

Operations Factual Report

ACCIDENT

Owner: New York Fast Ferry Services, Inc.
Vessel Name(s): FINEST
Location: Sandy Hook Bay, NY at entrance to Shrewsbury River
Date: January 4, 2001
Time: 1930R
NTSB No.: DCA01MM015

Accident Narrative

At 1805 on January 4, 2001, the twin-hulled (catamaran), water-jet propelled, fast ferry *Finest* (figure 1), with five crewmembers and one company officer on board, departed the East 34th Street Terminal in the borough of Manhattan, New York City, New York, after loading 66 passengers. The vessel, which was owned and operated by New York Fast Ferries (NYFF), proceeded down the East River to Pier 11, the Wall Street loading point, where, at 1825, the *Finest* boarded an additional 192 passengers.¹



Figure 1. The Finest

¹ The Coast Guard defines vessels such as the *Finest*, which can attain speeds of 30 knots or more with a full complement of passengers, as domestic high-speed vessels. Navigation and Vessel Inspection Circular (NVIC) 5-01, *Guidance For Enhancing the Operational Safety of Domestic High-Speed Vessels* (See section on High Speed Ferries).

The *Finest* then departed for the Sandy Hook Bay Marina (SHBM) in Highlands, New Jersey, with a draft of about 6 feet. The crewmembers included a master, a senior deckhand, and three deckhands. After maneuvering the *Finest* away from Pier 11, the master turned over the conn (steering and speed control) to the senior deckhand.

According to the crew, the *Finest* was midway between the Verrazano-Narrows Bridge and Sandy Hook when a passenger came to the pilothouse and stated that he was having trouble breathing and might be suffering an allergic reaction. The passenger asked that the crew arrange for medical assistance to meet the vessel when it docked at the SHBM. The master called two crewmen to the bridge and had them escort the passenger to an auxiliary room near the vessel's disembarkation station so he could be the first person off the *Finest* when it arrived at the SHBM.

At 1916, the senior deckhand radioed Coast Guard Station Sandy Hook on VHF-Channel 16 asking that the Coast Guard arrange to have medical assistance at the SHBM. The Coast Guard, in turn, contacted the Highlands Police Department, which dispatched police officers and notified local medical personnel to stand-by at the marina. By 1920, the responders were in place at the SHBM, awaiting the arrival of the *Finest*.

As the *Finest* passed buoy 17, about 1/2 nautical mile² west of the northern end of Sandy Hook Point, the master observed an ice field inside Sandy Hook Bay that extended from Sandy Hook peninsula about one mile into the bay. The vessel's normal trackline to the SHBM would have taken the vessel through the ice field. After passing buoy 17 and Sandy Hook Point, the senior deckhand changed to a southerly course towards the Atlantic Highlands breakwater. The new trackline ran parallel to the western edge of the ice field and allowed the vessel to operate outside of the ice. (See figure 3.)

After the *Finest* passed Sandy Hook Point, the two buoys (Nos. 2 and 3) marking the approach to the Shrewsbury River channel were within the range of the vessel's radar, but the master could not locate them visually or by radar. The master took over the conn about 2 1/2 miles past Sandy Hook Point and continued southbound, operating the vessel at a speed of about 34 knots. The master and the senior deckhand estimated that when the vessel's position was between a 1/2-mile and 1 mile from the Atlantic Highlands breakwater, the master began to turn the vessel to the east. The master said that before the *Finest* entered the ice field, he had the deckhands secure the electrical generators, which required the mate's radar to be turned off. The master's radar, however, ran off the ship's battery supply and continued to operate.

At the point of entering the ice field, the approximate distance to the position of buoy 2, one of the two approach buoys, was 6/10 mile. The master continued into the ice field and approached the estimated position of buoy 2 at a speed of about 32 to 34 knots. According to the master, he continued to look for the approach buoys visually and by radar. When the vessel was approximately 3/10 mile from buoy 2, he began reducing his

² All distances given are nautical miles. A nautical mile equals 6080 feet versus 5280 feet for a statute mile.

speed to about 25 knots. The master made one final attempt to locate the buoys by having the deckhand go on the bridge wing to obtain a visual sighting. After the deckhand reported that he could not see the buoys, the master made his turn towards the marina based on a visual observation of the marina's lights and a radar observation of the marina.

