Testimony of

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— On —

Commercial and Passenger Vessel Safety: Challenges and Opportunities

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Good afternoon Chairman Maloney, Ranking Member Gibbs, and subcommittee members. Thank you for inviting me to testify on behalf of the National Transportation Safety Board (NTSB) to discuss our marine accident investigations and the safety lessons that we have learned from them.

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in other modes of transportation—highway, rail, marine, and pipeline. We determine the probable cause of the accidents we investigate, and we issue safety recommendations aimed at preventing future accidents. In addition, we conduct special transportation studies and coordinate the resources of the federal government and other organizations to assist victims and their family members who have been impacted by major transportation disasters. Recommendation recipients can include any entity that can improve safety, including the United States Coast Guard (USCG).

The NTSB is not a regulatory agency; we do not promulgate operating standards, nor do we certificate organizations and individuals. Instead, we advance safety through our most important product: safety recommendations. The goal of our work is to foster safety improvements for the traveling public. Although action might take years, recommendation recipients eventually act favorably on four out of five NTSB recommendations.

Today, I would like to share some of the lessons we have learned from the roughly 50 marine accidents that we typically investigate each year. In particular, I will focus on safety issues related to small passenger vessel operations, the importance of safety management systems (SMSs) in marine operations, and some of the vital lessons learned from our investigation of the October 1, 2015, sinking of the cargo ship *El Faro.*

We work closely with the USCG to investigate marine accidents, and my sincerest thanks go out to the USCG for its outstanding assistance in our investigative efforts. Our marine investigations are carried out contemporaneously with the USCG's; sometimes we reach the same conclusions, sometimes not. We greatly appreciate that the USCG sees our work as adding value, even if that means we must be at times critical of the organization's regulations and processes. Our relationship with the USCG is a collaboration focused on improving marine safety.

Small Passenger Vessel Safety

Over a 4-year period in the mid-1990s, we included "Small Passenger Vessel Safety" on our Most Wanted List of transportation safety improvements (MWL).[1] Although not all safety recommendations we have made regarding small passenger vessels have been addressed, small passenger vessel safety continues to improve by the implementation of the safety recommendations already issued. In addition, the Passenger Vessel Association developed crew emergency procedures and standards, including preincident planning for a variety of shipboard emergencies, which it distributed to its members. The association also agreed that its members would routinely provide predeparture emergency safety orientations.

[1] See the We Are Safer page regarding small vessel passenger safety on the Most Wanted List section of our website.

However, we have investigated at least three significant accidents involving small passenger vessels in recent years, which indicates that there still are significant safety gaps to be addressed.

Branson, Missouri: **Stretch Duck 7**

On July 19, 2018, the 33-foot-long, modified World War II-era DUKW[2] amphibious passenger vessel, *Stretch Duck 7*, sank during a storm that developed rapidly on Table Rock Lake near Branson, Missouri. We continue to investigate this accident in parallel with the US Attorney's criminal investigation, which has delayed our access to information vital to determining the probable cause of this accident. However, the information we have so far has helped us identify two safety issues for these types of amphibious passenger vessels: insufficient reserve buoyancy (leaving vessels vulnerable to flooding and sinking) and impediments to passenger emergency egress.

It is worth noting that these safety issues are not new. In fact, they were identified almost 20 years prior to the *Stretch Duck 7*'s sinking, after the 1999 sinking of the *Miss Majestic*, another DUKW amphibious passenger vessel, on Lake Hamilton, near Hot Springs, Arkansas. As a result of that sinking, 13 passengers died. Survivors of the *Miss Majestic* accident confirmed that the vehicle sank less than a minute after the deck edge at the stern was submerged, leaving insufficient opportunity for passengers to escape. Vessel maintenance, reserve buoyancy, and survivability—specifically, impediments to passenger egress caused by the vessel's canopy—were among the major safety issues identified by our investigation of the *Miss Majestic* accident.

