maintained, and operated as intended. Without legislative authority for inspection, the Coast Guard must rely on voluntary programs to examine the operating condition of uninspected commercial fishing vessels. The Coast Guard’s voluntary programs include dockside examinations and the Alternate Compliance and Safety Agreement (ACSA), formed in 2006 to provide a level of safety for the Alaska fleet that would be equivalent to that resulting from compliance with the requirements for class and load line certification.

ACSA resulted from the Coast Guard’s investigation of the sinking of the fishing vessel *Arctic Rose* in 2001, which resulted in 15 deaths, and the 2002 explosion, fire, and sinking of the fishing vessel *Galaxy* in the Bering Sea, which resulted in 3 deaths. The ACSA policy document<sup>6</sup> identified the operations of the H&G fleet as presenting significant safety risks because of “fleet-wide deficiencies in vessel stability, watertight integrity, and maintenance . . . [and in] emergency training, drills, and crew safety competencies.” The policy document also noted that

H&G operations require a sizeable crew, processing and freezing machinery, hazardous gases (anhydrous ammonia or Freon), and large amounts of packaging materials on board. Additionally, because of their ability to freeze, package and store frozen catch, these vessels can operate in the most remote areas of the Bering Sea, far from search and rescue support.

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<sup>5</sup> *Analysis of Fishing Vessel Casualties: A Review of Lost Fishing Vessels and Crew Fatalities, 1992–2007* (Washington, DC: Department of Homeland Security, U.S. Coast Guard, Office of Investigations and Analysis, October 2008).

<sup>6</sup> “Alternative Compliance and Safety Agreement (ACSA) for the Bering Sea/Aleutian Island and Gulf of Alaska Freezer Longliner and Freezer Trawler Fishing Fleets” (Washington, DC: Department of Homeland Security, U.S. Coast Guard, June 15, 2006).

The NTSB's investigation of the *Alaska Ranger* sinking found that ACSA has improved the safety of the vessels enrolled in the program, but that the effectiveness of the program is limited because it is voluntary. The Coast Guard can identify vessels in poor condition only if they participate in the program. Similarly, the dockside safety examination can identify safety deficiencies only if owners opt to have their vessels examined (although in Alaska a high degree of participation results from NMFS requirements for vessels that carry fisheries observers<sup>7</sup>). The NTSB therefore concluded that the Coast Guard's ability to address safety deficiencies in commercial fishing industry vessels is limited by its lack of statutory inspection authority.

The NTSB cannot say whether inspection could have prevented the sinking of the *Alaska Ranger*. However, the NTSB continues to believe that mandatory inspection is essential for improving safety in the fishing industry and reducing loss of life. Under a Coast Guard inspection regime, fishing industry vessels could be subject to requirements for design, construction, machinery, safety equipment, and stability; could receive initial and periodic examinations; and could require prior approval before being modified. The NTSB therefore recommends that the Coast Guard seek legislative authority to require that all commercial fishing vessels be inspected and certificated by the Coast Guard to ensure that the vessels provide an appropriate level of safety to those on board.

Most Coast Guard safety regulations, for example, those applying to passenger vessels, are based on risk factors such as number of persons carried, distance traveled from shore, and hours of operation. The Coast Guard regulations developed after passage of the Commercial Fishing Vessel Industry Safety Act of 1988 incorporate the distinction between fishing vessels, fish processing vessels, and fish tenders codified in 1984. As a consequence, the applicability of safety regulations to commercial fishing industry vessels is based on vessel type rather than on degree of risk. Thus, a vessel determined to meet the definition of a fishing vessel does not have to meet the more-stringent requirements that apply to a fish processing vessel, even if both vessels have the same size crews, operate in the same area, and carry similarly dangerous machinery. The NTSB believes that when the Coast Guard develops inspection rules for commercial fishing industry vessels, as recommended here, the inspection criteria should be based on the degree of risk faced by a vessel rather than on a definition of its service. The NTSB thus agrees with an approach such as the one the Coast Guard took in 1992 when it proposed an inspection plan based on a risk factor rather than on vessel type.

## Recommendations

As a result of its investigation of the sinking of the *Alaska Ranger*, the NTSB recommends that the Coast Guard take the following action:

Conduct refresher training for your marine inspectors and commercial fishing vessel examiners on the licensing and manning regulations that apply to commercial fishing industry vessels. (M-09-9)

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<sup>7</sup> NMFS requires a vessel that carries fishery observers to have a current decal verifying that it has passed a dockside safety examination. Without the decal, a NMFS observer is not allowed to ride the vessel. Without a NMFS observer, the vessel is not allowed to fish.

Seek legislative authority to require that all commercial fishing vessels be inspected and certificated by the Coast Guard to ensure that the vessels provide an appropriate level of safety to those on board. (M-09-10)

The NTSB has also issued recommendations to NMFS, the North Pacific Fishery Management Council, and Fishing Company of Alaska in connection with the *Alaska Ranger* accident. We urge you to take action on the safety recommendations in this letter. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations. In your response, please refer to Safety Recommendations M-09-9 and -10. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: [correspondence@ntsb.gov](mailto:correspondence@ntsb.gov). If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our secure mailbox. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Chairman HERSMAN, Vice Chairman HART, and Member SUMWALT concurred in these recommendations.

*[Original Signed]*

By: Deborah A.P. Hersman  
Chairman