

National Transportation Safety Board

Office of Marine Safety
Washington, D.C. 20594

Group Chairman's Factual Report

Survival Factors

Stretch Duck 7

DCA18MM028

February 10, 2020

1 **1 Accident Information**

2 **Vessel:** *Stretch Duck 7*
3 **Accident Number:** DCA18MM028
4 **Date:** July 19, 2018
5 **Time:** 1908 Central Daylight time (coordinated universal time – 5)
6 **Location:** Table Rock Lake, Stone County, MO
7
8 **Accident type:** Sinking
9 **Fatalities:** 17
10 **Injuries:** 6

11 **2 Survival Factors Group**

12 **Chairman:** Michael B. Karr, Survival Factors Group Chairman
13 Office of Marine Safety
14 National Transportation Safety Board
15
16 **Member:** Jim Gillette
17 Investigations National Center of Expertise
18 US Coast Guard

19 **Member:** Brian Deckard
20 Ride the Ducks Branson

21 **Member:** Mike Petlansky/Mark Green
22 Missouri State Highway Patrol Water Patrol Division
23

24 **3 Accident Summary**

25
26 About 1908 local time on July 19, 2018, the 33-foot-long amphibious passenger vessel
27 *Stretch Duck 7*, part of a fleet of vessels operated by Ride The Ducks Branson, sank during a storm,
28 with heavy winds that developed rapidly on Table Rock Lake near Branson, Missouri. Of the 31
29 persons aboard, 17 fatalities resulted. Prior to the accident, the National Weather Service had
30 issued a severe thunderstorm warning for the area advising of wind gusts of 60 mph. The manager-
31 on-duty advised the captain and driver before departing the shoreside boarding facility to complete
32 the lake portion of the tour before the land tour (which normally occurred first) due to the
33 approaching weather. About 5 minutes after the vessel entered the water, the leading edge of a
34 “derecho” passed through the area generating reported 3- to 5-foot waves and strong winds, with
35 the highest wind gust recorded at 73 mph. The captain changed course, shortening the usual tour

1 around an island, and attempted to exit the lake. However, during the effort to reach land, the
2 vessel took on water and foundered approximately 250 feet away from the exit ramp near the stern
3 of the *Showboat Branson Belle*, a moored paddle wheeler. Personnel from several fire, emergency
4 medical services, and law enforcement agencies, along with the paddle wheeler crew and
5 passengers, rescued and triaged 14 passengers, seven of whom were transported to local hospitals.
6 Loss of the vessel was estimated at \$184,000.

7 **4 Investigation**

8 See the Operations Group Factual Report for the description of the investigation.

9 **5 Vessel Information**

10 See the Operations Group Factual Report for vessel information.

11 **6 General Description of *Stretch Duck 7* Lifesaving Appliances and Systems**

12 The *Stretch Duck 7*'s Certificate of Inspection, issued by the U.S. Coast Guard on February
13 7, 2017, attested that the listed equipment requirements satisfied compliance with 46 Code of
14 Federal Regulations (CFR) Part 180. The vessel could carry up to 38 people (passengers and crew)
15 on a Rivers route which was limited to "Table Rock Lake and Lake Taneycomo; not more than
16 one thousand (1,000) feet from shore unless a VHF marine band radio is properly installed and
17 licensed by the FCC." The *Stretch Duck 7* had a radio that met the criteria. Lifesaving equipment
18 requirements included:

19 Lifejackets: 38 adult (for persons weighing more than 90 pounds); and

20 4 child (for persons weighing less than 90 pounds).

21 Ring Buoys: 2 including one with a line and water light attached.

22 A condition of operation on the certificate of inspection read, "The minimum number of
23 child-size life preservers required is four (4). When more than four (4) children or adults, weighing
24 less than ninety (90) lbs. are carried, a child-size life preserver shall be provided for each additional
25 person on board."

26 The *Stretch Duck 7* carried more lifejackets than the required number listed on the
27 certificate of inspection. The Coast Guard inspection record for an annual inspection conducted
28 over two days beginning January 12, 2016 recorded 41 adult; 14 child and 4 infant lifejackets. The
29 vessel was not required to carry a liferaft, life float or buoyant apparatus.

1 **7 Lifejackets and Lifejacket stowage**
2 **7.1 Adult and child lifejackets**



Two Adult lifejackets carried on board the Stretch Duck 7

Cal-Juna, Inc., using the brand name *Jim-Buoy* manufactured the adult and child lifejackets carried on board the *Stretch Duck 7*. The adult, and child lifejacket were constructed to meet the Coast Guard approval requirements for reversible, “bib type” lifejackets constructed of unicellular plastic foam, found in 46 Code of Federal Regulations (CFR) §160.055. The adult jackets were marked that they could be used by people over 57 inches tall or weighing over 75 pounds based on testing the Coast Guard describes in Navigation and Vessel Inspection Circular (NVIC) 14-92.¹ The NVIC states that some adult life preservers “...are considered

15 suitable for children more than 57 inches (4 feet 9 inches
16 tall.”² Following the recovery of the vessel from underwater, investigators counted 38 adult and
17 14 child lifejackets that were recovered during the raising of the vessel or remained in their stowage
18 location.

¹ Quote from 46 CFR 160.055-2.

² Quote found on NVIC 14-92 page 1.



Three child lifejackets carried on board the *Stretch Duck 7*

7.2 Other PFDs authorized to be carried

In addition to carrying the required lifejackets, investigators found two other types of personal flotation devices:

- Two Stearns type III adult flotation vests, commonly known as work vests, manufactured by the Coleman Company, Inc and meeting the requirements of 46 CFR §160.064; and



Front and back of the Type III adult flotation vest carried on board the *Stretch Duck 7*

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- Four Stearns type II lifejackets for infants, users weighing less than 30 pounds, manufactured by the Coleman Company, Inc and meeting the requirements of 46 CFR §160.064.



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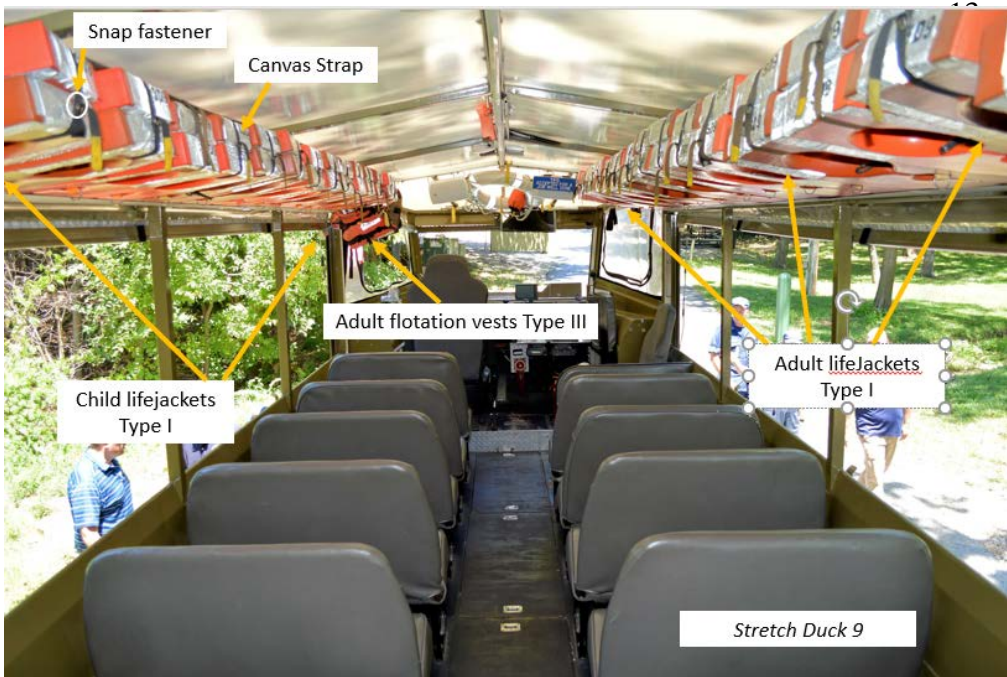
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Infant lifejacket carried on board the *Stretch Duck 7*

1 • The Type III adult jackets and the type II lifejackets for infants, could be carried “as
2 additional equipment” as allowed by 46 CFR §180.72(b) because they are wearable
3 marine buoyant devices approved under 46 CFR §160.064. Additionally, the infant
4 lifejackets were approved for use on board the *Stretch Duck 7* by the Officer in Charge
5 Marine Inspection for Sector Upper Mississippi River in a letter dated February 24,
6 2011.

