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National Transportation Safety Board

Washington, D C. 20594

Safety Recommendation

Date: JUN 26 1997

In Reply Refer To: M-97-56 and -57

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International Council of Cruise Lines
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On the evening of June 22, 1995, the Liberian-registered passenger vessel *Star Princess*, carrying 1,568 passengers and 639 crewmembers, was en route from Skagway to Juneau, Alaska, via the Lynn Canal under the direction of a southeast Alaska pilot. At 0142 on June 23, the *Star Princess* grounded on the submerged Poundstone Rock in Lynn Canal, about 21 miles north of Juneau. The vessel's bottom sustained significant damage on the starboard side, including the rupture of oil tanks, which resulted in the loss of at least 5 gallons of oil. The vessel was piloted to safe anchorage at Auke Bay, Alaska, (about 10 miles north of Juneau) to assess damage and debark passengers. No injuries or deaths resulted from this accident. The total cost resulting from required repairs and the delay before the vessel could return to service was estimated at \$27.16 million.¹

The National Transportation Safety Board determined that the probable cause of the grounding of the *Star Princess* was the pilot's poor performance, which may have been exacerbated by chronic fatigue caused by sleep apnea. Contributing to the accident was the fact that the pilot and the watch officers did not practice bridge resource management.

Investigators found that the *Star Princess* pilot typically navigated the vessel without involving the ship's watch officers in navigation tasks or informing them of his piloting intentions. Watch officers stated that the pilot did not look at the ship's established trackline as drawn on their chart, nor did he inform the watch officers of his own intended tracklines. The

¹For further information, read Marine Accident Report -- *Grounding of the Liberian Passenger Ship Star Princess on Poundstone Rock, Lynn Canal, Alaska, June 23, 1995* (NTSB/MAR-97/02).

pilot transferred the conn without involving the navigational watch, thereby not communicating to the watch officers the information he considered important for the ship's safe navigation. For their part, neither of the watch officers took the initiative to seek such information or to communicate with the pilot regarding navigation issues.

Although the second officer was responsible for the ship's safety during this watch, he did not effectively monitor the pilot's passage. He did not question the pilot's decisions, even when he knew the pilot was not following the vessel's established trackline. Had he discussed the tracklines with the pilot, the pilot might have been more alert to the grounding danger.

The available information indicates that the second officer and third officer left all navigational decisions to the pilot, as they considered him responsible for navigation. While they plotted position fixes according to standing policy, the watch officers did not use the fixes to project the *Star Princess's* course based on time or distance. In the half hour before the grounding, the watch officers took two fixes but did not make any effort to project the ship's future track from these fixes. Had they done so, they should have perceived that the pilot's course would bring them precariously close to Poundstone Rock. The Safety Board concluded that had the watch officers monitored the pilot's navigation, projected the course ahead from their fixes, and communicated this information to the pilot, he would have had time to take action to avoid grounding.

The pilot and the watchstanders conducted their parts of the watch almost independently of each other. Moreover, neither the pilot nor the watchstanders used the equipment available to them to properly monitor the progress of the *Star Princess*. The Safety Board concluded that effective management of resources and coordination of duties were not practiced on the *Star Princess* at the time of, or immediately before, the accident.

The *Star Princess* master and bridge watch officers had not received bridge resource management (BRM) training before the accident. The Safety Board has advocated BRM training for all bridge watch officers as well as pilots. The Safety Board considers that in Alaska, given the relatively long periods pilots spend on cruise vessels, pilots and bridge watch officers would particularly benefit from attending BRM training together. In the southeast Alaska cruise industry, pilots typically serve aboard cruise vessels for 3 to 12 days. Under such circumstances, watch officers can become used to, and rely too strongly on, the presence of a pilot on the vessel. The watch officers on duty during the *Star Princess* grounding were convinced that the pilot had the situation under control in part because they were used to relying on this pilot and his expertise. They chose not to interfere with his decisions or actions — even though they knew the vessel was approaching dangerously near to Poundstone Rock — because they had full confidence in the pilot's abilities.