As a result of the *Miss Majestic* sinking, we recommended that the USCG require greater stability and reserve buoyancy in amphibious passenger vessels.[3] Further, until the goals of that recommendation were achieved, we urged the USCG to require—among other measures—that canopies be removed from waterborne vessels, or that such vessels have installed a USCG-approved canopy that does not restrict horizontal or vertical escape by passengers in the event of sinking.[4]

The Coast Guard agreed with the intent of our recommendations but sought to address them through Navigation and Vessel Inspection Circular (NVIC) 1-01, a guidance document that relies on voluntary compliance. After the USCG refused to require the recommended improvements, we classified Safety Recommendations M-02-1 and M-02-2 "Closed—Unacceptable Action."

We believe that some of the fatalities that occurred when the *Stretch Duck 7* sank likely resulted from the canopy and its framing preventing emergency egress. Our position on canopies on DUKW vessels has not changed since the *Miss Majestic* sinking, and the number of fatalities resulting from the *Stretch Duck 7* sinking shows that canopies currently installed on modified DUKW vessels continue to pose an unacceptable risk.

Accordingly, on November 6, 2019, we issued two safety recommendations to the USCG.

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[2] *DUKW* (pronounced "duck") is an acronym that signifies the characteristics of the WWII amphibious vessel: D = 1942 (the year of design); U = utility; K = front-wheel drive; and W = two rear-driving axles.

[3] Safety Recommendation M-02-1.

[4] Safety Recommendation M-02-2.

[M-19-016]

> Require DUKW amphibious passenger vessels (commonly referred to as original ducks and/or stretch ducks) to have sufficient reserve buoyancy through passive means so that they remain upright and afloat with a full complement of passengers and crewmembers in the event of damage or flooding.

[M-19-017]

> For DUKW amphibious passenger vessels without sufficient reserve buoyancy (commonly referred to as original ducks and/or stretch ducks) require the removal of canopies, side curtains, and their associated framing during waterborne operations to improve emergency egress in the event of sinking.

Port Richey, Florida: **Island Lady**

Late last year, we completed our investigation into the fire aboard the small passenger vessel *Island Lady* near Port Richey, Florida, on January 14, 2018. The vessel, operated by Tropical Breeze Casino Cruz, shuttled passengers to and from an offshore casino vessel. As a result of the accident, one passenger died and 14 others on board were hospitalized.

During the voyage, the captain received a high-temperature alarm for the port engine's jacket-water system. Rather than shut the engine down, he left it idling, allowing it to continue to generate excessive heat, which in turn affected the exhaust tubing and ignited its surrounding structure.

The vessel owner had not given its vessel captains specific guidance about how to respond to high-temperature alarms. Although federal regulations require small passenger vessels to have fire detection and suppression systems in spaces containing propulsion machinery (such as engine rooms), the regulations do not require such systems in unoccupied spaces with engine exhaust tubing, which is where we suspect the fire on board the *Island Lady* started (in the lazarette). Further, the *Island Lady's* crewmembers lacked sufficient understanding of firefighting principles, and their training drills were infrequent or incomplete.

This accident was particularly notable because of its commonalities with the 2004 fire aboard the small passenger vessel *Express II*, operated by the same company, in the same geographic location.[5] Despite preventive maintenance and firefighting programs put in place in response to recommendations from the *Express II* investigation, crewmembers aboard the *Island Lady* were not sufficiently trained, and the maintenance program did not prevent noncompliant plastic tubing from being used where heat-resistant material was required.

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[5] These were not the only issues we found as a result of this accident investigation. For more information, see the full report, *Fire On Board US Small Passenger Vessel* Island Lady, *Pithlachascotee River Near Port Richey, Florida, January 14, 2018*.

In response to this accident, we issued new recommendations to Tropical Breeze Casino Cruz to develop and apply an oversight system to its maintenance program, and to revise its training programs.[6] Although we request responses to recommendation letters within 90 days of their issuance, we have not received any reply from Tropical Breeze Casino Cruze to either of these December 2018 recommendations which are currently classified "Open—Await Response."