7 7.3 Stowage and Release

8 The regulations applicable to stowing lifejackets on the *Stretch Duck 7* are found in 46
9 CFR§180.78. All the lifejackets were stowed overhead and in a manner that allowed for quick
10 release. Pairs of adult and child lifejackets were stacked, and the bottoms of each stack wedged in
11 a metal channel that ran along the port and starboard sides of the vessel under the canopy. The top
12 portion of the lifejackets was secured by a canvas strap to a strip of metal that ran along the port



23 **Stowage of lifejackets on board a similar vessel *Stretch Duck 9***

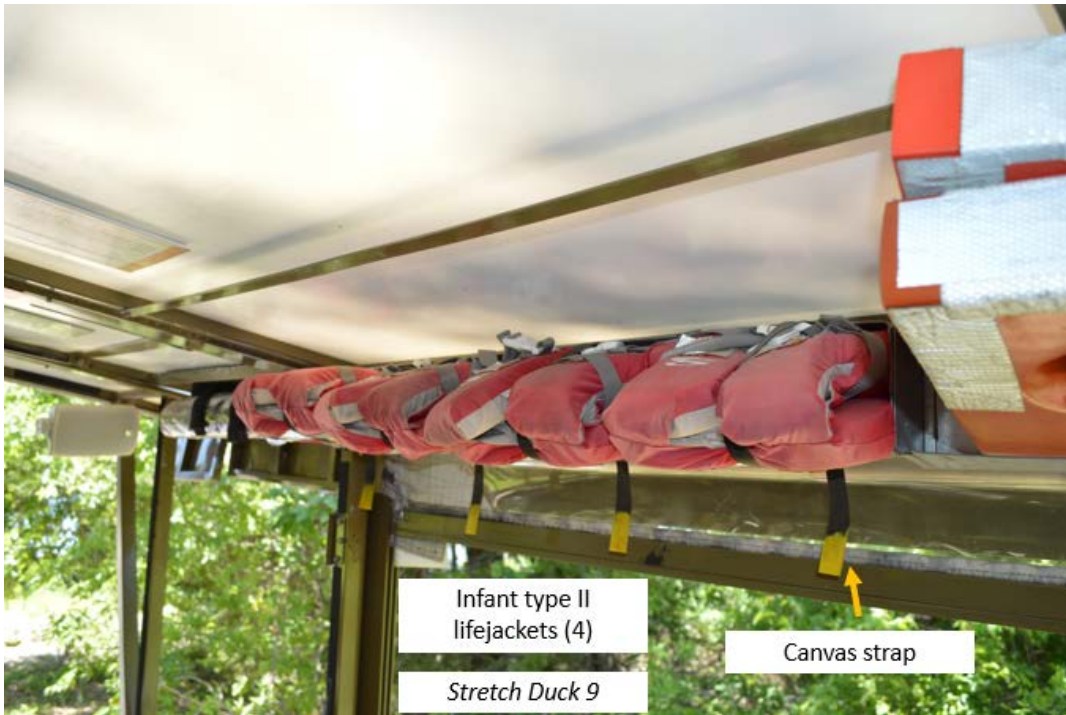
27 opening for the head. The infant lifejackets were not secured in pairs. The four different lifejackets
28 on board the vessel were grouped along the port and starboard sides and their locations marked on
29 the metal channel. The starboard side stowage was all adult type I lifejackets. On the port side,
30 the stowage was organized from forward to aft as follows: Adult flotation vests type III; child type
31 I; and infant type II.

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Stretch Duck 7 shortly after salvage.



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Stowage of infant lifejackets on the port side aft on the exemplar vessel Stretch Duck 9

1 Releasing the life jackets involved a person pulling on each strap to release the snap
2 fastener which freed the top portion of the lifejackets while the bottom remained wedged in the
3 channel. A person would then reach for the lifejacket and pull it out of the channel.

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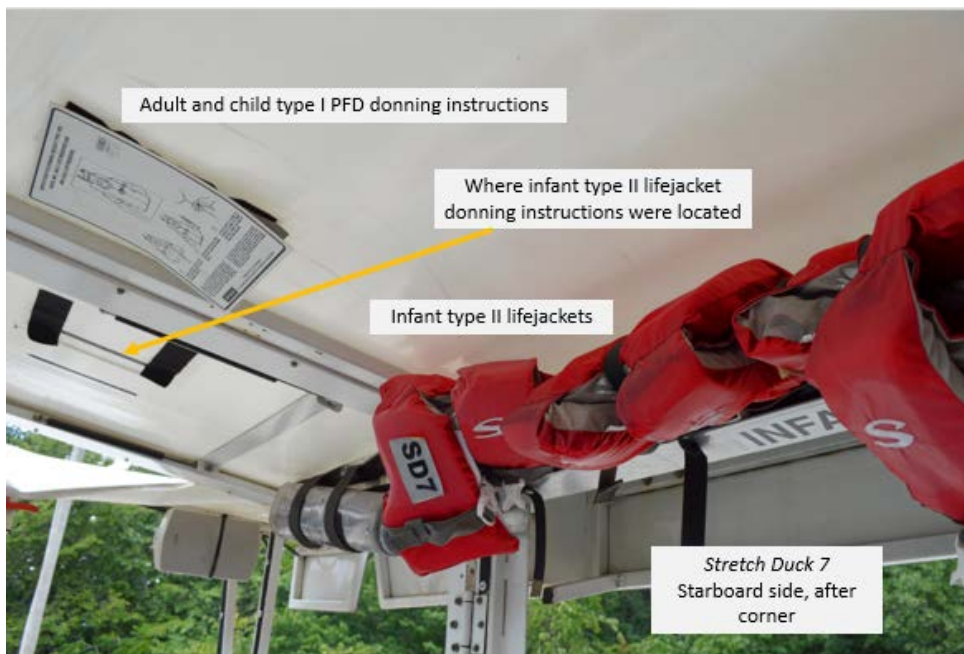
6 **Removing two child Type I lifejackets from their stowage location. (1) Two lifejackets are wedged**
7 **and held by a canvas strap and an investigator is about to release the strap' snap fastener. (2) The**
8 **two lifejackets remained wedged in place after removing the strap. (3) An investigator grabs the top**
9 **of the two lifejackets to remove them from the channel. (4) The investigator holds the two lifejackets**
10 **after removing them from the channel.**

11 Operators were encouraged to store life jackets so they float free if the vessel sank. The
12 Coast Guard Navigation and Inspection Circular (NVIC) 1-01, providing guidance for the
13 certification of amphibious vessels carrying passengers like the *Stretch Duck 7*, reads, "If
14 practicable, the stowage should allow the life jackets to float free." Following recovery of the
15 vessel from underwater, investigators counted 38 adult and 14 child lifejackets, some of which
16 remained in their stowage location. 30 adult (starboard side), 8 child (port side) and 3 infant

1 lifejackets (port side) were still connected to the vessel by their straps. The remaining life jackets
2 were recovered from the lake's surface or within the vessel outside of their storage locations.

3 **7.4 Lifejacket placards**

4 The placards containing instructions for donning and use of the lifejackets on board the vessel
5 required by 46 CFR §185.516 were posted on the underside of the canopy near the stowed infant
6 life vests and the passenger entry. Investigators examined the vessel after its recovery and found
7 Velcro still held the laminated adult and child donning instructions in place and noted only Velcro
8 where the infant lifejacket donning instructions would have been located.