Providing BRM training would give pilots and bridge watch personnel the opportunity to interact with each other in a nonconfrontational and safe environment. Joint training could also provide pilots and bridge watch members with greater understanding concerning the problems

faced in carrying out their respective responsibilities. According to the director² of a major BRM training center:

- Training attended jointly by pilots and deck officers is more realistic in that the roles during simulations are played by the actual parties.
- Training attended jointly by pilots and deck officers has the advantage of improving communication between the two professions, as they can sharpen communication skills with coaching in an instructional setting rather than within the pressures of the work setting. It should be noted that communication skills tend to be at their optimum at the end of the training period and are expected to decline to some extent when the parties return to their normal work routines. Hence, recurrent training is expected and needed.
- Joint training provides an opportunity for deck officers and pilots to become personally acquainted and to learn how the other reacts during simulated portrayals of critical incidents. In addition, they can learn about the other's corporate cultures and company or organizational procedures.

The mutual understanding developed through joint BRM training would contribute to more efficient use of equipment and better coordination of activities, which would result in enhanced safety. The Safety Board therefore concluded that to learn how to work effectively as teams, pilots and watch officers in Alaska should take BRM training together.

The Safety Board understands that the scheduling of such joint training is difficult. The results, however, would be well worth the time and effort. Training that provides opportunity for interaction between pilots and watch officers could make both pilots and watch officers comfortable with a more supportive model of bridge watch operations. Pilots would learn to view monitoring by watch officers as a useful tool rather than a challenge, and watch officers would learn to contribute to the pilot's effectiveness.

The Safety Board was also concerned about some decisions made by the *Star Princess* master following the accident. About 1 minute after the *Star Princess* grounded, at 0142, the pilot radioed the U.S. Coast Guard to advise it of the accident. The master and crew immediately began to check the vessel for damage and flooding and, although four tanks were flooding and hydraulic oil had leaked from the starboard shaft lubrication system, the ship was determined to be stable. As a precaution, lifeboats were readied to be lowered. The master also questioned the off-watch pilot about where the vessel might be beached, if necessary.

At 0155 the master notified the crew of the grounding and told crewmembers to advise those passengers who were awake of the accident. He did not wake the sleeping passengers to tell

²Information obtained during a March 19, 1997, telephone conversation with Harry J. Crooks, Director, RTM STAR Center, Toledo, Ohio.

them that there had been a grounding, that the situation was under control, or that they would be kept informed. He did not direct any passengers to go to their muster stations. The master said that he thought waking the passengers would have upset them unnecessarily.

On the other hand, the master also clearly considered the situation serious enough to call for the readying of lifeboats, and he explored the possibility of beaching the damaged vessel. The Coast Guard, too, had been alerted. The alternative not taken by the master — notifying all passengers shortly after the grounding — would have allowed them time to prepare for a possible evacuation, rather than being awakened suddenly when and if the vessel became endangered.

The damage assessment by divers was not made until between 0437 and 0655. An announcement to all passengers informing them of the situation was not made until 0918. Had the initial damage assessment in this instance been incorrect and the vessel been more seriously damaged, the passengers and crew could have been exposed to undue risk. Given that 2,207 passengers and crewmembers were on the ship, the delay before a thorough damage assessment was made consumed valuable time that might have been needed to muster everyone at lifeboat stations had the ship been in danger and a rapid evacuation necessary. Therefore, the Safety Board concluded that the master did not give the passengers timely notification about the situation; had the passengers needed to evacuate, they would not have been prepared.

The Safety Board considers that passengers and crew should receive timely public announcements concerning emergency situations that may require evacuation of the vessel. Timely notification allows passengers and crew to effectively manage an evacuation, if necessary, and avoids confusion and panic.

Therefore, the National Transportation Safety Board issues the following safety recommendations to the International Council of Cruise Lines:

Advise your members about the *Star Princess* accident and encourage those members that operate vessels in the Alaska cruise trade to participate in bridge resource management training, including such training that involves both bridge watch officers and pilots. (M-97-56)

Encourage your members to ensure that masters provide immediate notification to passengers and crew of emergency situations that have been assessed as having the potential to require evacuation of the vessel. (M-97-57)

The Safety Board also issued Safety Recommendations M-97-41 through -43 to the U.S. Coast Guard, M-97-44 and -45 to the State pilot commissions, M-97-46 and -47 to the Alaska Board of Marine Pilots, M-97-48 to the Southeastern Alaska Pilots Association, M-97-49 and -50 to the Alaska Coastwise Pilot Association, M-97-51 to the San Diego Bay Pilots Association, Inc., M-97-52 and -53 to Princess Cruise Lines, and M-97-54 and -55 to the American Pilots' Association.

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 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-97-56 and -57. If you need additional information, you may call (202) 314-6458.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.


By: Jim Hall
Chairman