We also issued two recommendations to the USCG to require fire-detection systems in unoccupied spaces with machinery or other potential heat sources on board small passenger vessels, and to issue a Marine Safety Information Bulletin regarding the need to use only approved material and components in fuel tank level-indicator systems.[7] The USCG has not replied to either of these recommendations which are also currently classified "Open—Await Response."

Santa Cruz Island, California: **Conception**

Shortly after 3:00 a.m. on Monday, September 2, 2019, the 75-foot commercial diving vessel *Conception*, with 39 persons on board, caught fire while anchored in Platts Harbor, off Santa Cruz Island in California. The *Conception* was on the last night of a 3-day diving trip. Thirty-three passengers and one crewmember died, making this the largest loss of life in a US marine casualty in decades.

Initial interviews of three crewmembers revealed that no mechanical or electrical anomalies were reported. A crewmember sleeping in the wheelhouse berths was awakened by a noise and got up to investigate. He saw a fire at the aft end of the sun deck, rising up from the salon compartment below. The crew attempted to access the salon and passengers below that deck, but were unable to do so. The vessel burned to the waterline by morning and subsequently sank in about 60 feet of water.

The NTSB is the lead federal agency for this investigation. Investigators are scrutinizing the wreckage, as well as reviewing current regulations regarding vessels of this type, year of build, and operation; early warning and fire detection alarm systems; evacuation routes; training; and current company policies and procedures. We will keep the subcommittee informed of developments in this investigation as they occur.

Safety Management Systems (SMS)

The NTSB has long advocated for all passenger vessel operators to implement an SMS: a comprehensive, documented system to enhance safety. Regardless of a company's size, an SMS ensures that each crewmember is given standard and clear procedures for routine and emergency operations. An SMS specifies crewmember duties and responsibilities, as well as delineates supervisory and subordinate chains of command, so that each crewmember understands what to do during critical vessel operations and emergency scenarios. Developing an SMS includes creating plans for crewmember responses to a range of possible emergency situations. SMSs also

[6] Safety Recommendations M-18-11 and -12.
[7] Safety Recommendations M-18-13 and -14

include procedures for performing and tracking preventive maintenance, as well as, procedures for crew training, emergency preparedness, documentation and oversight, and other actions that make safe operations a priority.

The International Maritime Organization (IMO) requires that US vessels engaged in oceangoing international service operate under an SMS, but such a requirement is not in place for the domestic passenger vessel fleet. Following the 2010 allision of passenger ferry *Andrew J. Barberi* with a terminal at Staten Island, New York, in which 50 people were injured, we again recommended that the USCG require all operators of US-flagged passenger vessels to implement an SMS.[8] After the Coast Guard initially responded that it was developing appropriate regulations for all US-flagged passenger vessels (part of Public Law 111–281), we classified Safety Recommendation M-12-3 "Open—Acceptable Response." However, in April 2014, after more than 3 years since Congress authorized the Coast Guard to mandate SMS, and nearly 1 year since the Coast Guard (in its response to Recommendation M-12-3) expressed its intent to initiate rulemaking, we classified the recommendation "Open—Unacceptable Response."

We continue to believe that an SMS is an essential tool for enhancing safety on board all US passenger vessels, and that the USCG is the appropriate authority to ensure such systems are implemented and enforced. In the case of the *Island Lady* and *Tropical Breeze Casino Cruz*, a Coast Guard requirement for an SMS would likely have ensured greater adherence to completing crew training drills, appropriate responses to emergencies such as alarms and fires, and improved record-keeping of training and maintenance-related documents. Implementing an SMS on all domestic passenger vessels would further enhance operators' ability to achieve the higher standards of safety that the Coast Guard requires of US oceangoing vessels in international service. Currently, numerous operators of domestic small passenger vessels have voluntarily implemented SMSs that include integral preventive maintenance programs.

In the *Island Lady* investigation, we reiterated recommendations that the USCG require preventative maintenance programs for companies operating domestic passenger vessels (M-02-5) and that it require that vessel operators implement an SMS (M-12-3).[9]

We continue to support a federal requirement for small passenger vessel operators to implement an SMS.