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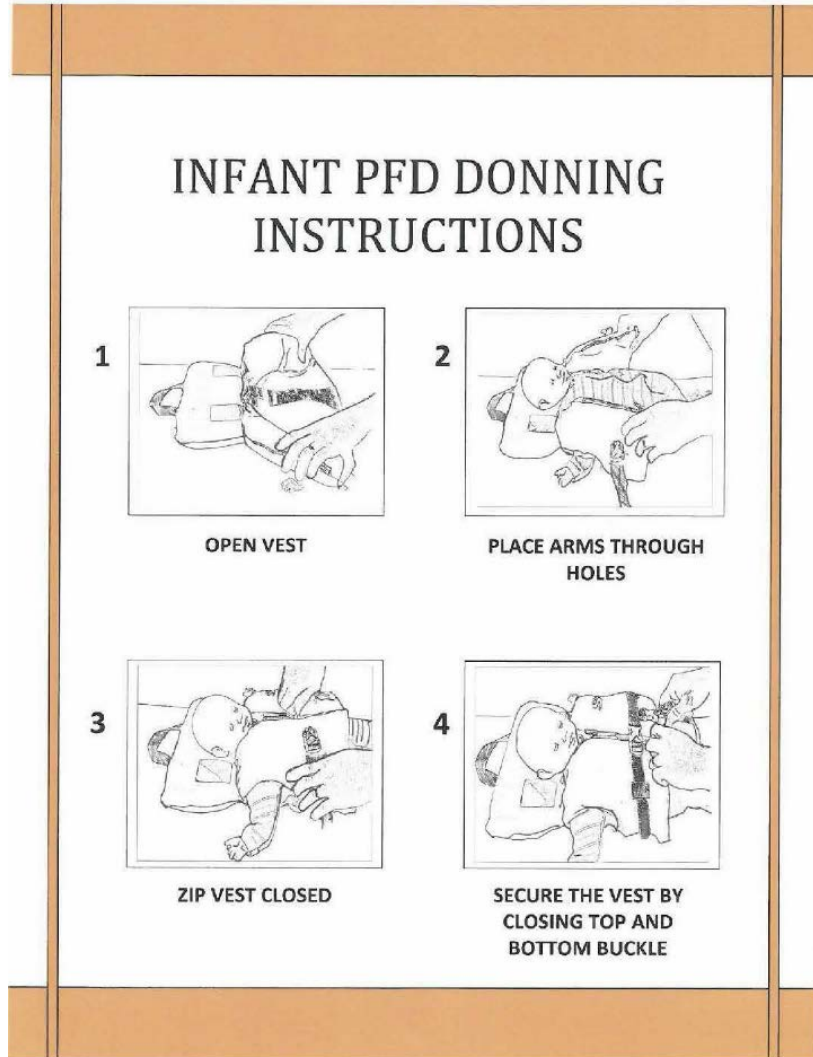
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Interior of the Stretch Duck 7 shortly after salvage. (Photo: MSHP)



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Photograph of the donning instructions for the adult and child Type I life preservers posted on the *Stretch Duck 9*.



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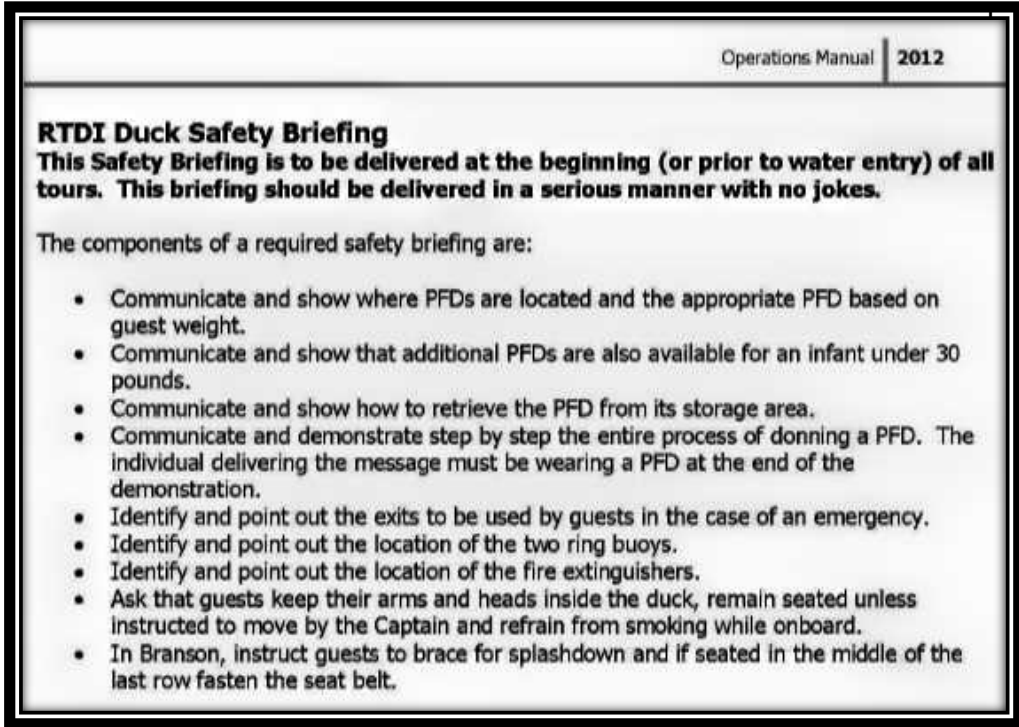
Copy of donning instructions for the infant type II PFD that was posted on the *Stretch Duck 7*

4 **8 Passenger Count**

5 For the captain of the *Stretch Duck 7*, the regulations 46 CFR §185.504 required “a correct,
6 written count of all passengers that embark on ... the vessel” and that the count be provided ashore
7 and available to the Coast Guard to determine the number of people they need to account for during
8 a search and rescue operation. On the day of the accident, the captain told the office that the vessel
9 carried 29 passengers on their trip listed as the 6:30 pm trip.

10 **9 Passenger Safety Orientation**

11 For the captain of the *Stretch Duck 7*, the regulations requiring a safety orientation and the
12 contents of the orientation are found in 46 CFR §185.506. The orientation was to be a “public
13 announcement” and include the location of survival equipment; instructions for how-to put-on life



14 Pre-water entry safety briefing from the Ride the Ducks Captains' Operations Manual

jackets and what to do in the event of an emergency. The Ride the Ducks Operations Manual stated that prior to entering the water, the captain was to brief the passengers on water safety.

The briefing was to include

17 covering the location of PFDs; how to access the PFDs; directions to abandon the vessel over the
18 side; and describe how the side curtains would release in the event of the need to escape over the
19 side.

20 **10 Curtains and Canopy**

21 Coast Guard Navigation and Inspection Circular (NVIC) 1-01 provides supplemental
22 guidance for the certification of amphibious vessels carrying passengers. Recognizing that
23 amphibious vessels “have a tendency to sink stern first,”³ the Coast Guard determined that the
24 primary egress is over the side and provided parameters that would not impede the egress of
25 passengers. These included spacing canopy supports so they would not impede the egress of
26 passengers; providing a minimum of 32 inches of vertical distance from the gunwale to the canopy;
27 ensuring the overhead storage of lifejackets did not impede the escape of passengers; and if a

³ Quote in NVIC 1-01 page 23/41

1 curtain is installed, ensuring the curtain can “be opened with minimal force, generally by a simple
2 action by one person.”⁴

3 To protect passengers from rain or other inclement weather, the owners of the *Stretch Duck*
4 7 installed a canopy and curtains on the duck boats they operated. The clear vinyl curtains on the
5 *Stretch Duck 7* along the periphery of the vessel, hung down from the canopy’s horizontal frame,
6 extending aft of the windshield, on both sides and the stern of the vessel and measured 1/32 of an
7 inch thick. The two larger curtains, one on each side of the vessel, were raised and lowered using
8 electric motors. The other smaller sections of curtains, on the port and starboard side by the
9 captain’s station; at the port side after corner at the passenger entrance and on the stern were
10 manually unrolled and rolled to lower and raise the curtains.

