National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 21, 2005

In reply refer to: M-05-12 and -13

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The National Transportation Safety Board (Safety Board) is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge you to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

The recommendations address the need for your company to have written go/no-go policies for transiting Tillamook Bay bar and a requirement for the passengers and crew on your vessels to wear lifejackets while transiting Tillamook Bay inlet when rough bar warnings are in effect. The recommendations are derived from the Safety Board's investigation of the capsizing of the small passenger vessel *Taki-Tooo* on June 14, 2003, and are consistent with the evidence we found and the analysis we performed.[1] The Safety Board would appreciate a response from you within 90 days addressing actions you have taken or intend to take to implement the recommendations.

On June 14, 2003, the small passenger vessel *Taki-Tooo*, a U.S. charter fishing vessel with 2 crewmen and 17 passengers on board, was en route from Garibaldi, Oregon, to the Pacific Ocean for a day of fishing. A small craft advisory was in effect for the northern Oregon and southern Washington coasts, and personnel at U.S. Coast Guard Station Tillamook Bay, after assessing the hazardous conditions at the inlet, had activated the rough bar warning signs, restricting any transit attempts across the bar by recreational boats and uninspected passenger vessels. The restriction, however, did not apply to inspected small passenger vessels such as

[1] For further information, read: National Transportation Safety Board, *Capsizing of U.S. Small Passenger Vessel Taki-Tooo, Tillamook Bay Inlet, Oregon, June 14, 2003*, Marine Accident Report NTSB/MAR-05/02 (Washington, DC: NTSB, 2005).

charter boats like the *Taki-Tooo*. At the Tillamook Bay inlet, the *Taki-Tooo* operator waited in the channel for an opening in the ocean swells so that he could cross the bar. After the *Taki-Tooo* exited the inlet and proceeded around the north jetty, a wave struck and capsized the vessel. As a result of this accident, 11 vessel occupants died and 8 suffered minor injuries.

In its analysis of events leading to the accident, the Safety Board concluded that the Coast Guard effectively communicated information about the rough bar conditions to mariners, including the master of the *Taki-Tooo.* The Board further concluded that, considering the dynamic operating environment at the bar, the decision of the *Taki-Tooo* master and the four other charter vessel masters to leave port and proceed to the bar area to make a first-hand assessment of conditions was appropriate. The conditions at the bar were subject to change, as evidenced by the statements of Coast Guard officials who indicated that, over the last 5 years, Station Tillamook Bay had imposed or lifted the bar restriction more than once on a given day.

Research evidence[2] suggests that, once at the inlet, each master would have made the decision to cross the bar based on such factors as his perception of his own personal experience and abilities, his knowledge of the capabilities of the vessel he was operating, as well as such situational factors as the size and frequency of the waves and swells. In addition, each master would have had his own personal reason for deciding to transit the bar. In the case of the *Taki-Tooo* master, his decision to cross the bar was probably influenced by a host of factors, including the specific request of his passengers for his services, his observations of sea conditions comparable to those he had seen before, his previous experience making the bar transit with this vessel, and his observation of the crossings of the other vessels before him.

Notwithstanding the information that argued against his making the crossing, notably the weather forecasts, the bar restriction, and his own knowledge of the potential hazards of making the effort, the *Taki-Tooo* master made the decision to cross the bar. The tragic consequences of his transit attempt demonstrate the faultiness of his personal decision-making and highlight the need for small passenger vessel owners and/or operators to use a systematic method for addressing the potential risks associated with bar crossings and to adopt a go/no-go operating standard after weighing the risk factors.

Most major marine entities, including the U.S. Navy, the Coast Guard, and industry carriers (passenger and freight vessels), have adopted policies and procedures based on risk-management principles to improve safety in operations. Risk management is a decision-making process that involves weighing the various factors relating to a potential hazard so that various response options can be identified. The process enables the owner and/or operator of a company to preselect the optimal response to a hazard, thus eliminating or mitigating the danger. For example, in the case of the aviation industry, Federal regulations require operators of commercial air transport operating under 14 *Code of Federal Regulations* (CFR) Part 121 to develop operating specifications that strictly delineate the conditions under which their aircraft will be allowed to operate. Unless the aircraft has certain navigation and flight control equipment and the pilot has certain qualifications, passenger- and cargo-carrying commercial air transport

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[2] G. Klein, "Applied Decision Making," in P.A. Hancock (ed.), *Human Performance and Ergonomics* (San Diego, California: Academic Press, 1999).

aircraft are forbidden from taking off or landing in clearly defined conditions of restricted visibility or adverse winds.

Risk management can be a highly formalized or a comparatively informal process, depending on the size and complexity of the operation. In the case of a small passenger boat operation such as a charter boat company, the owners and/or operators could identify waterway hazards and establish policies for eliminating or mitigating the risks involved. For example, on the day of the *Taki-Tooo* accident, the operator of the *Kerri Lin*, which was 3 feet shorter but had more propulsive power than the accident boat, cancelled his fishing trip because of the prevailing conditions. He later told Safety Board investigators that he had established an operating policy of not attempting the bar transit if the sea swell at Tillamook Bay bar was 10 feet or greater.