***Atlantic Ocean, Northeast of Acklins and Crooked Island, Bahamas*: El Faro**

On October 1, 2015, the US-flagged cargo ship *El Faro* sank in the Atlantic Ocean about 40 nautical miles northeast of Acklins and Crooked Island, Bahamas, during Hurricane Joaquin,

[8] Safety Recommendation M-12-3. See also Safety Recommendations M-05-6 to the Coast Guard, and M-05-2 to the New York City Department of Transportation resulting from the 2003 *Andrew J. Barberi* allision with a pier at Staten Island, New York; M-10-7 to ferry operator Interstate Navigation Co. resulting from the 2008 collision between its vessel *Block Island* and Coast Guard cutter *Morro Bay* on Block Island Sound, Rhode Island; and M-14-7 to ferry operator Seastreak, LLC resulting from the 2013 allision of its vessel *Seastreak Wall Street* with a pier at Manhattan, New York.

[9] For more information, see page 46 of the full report, *Fire On Board US Small Passenger Vessel* Island Lady, *Pithlachascotee River Near Port Richey, Florida, January 14, 2018*

claiming the lives of all 33 crew members. Our investigation identified several major safety issues, including the captain's actions, currency of weather information, bridge resource management, company oversight, damage control plans, and survival craft suitability.

On September 29, 2015, the *El Faro* departed its homeport in Jacksonville, Florida, on a 1,100-nautical-mile (nm) planned voyage to San Juan, Puerto Rico, slated to arrive in the early morning hours of October 2. However, the ship sailed directly into the path of Hurricane Joaquin, a Category 3 storm that reached Category 4 strength shortly after the *El Faro* sank, at approximately 8:00 a.m. on October 1.

The captain's insufficient action to avoid Hurricane Joaquin due to his failure to use the most current weather information and the lack of appropriate survival craft for the conditions were critical factors in the probable cause of *El Faro*'s sinking and the loss of 33 lives. Although the ship and its crew should never have found themselves sailing into the storm, many other factors, including ineffective bridge resource management, inadequate company oversight and safety management, flooding, propulsion loss, and the lack of an approved damage control plan also contributed to the sinking.

On December 12, 2017, following a 26-month investigation, we determined the probable cause of the sinking and made 53 safety recommendations (we issued 10 urgent recommendations prior to the Board meeting). This was the most resource-intensive marine investigation in the NTSB's history. The resulting 63 safety recommendations, if acted upon, will yield a generational advance in marine safety.

The USCG has been responsive to the recommendations we made as a result of the *El Faro* investigation; however, changing the Coast Guard's regulations alone would have little impact in the international realm because, in international waters, International Maritime Organization (IMO) regulations hold sway. Even in US waters, it is not always the case that the United States is the "flag state", since there are many foreign-flagged vessels plying our waters. In the case of *El Faro*, the United States *was* the flag state; however, since the accident lessons are applicable to other oceangoing vessels, we recommended that the Coast Guard propose changes to the IMO on behalf of the United States. We believe these changes would save lives in waters around the world.

We also issued recommendations to the American Bureau of Shipping—the US classification society—and to the International Association of Classification Societies. Classification societies establish and maintain standards for the construction and operation of ships.

Our recommendations also recognized a systemic problem with lifesaving equipment. The *El Faro* was outfitted with open lifeboats, which, for about 30 years before the sinking, would not have been legal on an otherwise equivalent new vessel. *El Faro* was "grandfathered out" of this requirement. We recommended that the Coast Guard, at regular intervals not to exceed 20 years, review all lifesaving appliances on such vessels.

Conclusion

The loss of *El Faro* shook the marine shipping world, and *Conception*'s loss, just feet from shore, reminded the small passenger vessel world that the potential for catastrophe is always present. SMSs and required preventive maintenance are necessary to improve the safety of any marine enterprise, including that of small passenger vessels.

Our accident findings and recommendations represent lessons learned at the highest price. To put safety recommendations into action provides a return on investment in lives saved, injuries prevented, and property loss and environmental damage avoided.

Thank you for your consideration of these important marine safety matters. I would be pleased to take any questions you might have.