11 When lowered, the curtains would obstruct the “over the side”⁵ escape route to be used by
12 passengers if the captain ordered them to abandon the vessel. ⁶ Operators using curtains on duck
13 boats had to install the curtains in a manner that would allow escape from the vessel without
14 impeding passenger egress.

15 To comply with the NVIC 1-01 guidelines and receive Coast Guard acceptance of the
16 curtain installation, the main side curtain in the passenger area on *Stretch Duck 7* could be released
17 such that it dropped from where it was attached to the top of the canopy frame. A handle on the
18 port side at the captain’s station released a curtain on the port side that extended from just behind
19 the operator to the passenger entrance on the vessel, near the stern. A handle on the starboard side,
20 opposite the port side handle and at the captain’s station, released a larger curtain on the starboard
21 side that extended from just behind the captain’s station all the way to the after starboard corner
22 of the vessel.

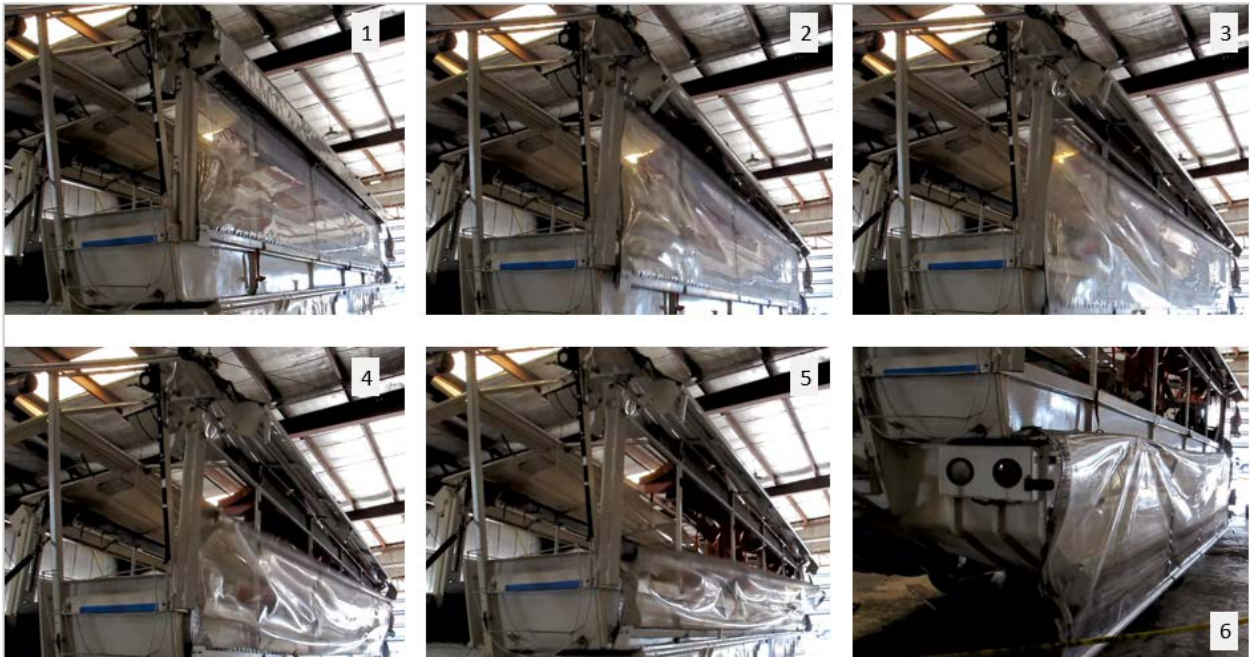
23 When investigators examined the recovered *Stretch Duck 7*, they found the main starboard
24 curtain in the passenger area in place and the main port side curtain in the passenger area
25 disconnected and released. The Captain of the *Stretch Duck 7* informed investigators he had
26 released one of the side curtains, and this account was corroborated by passenger statements. On
27 July 25, 2018 investigators conducted a test of the starboard curtain release and found the handle

⁴ Quote in NVIC 1-01 page 23/41

⁵ Quote from Abandon ship procedure in the Operations Manual for *Stretch Duck 7*.

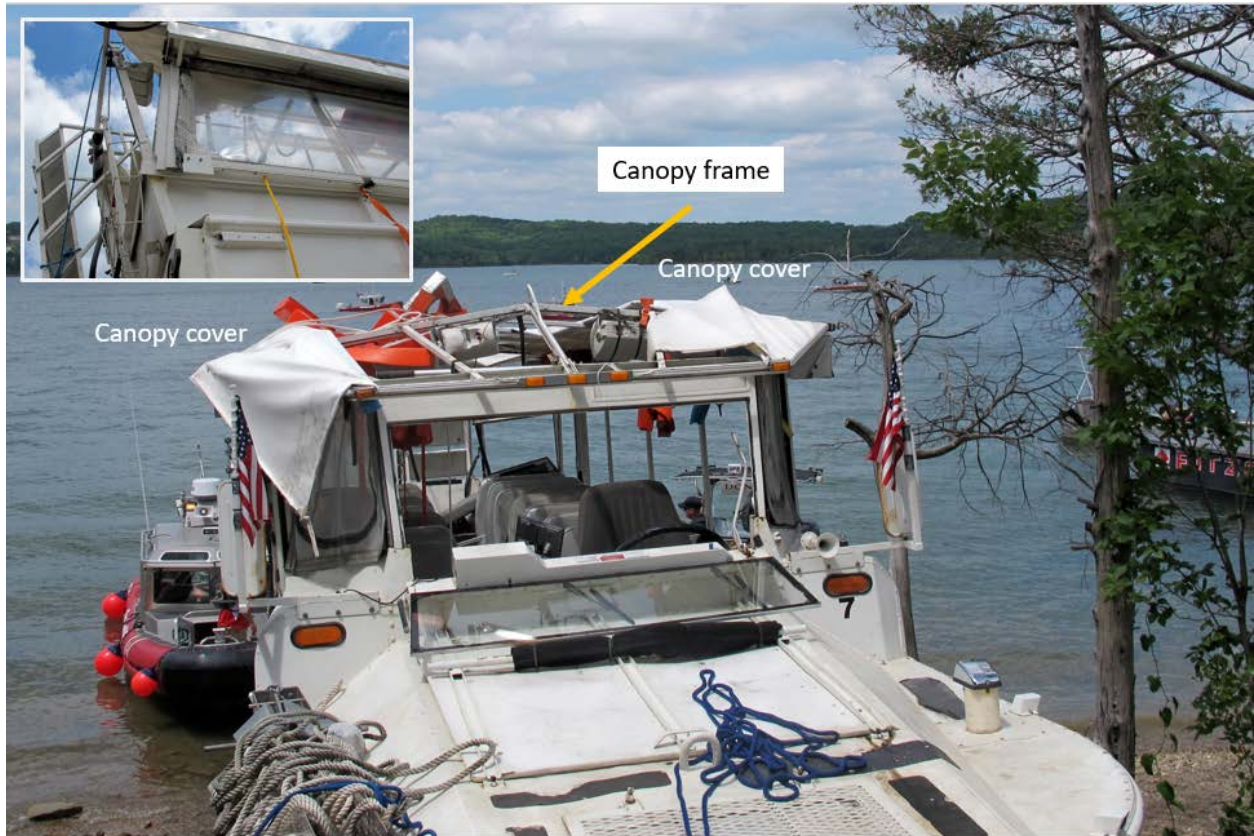
⁶ Quote from Abandon ship procedure in the Operations Manual for *Stretch Duck 7*.

1 easy to operate and watched the curtain drop away from the side of the vessel in less than one
2 second.