In the Safety Board's opinion, most small passenger vessel owners and/or operators are well aware of the risk factors that need to be considered for a hazardous bar transit: the sea state, the size and propulsive capability of the vessel, the extent of each master's experience in handling said vessel, and how often a master has crossed the bar with that vessel or comparable boats. Owners need to weigh such factors against possible unwanted outcomes, such as harmful effects on health and safety, potential damage to or loss of property, and so forth in developing a go/no-go policy for the bar transit.

Although the charter boat masters might be accomplished boat handlers, the decision to transit a potentially hazardous bar should not be a solely spontaneous action that is left to their discretion. They might have outside factors to contend with at the time when making the crossing attempt as well as subtle influences such as the desire not to disappoint the passengers who chartered the fishing expedition. In developing vessel-specific operating standards for their masters, the boat owners could be assisted by Coast Guard personnel who have the knowledge of local conditions in evaluating whether the go/no-go policies developed by the small passenger vessel owners are appropriate to attain a sufficient level of operational safety.

On the morning of the accident, before the charter boat left the marina, the *Taki-Tooo* master conducted a safety briefing for his passengers, as required by Federal regulations. He discussed the donning of lifejackets, pointed out where they were located, and told his passengers that they could don them if they wished. None elected to do so. During the transit to the inlet area, the *Taki-Tooo* first passed Station Tillamook Bay, where a small-craft advisory flag was raised and a rough bar advisory sign was illuminated, and then the Coast Guard observation tower, where another rough bar advisory sign was illuminated. The master subsequently witnessed the much larger *Norwester* encounter problems with the sea swells and received radio reports from other operators about the swells and waterway debris. Thus, despite receiving several indications that bar conditions were hazardous, the *Taki-Tooo* master did not don a lifejacket or direct the deckhand and the passengers to don lifejackets.

The results of the master's failure to mitigate the risk associated with the crossing attempt by having passengers and crew don lifejackets are telling. Of the 19 vessel occupants, 12 were not able to retrieve a lifejacket before the charter boat was swamped by a large wave. Of these individuals, only two survived. In contrast, six of the seven people who were able to retrieve lifejackets survived.

Coast Guard regulations at 46 CFR 185.508 stipulate that the master should require passengers to don lifejackets when possible hazardous conditions exist, such as when "transiting hazardous bars and inlets." The regulation followed a series of accidents in which the Safety Board recommended to the Coast Guard that passengers on the open decks of vessels be required to wear lifejackets when transiting areas of rough seas.[3]

After the *Taki-Tooo* accident, Safety Board investigators interviewed mariners who operated small passenger vessels across the Tillamook Bay bar, all of whom contended that passengers should not be compelled to don lifejackets when crossing the bar. They said that passengers found lifejackets to be uncomfortable and that requiring passengers to wear lifejackets could frighten them. The interviews revealed that the regulation puts masters in the position of acknowledging that they are exposing their passengers to hazardous conditions whenever they require them to don lifejackets, potentially increasing their perceived exposure to liability if something untoward occurs.

In the Safety Board's opinion, if charter boat operators choose to transit a waterway where a hazardous bar restriction is in effect, they should employ measures that mitigate the risk to passengers and crew. Lifejackets represent the most common sense risk-mitigation measure. Lifejackets improve the survivability of accident victims in water a number of ways: the design of the flotation device helps keep a victim's head above water, which is particularly crucial if the person is injured; the thermal qualities of the jacket provide some insulation against the cold; and the buoyancy of the safety gear keeps the person afloat, affording more time to reach safety or be rescued. Considering the multiple hazards in the *Taki-Tooo* capsizing, the use of lifejackets by all people on the open deck would have benefited them in all these ways and the number of fatalities in this accident would probably have been less.

The National Transportation Safety Board, therefore, makes the following safety recommendations to the small passenger vessel companies offering charters out of Tillamook Bay:

> Develop and implement written go/no-go policies, based on risk-management principles, regarding transiting the Tillamook Bay bar. (M-05-12)
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> Require that passengers and crew wear lifejackets while transiting the Tillamook Bay inlet when rough bar warnings are in effect. (M-05-13)

[3] Safety Recommendation M-86-113.

As a result of its investigation of the *Taki-Tooo* capsizing, the Safety Board has also issued safety recommendations to the U.S. Coast Guard and the National Marine Charter Association. In your response to this letter, please refer to M-05-12 and -13. If you need additional information, you may call (202) 314-6177.

Acting Chairman ROSENKER, and Members ENGLEMAN CONNERS, HEALING, and HERSMAN concurred in these recommendations.

Original Signed

By: Mark V. Rosenker
Acting Chairman