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4 **Release test of the starboard side curtain on the *Stretch Duck 7*. (1) Curtain in lowered position**
5 **before release. (2) Curtain is shown dropping after the release handle was pushed towards the bow.**
6 **Photographs 3-5 show progressive dropping of the curtain. (6) Curtain fully dropped.**

7 The canopy consisted of a fixed metal frame fitted with a vinyl cover measuring 1/32 of an
8 inch thick. When investigators viewed the *Stretch Duck 7* as it was hauled from the bottom of
9 Table Rock Lake, they saw the canopy separated down the center of the vessel and folded off to
10 the sides. Some of the passengers told investigators that they had escaped the vessel “through the
11 roof” and had thought that the captain had released the roof as the vessel went below the water.



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3 **Stretch Duck 7 during recovery at Table Rock Lake showing a separated canopy cover. Insert:**
4 **Looking up from the after starboard corner of the vessel.**

5 **11 Emergency Procedures on the Water**

6 **11.1 Procedures**

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8 Severe weather on the water and abandon ship are two situations addressed in the Ride the
9 Ducks Captains' Operations Manual. The severe weather procedure called for the captain to brief
10 the passengers to stay calm and to put on their life preservers. Instructing the passengers to don
11 life preservers during severe weather is a requirement for small passenger vessels. 46 CFR
12 §185.508 (a)(3) states, "The master of a vessel shall require passengers to don life jackets when
13 possible hazardous conditions exist, including ...during severe weather."

Abandon Ship

Abandoning or evacuating a ship should never be an option unless forced to do so. Prepare to abandon ship when:

- Uncontrollable fire exists
- High bilge alarms indication exists
- Unacceptable loss of freeboard exists

Abandon ship procedure:

- Ensure all passengers have donned PFDs properly.
- Warn the passengers that the egress is over the side in which they are seated.
- Notify Dispatch of your situation and destination.
- Establish a specific point to swim to and take a head count before you exit.
- Assist your passengers in establishing a calm and even egress procedure.
- Once all passengers have safely disembarked, pull down the life ring to take with you and egress the Duck towards the location of your passengers.
- Direct your passengers to stay in groups and swim towards the specific point away from the Duck toward shore.
- Once you have reached shore conduct a passenger head count.

Note: If the passenger compartment floods, make your egress out the front flip-down windshield.

Severe Weather on the Water

- Brief your passengers to stay calm and seated and to don their PFDs.
- Ensure all passengers have donned their life jackets properly and assist them if needed.
- Immediately increase speed and head to shore (egress ramp or closest ramp).
- Continually monitor freeboard and bilge pumps.
- If conditions expose the bow to heavy waves, close the main engine compartment hatch.
- Notify Dispatch of your situation and location. Tell them when you are out of water and in a safe area.

Note: Under extreme wind conditions you should not lower the side curtains. Lowering the side curtains during high wind conditions creates an additional sail area which decreases the vessels maneuverability.

Excerpts from the Ride the Ducks Captains' Operations Manual

- 1 The *Stretch Duck 7* procedures contained a note warning the captain that lowering the side
- 2 curtains increases the sail area and in high wind conditions, the larger sail area will decrease the
- 3 vessel's maneuverability. A condition of operation listed on the certificate of inspection was that

1 the vessel was not to “be operated waterborne when winds exceed thirty-five (35) miles per hour,
2 and/or the wave height exceeds two (2) feet.”⁷

3 **11.2 Training**

4 The accident vessel captain’s training records provided by the company included
5 information showing the training he had received covering the company’s emergency procedures
6 and a topic Ride the Ducks called, “knowledge of the COI.”

7 As recently as February 19, 2018 the captain completed an on-water training session listing
8 16 different emergency response training topics, including: bilge alarm, abandon ship, hull breach,
9 intentional grounding, and emergency egress procedures, among others. This record of training
10 was signed and dated by the designated captain trainer and indicated that proper training was
11 completed on the safe operation of RTD vehicles.

12 While “severe weather on the water” was not specifically included among the listed
13 training topics requiring a signature by the trainer, the majority of the training topics covered
14 addressed and tested the operational competencies for responding to severe weather. Additionally,
15 this training also included training on COI operational restrictions, which also addressed aspects
16 of severe weather, including operational wave and wind speed restrictions included on the COIs
17 for the vessels. The captain of the *Stretch Duck 7* was also a designated trainer responsible for
18 administering on-water training to CDL driver/deckhand trainees on various emergency response
19 topics, including responding to severe weather on the water. Similar records of training were
20 provided dating back to at least 2011, showing the captain of the *Stretch Duck 7* had regularly
21 completed this training.

22 On July 8, 2010 the captain took a 2-page “Ride the Ducks Captain’s test.” One section
23 covered topics related to “When Not to Enter the Water,” listing all the restrictions but leaving
24 some of the restrictions with blanks to be filled in by the captain. Those questions are below with
25 the captain’s answers in *italics* and underlined. The section began:

26 There are two categories of restrictions. The Coast Guard imposes regulations mandated
27 through our stability letters and our COI, which is approved by the local OCMI. Each
28 body of water may have different restrictions. Primary restrictions are:

⁷ Quote from *Stretch Duck 7* COI.

- 1 • Winds may not exceed 35 M.P.H.
- 2 • There may be no risk of down flooding
- 3 • Waves may not be higher than 2.5 Feet
- 4 • There are many other restrictions on our COI, so consult zone’s policies. Company policies is
- 5 to forego water entry if:
 - 6 ○ There is Lightning or Low Visibility
 - 7 ○ The vehicle has any mechanical issues
 - 8 ○ Severe weather is approaching the area

9 To reinforce when not to enter the water, the last paragraph in the section included guidance
10 that read, “If you are on the water and any of the above situations occur, then come off the water.
11 If you encounter unsafe water or atmospheric situation...come off the water...”⁸

12 Training records for 2007, 2008, and 2009 included documentation that the captain had
13 demonstrated the ability to correctly perform the Pre-Trip Duck inspections on ride the Ducks
14 amphibious vehicles. The pre-trip inspection included, under emergency procedures, “Read over
15 the emergency procedure and familiarize yourself with the Captain’s station.” The pre-trip
16 inspection form was “to be completed daily by each Captain prior to carrying passengers.” The
17 document also emphasized that the captain “should also ensure he or she understands the
18 emergency procedures for the Duck he or she is operating. Review all placards and emergency
19 procedures ...”⁹ The most recent document of this type was signed by the captain on March 13,
20 2009.

21 On a one-page document with 6 questions headed “Captain’s Meeting Review
22 07/15/2008,” the captain answered or took notes for question number 4, which read, “You’re on
23 the water and encounter high seas accompanied by high winds what do you do?” The captain’s
24 hand written answers included 5 items: 1) “get off water as soon as you can,” 2) “close Hood,” 3)
25 “Head into wind,” 4) “call in,” and 5) “Life jackets.”¹⁰

26 Ride the Ducks operated a Limited Master course subject to renewal every 5 years that was
27 last approved by the Coast Guard on February 20, 2014. The course included classroom and hands-

⁸ Quotes in this paragraph from RTD Document REQ. No. 35 & 47 Background and Training, page 152.

⁹ Quotes in this paragraph from RTD Document REQ. No. 35 & 47 Background and Training, page 168.

¹⁰ Quotes in this paragraph from RTD Document REQ. No. 35 & 47 Background and Training, page 174.

1 on training. The scope and objective as stated in the application submitted to the Coast Guard for
2 approval was to train as captains an individual with little or no sea service on safe operation of a
3 very unique amphibious vehicle, with the ultimate goal of the student to earn a “Limited Scope”
4 license limited to this vehicle only and to make that individual “proficient in safe vehicle operation,
5 performing pre-trip and post trip safety inspections, recognizing mechanical problems, and
6 emergency procedures.”¹¹ Course performance objectives included:

- 7 • Given a DUCK on the water: Explain the importance of the COI restrictions.
- 8 • Given a DUCK on the water: Explain and demonstrate the proper procedure for severe weather.

9 Skills and knowledge of adverse weather conditions to be taught were found in the
10 instructor notes, a part of the instructor manual submitted to the Coast Guard for their approval.
11 Three topics were listed. 1) Recognizing an approaching storm, 2) waves, wind, and current, and
12 3) weather symbols cold fronts, warm fronts, and stationary front.¹²

13 In addition to the training above, periodic training on emergency response procedures on the water,
14 and other safety topics, was conducted during monthly safety meetings which all captains and
15 other personnel were required to attend. In addition, during U.S. Coast Guard COI inspections,
16 emergency response training is conducted and observed by Coast Guard inspectors as part of
17 annual examinations of the vessels. In April 2018, a U.S. Coast Guard inspector conducted this
18 on-water emergency response training with the captain of the *Stretch Duck 7*.

19 **12 Events on the *Stretch Duck 7***

20 Before the driver left the Ride the Ducks boarding facility, onboard video shows the driver
21 and the captain determining and reporting to the office that the vessel carried 29 passengers on
22 their trip listed as the 6:30 pm trip.

23 The *Stretch Duck 7* video and audio showed the captain beginning the safety orientation at
24 1850:03.7 before he took control of the vessel from the driver, after the *Stretch Duck 7* turned into
25 the *Showboat Branson Belle* parking lot. The orientation started with the captain pointing to the
26 location of fire extinguishers, then describing how to exit through the windows in an emergency;
27 pointing to the life jackets – explaining how to pull on straps to release them and the location of

¹¹ Quotes on page 24/133 of RTD document number 17.

¹² Information in this paragraph from page 86/133 of RTD Request No. 17.

1 the adult, child and infant life jackets and explaining that he, the captain “will let you know [when
2 to] get them out.” He then grabbed an adult life jacket and demonstrated how to wear it - explaining
3 each step as he donned the life jacket. He finished the orientation at 1852:11.5, after explaining
4 the location of life rings. The information provided by the captain covered the topics listed in the
5 Ride the Ducks Captain’s Operation Manual and all but one of the Coast Guard passenger safety
6 orientation requirements found in 46 CFR §185.506. The captain did not point out the location of
7 the placards showing how to don the life jackets (§185.506(a)(4)).

8 Passenger recollections of the safety briefing varied. Key components of the captain’s
9 briefing included showing where life jackets were stowed, demonstrating how to don the life jacket
10 and how to escape the vessel through the windows in an emergency. Some witnesses recalled the
11 captain covering the location of the life jackets, some did not. Some recalled him donning a life
12 jacket, some did not. And some recalled being told to use the windows in an emergency, and some
13 did not. One passenger said a briefing was not conducted. Passenger 21, in an interview shortly
14 after the accident, told investigators that a safety briefing was not conducted. Two days later he
15 told investigators that he believed there was a briefing after discussing the accident events with a
16 family member. He explained that he did not hear or recall the briefing because he was engaged
17 in conversation with his wife and looking at the sights outside the vessel.

18 In a post-accident interview, the captain described that “when it got rough ... I was dealing
19 with trying to get off the water.” He closed the main engine compartment hatch to prevent water
20 from entering the engine compartment and “headed for shore as quick as I could get there.” During
21 his interview he commented, “I never expected it to get this rough,” and he “had never seen it get
22 that rough.” When asked if he turned around or kept going, he replied, “I was far enough around
23 that I was closer to the exit ramp than I was the entrance ramp.” As the captain was heading
24 towards the exit ramp he said, “When I realized we weren’t going to make it, I reached up and
25 pulled the release for the curtains on the [left] side.” And as soon as he “released it, I was pushed
26 out through the front windshield [made of glass that folds forward and lays on top of the bow when
27 in the open position].”

28 The captain told investigators that he thought “the water just pushed me through it [the
29 windshield],” and then he “swam and swam and swam to get back up for air.” Once on the water
30 the waves fell on top of him, regularly putting him underwater. With no PFD, he finally made his

1 way to the pier behind the *Showboat Branson Belle* where, exhausted, he hung onto the dock until
2 people pulled him from the water.

3 A review of the onboard video and audio recorders showed that between 1903:23.2 and
4 1905:48.2, the captain hailed the duck dock four times by radio and did not hear or receive a
5 response. At 1908:09.3, the sounds of shouting became more consistent in tone with panic,
6 particularly from young passengers. At 1908:18.0, the captain pointed to the port side of the
7 *Stretch Duck 7* and shouted for people to move to one side of the boat. At 1908:34.3, the video
8 and audio were lost. Absent from the video and audio was any activity related to abandoning ship
9 or distributing life jackets.

10 Passenger number 6, a 34-year-old female, (see diagram) sitting in the aisle seat in the first
11 row on the starboard side described the voyage. She said the captain made no mention of why the
12 vessel made a turn towards the *Showboat Branson Belle* instead of proceeding to the island ahead
13 of them that she was expecting to visit. When asked to describe how water entered the vessel, she
14 mentioned two waves, the first about two minutes before the other and both occurred when the
15 side curtains had been lowered to protect the passengers from blowing rain. She could not recall
16 how the water from the first wave entered the vessel but described the water level at her feet, above
17 her ankles. About two minutes later, shortly after the vessel turned to starboard near the *Showboat*
18 *Branson Belle's* stern, water from the second wave entered the vessel. She told investigators that
19 in less than 15 seconds, water pushed in the curtain on the starboard side of the vessel, saying it
20 was "...kind of like a shower curtain. If you threw a big bucket of water on a shower curtain it
21 would cave it in and that's kind of how I felt it did." and the water flowing into the boat "...covered
22 laps ... you're covering people now..." "When the water came, I jumped up [recalling water up
23 to her shoulders] and I had my son" and I heard my sister-in-law yell out, "grab the baby" at the
24 same time the boat sank.

25 As the boat slipped quickly below the water, she remained inside. "I know I was hitting the
26 inside of the boat. I know my head hit the boat, my feet and ankles and my hands, because I was
27 trying to -- once I couldn't see -- once I didn't know where I was, because basically it was like I
28 was dropped in the Twilight Zone, I didn't know where I was, I was hitting, trying to get out." She
29 could not recall how she escaped the *Stretch Duck 7*, "I remember pushing and as I'm pushing,
30 nothing happened and then something happened while I pushed through and again, I can't tell you

1 what I pushed through.” She also recalled that “...something up under me or behind me was
2 pushing me, too because ... I don’t know if it was a -- I can’t tell you if it was a person, if it was
3 debris, but it was pushing...” She could not recall how the boat was situated when she escaped.

4 She recalled that she escaped at a depth where “the water was icy cold” and as she kicked
5 and swam towards the surface of the water, she felt “a very, very heavy dragging feeling, pulling
6 me back down,” “It was like ... a suction” saying, “I’d swim up two feet, I’d be pulled down five
7 feet.” And after her “lungs started filling up with water and I thought I was dead,” she decided to
8 stop struggling and float to the surface. She could “feel the water warming around my face” and
9 see the light at the surface. As she cleared the surface, she took a deep breath and yelled, “help”
10 right before a big wave she estimated at six feet, put her back under water. She could not recall
11 how she eventually made it to the area behind the *Showboat Branson Belle*, but said she was told
12 someone brought her and others raised her out of the water.

13 Passenger number 8, a 14-year-old male sitting along the port side in the second-row bench
14 seat said, “the next thing you know, we are tilting to the right side of the boat.” Water came in
15 from the bottom of the side curtain. “I turned back and there was a whole lot of water behind us.”
16 As the vessel was sinking, “The whole back row was covered with water” and quickly only the
17 front two rows of bench seats were above the water. “I could not see my grandparents anymore
18 [passengers 10 and 12]” seated in the seat behind and on the aisle adjacent to him. He and other
19 people tried to reach the life jackets. The sinking happened so fast that “I wasn’t even able to grasp
20 for air.” He believes he escaped through the front windshield opening and estimated he was
21 underwater for 30 seconds, came to the surface and made his way to the paddlewheel of the
22 *Showboat Branson Belle*, where he sat exhausted for about 5 minutes before crew brought him on
23 board.

24 Passenger number 14, a 19-year-old female, sitting against the starboard side in the third
25 bench seat, said the side curtains were lowered after the vessel made a starboard turn toward the
26 *Showboat Branson Belle*. She described water covering her feet and in seconds water up to her
27 knees after the *Stretch Duck 7* “took a sharp right turn and the right side of the boat went down”
28 and water entered the vessel on the starboard side. The “water came exactly with me as I stood up
29 to get a last breath of air” and “as I stood up, he (captain) released the top, I watched him reach up
30 (with his left hand) and touch something, so I hoped he had released the top” and “we were already

1 under when the top came off,” “and as soon as my head was covered [with water], I just swam
2 up.” She said there were no impediments as she made her way to the surface and did not see anyone
3 when she got her head above water. She then saw the captain about 20 yards away and her cousin
4 (Passenger 17) popped to the surface about a yard from where she was treading water searching
5 for her family. She swam, pushing and towing her cousin, passenger 17, to the *Showboat Branson*
6 *Belle* dock where people pulled the two of them from the water. Her cousin was lifted from the
7 water by a ring buoy and line that had been thrown to him.

8 Passenger number 15, an 11-year-old female sitting along the port side in the fourth-row
9 bench seat said “The water started going into the boat. It was just like a movie. It just filled [up
10 with water].” Once underwater, unable to see, she used her hands to find an opening and began
11 “swimming, I just remember like it took me forever to get up to the top so I could breathe” and it
12 took her “about 5 minutes to get to the showboat.” She and her mother climbed up the paddlewheel.

13 Passenger number 16, a 15-year-old female, sitting on the aisle in the fourth bench seat on
14 the port side, said the sinking happened fast as “the boat filled up all the way” with water in the
15 back and to the right. She recalled her head hitting the top of the canopy several times before
16 exiting the boat through the canopy, swimming straight up and seeing her father, passenger 21.
17 She and her father swam to the finger pier where she hung onto a cable exhausted, until being
18 pulled from the water.

19 Passenger number 17, a 10-year-old male, sitting on the aisle in the fourth bench seat on
20 the starboard side, said that the flooding water washed his sandals off his feet and “the duck filled
21 fast.” “All I could see was the white of the roof (canopy)” when he was underwater. “I was banging
22 on the roof when the duck filled up to see if the roof would come off.” Describing his escape, he
23 said that when the captain released the top, “I swam up as fast as I could,” bruising the top of his
24 right arm when he went through the top. Just before being removed from the water, he said he tried
25 to “get on her [his cousin, passenger 14] back to see if that would help me, then she kicked me
26 off.” Almost immediately after that someone threw him a life ring, which he put around his body
27 and was pulled out of the water. He said he was the first survivor on land.

28 Passenger number 18, a 10-year-old male, sitting against the starboard side in the fourth
29 bench seat, said the waves started getting high and water started coming in through the “bottom of
30 the window,” referring to the starboard side curtain that had been lowered. In describing water in

1 the boat beginning to cover his feet he said, “We all thought it was just fun and games, like oh,
2 yeah, probably just part of the ride, all fun and then it started getting a little under my knee. And
3 then we all started panicking. And after that it just went down really fast.” “As soon as we went
4 under, I was swimming up because I thought there may be a little air at the very top [under the
5 canopy], but I just kept swimming looking for the top of the boat and finally I just swam up to the
6 air.” Once on the surface, he said he just tried to stay above the surface because swimming in the
7 waves was too difficult as the waves were throwing him ‘a pretty good distance.” Eventually he
8 made his way towards the *Showboat Branson Belle* and he saw and tried to retrieve life jackets
9 that were thrown into the water until he was finally able to grab one and make his way to the finger
10 pier at the stern of the *Showboat Branson Belle*, where he was pulled from the water.

11 Passenger number 19, a 40-year-old female, sitting against the port side in the fifth bench
12 seat, said that water came into the boat on the starboard side as she recalled the *Stretch Duck 7*
13 “tilting really bad, like bad, bad, bad to where the water’s coming in” and she noted that the “back
14 is sinking.” She recalled her brother-in-law (passenger 21) standing up and saying, “everybody,
15 just calm down” at the same time she saw the captain grab what she thought was “a latch to release
16 the roof.” In describing the rate of flooding inside the vessel, she said one moment water was up
17 to her calf, and the next moment she was completely underwater. She said she perceived that she
18 was looking up at the captain while she was covered with water and that water had not yet reached
19 the captain and then saw him go through the right side of the *Stretch Duck 7*’s windshield opening.
20 As she went below the water, she recalled not touching any part of the vessel and “going through
21 a really warm section of water and then a really freezing cold section of water and then before I
22 reached the top I was already out of breath, another warm section of water and [before coming to
23 the surface]...people were clawing at me trying to get above me, pulling me down, and I wasn't
24 going to have it. I, survival mode, I was like get off of me.” When she reached the surface, she
25 began yelling her children’s names. One of her daughters, passenger 15, who had swum to the
26 paddlewheel encouraged her mother to swim to her. She made it to the paddlewheel fighting the
27 waves that kept pushing her back. She held onto the paddlewheel until people on the boat asked
28 her to climb up the paddles. She was very weak and climbed towards the boat until two people
29 lifted her to a platform next to the paddlewheel.

30 Passenger number 20, a 64-year-old female, sitting on the aisle in the fifth bench seat on
31 the port side, said that the vessel quickly sank after she heard her son-in-law ask everyone to stay

1 calm. Then the *Stretch Duck 7* tilted to the right, she slid across her seat into the aisle as the vessel
2 flooded and when the vessel went underwater, “we all kind of floated up, couldn’t get out because
3 the roof was on” and believed she went through the canopy when it finally gave way. Seeing the
4 moving paddlewheel of the *Showboat Branson Belle* when she surfaced, she swam to the wheel
5 that had stopped turning and held on. A PFD, was thrown to her, but she declined to retrieve it, not
6 wanting to risk letting go of the wheel to retrieve the PFD. She did not recall how she was brought
7 from the wheel to the *Showboat Branson Belle*.

8 Passenger number 21, a 42-year-old male, sitting on the aisle in the fifth bench seat on the
9 starboard side, said everyone in the boat stood up when the water suddenly flooded the interior
10 going from ankle high, to knee high, and with everyone standing, the boat sunk. Going from knee
11 high to everyone submerged may have taken five seconds, however “It seemed like almost
12 instantaneous.” He told investigators that most of the water entered the vessel from the stern and
13 he felt the boat sunk by the stern because he remembers “looking up” towards the bow of the vessel
14 as it sank. He also saw the captain standing at the front of the compartment “and then it was almost
15 like he hit a button and he ejected out.” Passenger number 21 swam to the surface and looked for
16 others and then heard his daughter, passenger 16, call for him. Saying the two of them were not
17 strong swimmers and his daughter only “doggie paddles,” he told investigators he fought the urge
18 to go directly to her. He feared she may grab onto him and they both could drown. He swam close
19 to her and kept encouraging her to swim until they both made it to the catwalk behind the *Showboat*
20 *Branson Belle* where they were pulled from the water.

21 Passenger number 22, a 42-year-old female of 5’ 2.5” in height, sitting against the starboard
22 side in the fifth bench seat recalled the lowering of the side curtains when the *Showboat Branson*
23 *Belle* was off to her right. She told investigators the starboard side of the vessel flooded before the
24 port side because she noted the people on the starboard side were under water before the people
25 on the port side. When asked how the vessel sank, she said the vessel sank by the stern on the
26 starboard side. Describing her experience to investigators, she said:

27 The water just started coming in through the bottom ...not even like 10, 15 seconds,
28 my son [sitting in front of her] was already knee deep in the water...I reached up
29 to look for the life jackets ... and when I was trying to grab one, I couldn’t ...there
30 was no way I could get [reach] a life jacket ... I didn’t have time to think about my

1 family or my kids or trying to grab them. It was just like the movies, right up to the
2 top, get your last little breath, hope there's a little piece of air, an inch of air to take
3 in before you're -- you know, might have a chance to fight. But unfortunately, when
4 I got up there, the water had already consumed it, so we didn't even have a moment
5 to get our last breath; that was that... It felt like within 30 seconds we were down,
6 like completely under. And I mean, I don't know how to really describe it, other
7 than almost feeling like a caged animal in water that can't escape.

8 Her husband, passenger 21, standing up and asking everyone to stay calm was the last thing
9 she remembers hearing before going underwater. Once under water she kept pushing up with both
10 arms to escape the vessel and at some point in her struggle, struck the backside of her head saying
11 “When I came out of the boat, I must’ve hit something.” “I finally found a moment where I could
12 go free up, I just went and I felt like I swam for eternity, just going straight up, thinking ... am I
13 ever going to hit the top... I’ve never held my breath that long. I don’t even know how I did that.”

14 After breaking the water surface, with her bag around her arm that she grabbed as the vessel
15 sank, she did not see anyone and eventually saw the captain and her son, passenger 18, commenting
16 that her son was using his cell phone as a paddle and “booking it” to shore. She swam to the area
17 where the tugboat was moored behind the *Showboat Branson Belle*, where exhausted, she hung
18 onto the finger pier until eventually a man pulled her up by her arms, but not before “somebody
19 had thrown a life jacket, or something at me and it actually had hit me in the head ...and it threw
20 me back and I almost passed out.”

21 **13 Medical and Pathological Information**

22 **13.1 Injuries**

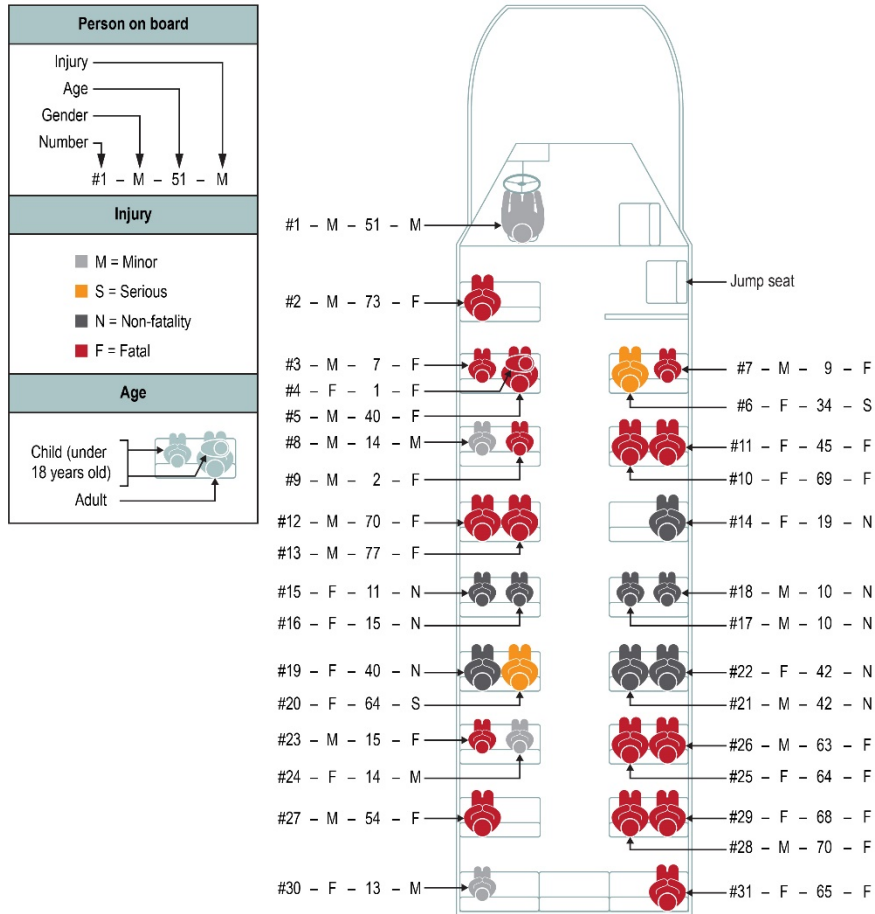
23 The injuries sustained in the *Stretch Duck 7* accident, shown in the table, are categorized
24 according to the injury criteria of the International Civil Aviation Organization (ICAO). The
25 Safety Board uses the ICAO injury criteria in all its accident reports, regardless of transportation
26 mode.
27

28 **Injuries sustained in *Stretch Duck 7* accident.**

Type of Injury*	Crew	Passengers	Other	Total
Fatal	1	16	0	17

Serious	0	2	0	2
Minor	1	3	0	4
None	0	8	0	8
* Title 49 CFR section 830.2 defines a fatal injury as any injury that results in death within 30 days of an accident. It defines serious injury as that which requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; results in a fracture of any bone (except simple fractures of fingers, toes, or nose); causes severe hemorrhages, nerve, muscle, or tendon damage; involves any internal organ; or involves second- or third- degree burns, or any burn affecting more than 5 percent of the body surface.				

1 The diagram below identifies each person on board the *Stretch Duck 7* by a number, sex,
2 age and type of injury. Eight passengers ranging in age from 10 to 42 reported no physical injuries
3 (Seating diagram numbers 14, 15, 16, 17, 18, 19, 21 and 22). Four survivors incurred minor
4 injuries, the 51-year-old captain (Hypoxia, brief and mild) and three passengers of ages 14, 14 and
5 12: (8) Contusion, left forehead; (29) Bilateral ear pain, minor head injury; and (30) Right ear pain.
6 All individuals with no injuries or with minor injuries swam to or to the area behind the *Showboat*
7 *Branson Belle* where they exited the water.



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Stretch Duck 7 seating diagram

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13.2 Fatal Injuries

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Two passengers incurred serious injuries. A 34-year-old female (seating diagram number 6) suffered near-drowning, pneumonia, hypoxia due to aspiration, and a left ankle sprain. She swam to a small barge moored behind the *Showboat Branson Belle*, where she was pulled from the water. A 64-year-old female (seating diagram number 20) suffered near-drowning, Tacosubo cardiomyopathy, pneumonia, hypoxia due to aspiration and contusions to both knees. A crew member from the *Showboat Branson Belle* recovered her from the water and immediately provided CPR. Each seriously-injured passenger was transported separately by ambulance and admitted to the Cox Medical Center in Branson, MO.

A total of 17 people died as a result of this accident. Eight of the 17 fatally injured were recovered from the surface of the water the evening of the accident and taken to the staging area

1 north of the duck ramp before being moved to the Cremation of the Ozarks in Hollister, MO for
2 identification and then to the Greene County Medical Examiner's Office in Springfield, MO
3 (seating diagram numbers: 7, 10, 11, 25, 26, 27, 29 and 31). Nine deceased were recovered from
4 underwater. Divers from the Western Taney Fire Protection District recovered three deceased the
5 evening of July 19th at depths of 55, 45 and 55 feet of water (seating diagram numbers 2, 23, and
6 28) and brought them to the staging area before they were moved to the Cremation of the Ozarks
7 for identification and then to the Greene County Medical Examiner's Office. Later in the night(the
8 early hours of July 20th), divers from the Missouri State Highway Patrol recovered the remaining
9 six deceased passengers, seating diagram numbers 3, 4, 5, 9 and 13 at depths of 44, 44, 44, 44 and
10 88 feet; and passenger 12 - the only deceased found within the vessel - in the aisle of the vessel
11 and at a depth of 88 feet. Once recovered and moved to shore, the deceased recovered by the
12 highway patrol divers were taken to the Stumpff Funeral Home in Kimberling City, MO. The
13 Coroner for Stone County Missouri determined that the cause of death in each of the 17 deceased
14 was drowning.