The master turned the vessel to the right using the marina lights as his reference, and after completing the turn he reduced his engine speed to about 10 knots. Moments later the vessel's forward motion was stopped and the master thought that he was stuck in the ice field. At 1929, the master called the Coast Guard Station Sandy Hook for assistance to get his vessel through the ice. After repeated attempts to free the vessel using engine maneuvers, the master realized that the *Finest* had grounded. It was determined later that the *Finest* was about 150 yards east of the channel. At 1939, the master advised the Coast Guard that his vessel was aground. With the vessel's generators secured, the public address system was inoperative. Using a portable radio to communicate with the deckhands, the master directed them to walk through the two passenger cabins and advise the passengers of the situation.

When it became apparent that there would be an extended delay in refloating the *Finest*, the two deckhands with engineering experience improvised a means of providing cooling water to the electrical generator in the port engine room. This restored full electrical service to the vessel in about 1 hour, including the public address system and the heating, ventilation, and cooling systems. The master also instructed the deckhands to inspect the hull voids to ensure the vessel was not taking on water. Their inspection revealed that there was no hull penetrations or flooding.

At 1957, a 47-foot motor lifeboat (MLB) from Coast Guard Station Sandy Hook was dispatched and reached the area at 2015. The Coast Guard coxswain reported that the channel had 100 percent ice coverage and the buoys in the entrance to the channel were not visible. He used radar range and bearings to determine the channel's location and concluded that the *Finest* was clearly to the east of the channel. He slowly edged towards the *Finest*, but became stuck in the sand and could not offer any assistance.

When advised by Coast Guard Station Sandy Hook that the MLB was unable to reach the *Finest* and that there were 264 persons on board, Coast Guard Activities New York assumed control of the Coast Guard response and diverted the Coast Guard tug *Line* from a patrol in the Hudson River to offer assistance to the *Finest*. Activities New York also contacted the First Coast Guard District in Boston requesting helicopter support in the event air evacuation of the passengers became necessary.

The two closest Coast Guard Air Stations at Cape Cod, Massachusetts and Atlantic City, New Jersey each had one helicopter each on alert duty, and the First Coast Guard District directed them to proceed to the area. Both Air Stations were directed to recall another crew to provide an additional helicopter. By about 2300, four Coast Guard helicopters were on stand-by at Floyd Bennett Field, Brooklyn, New York, about 12 miles from the grounding site. The helicopters remained at the field until the *Finest* was safely moored.

When the grounding prevented the *Finest* from arriving at the dock, NYFF company personnel and a police officer from the Highland, New Jersey Police Department got underway on the small commercial tug *Marcie* that had been moored at the SHBM, about 1/2 mile from the grounding site. However, due to the shallow water, the *Marcie* grounded about 100 feet from the *Finest* and was unable to offer assistance. The New York City Police Aviation Unit responded to the Highlands Police Department's request for the evacuation of the ill passenger. A hoist-equipped helicopter was dispatched and a crewman with a stretcher was lowered to the rooftop of the *Finest*. The passenger was hoisted from the *Finest* and taken to a local hospital where he was treated for an allergic reaction and released.

The *Line* arrived on scene at about 2345. It could get no closer than 75 feet to the *Finest* because of the shallow water. By then, the smaller tug *Marcie* had been able to plow its way alongside the *Finest*. However, the *Marcie* became stuck in the sand and could not render assistance to the *Finest*.

The *Finest* was refloated by the incoming tide at 0007 on January 5. The vessel proceeded under its own power arriving at the SHBM berth at 0026. There was no hull damage to the *Finest* and no pollution resulted from the accident. At 0035, the Coast Guard MLB was ordered to return to its station and the 4 Coast Guard helicopters were released at 0040 to return to their respective air stations.

At the postaccident interview, the master stated that he typically used line of sight to set the course from buoy 17 to the river channel buoys. However, if the buoys were not sighted visually, SHBM presented a distinct target on his radar and the master would adjust his course towards the marina until the buoys were located visually. After visually locating the buoys, the final approach into the river channel and marina would be accomplished by following the buoys in the channel. He further stated that he typically navigated using the radar as a check—"looking back and forth" between the radar and visual observations. The master said that, on the run during which the accident occurred, he followed his typical procedure and navigated primarily by using the radar and visual observations to estimate his position offshore and then using the lights of the marina as a specific visual reference for making the turn into the channel. When the master was asked if he knew of a feasible alternative to navigating to the marina without the use of buoys, he replied that he did not. The master said that during the afternoon trip the approach buoys to the river had been visible. On the evening ferry run, however, the ice obscured all the buoys.³ The master had never before made an approach to the river where all the buoys were obscured.

Injuries

No passengers or crewmembers sustained any injuries.

³ To prevent their being damaged, the buoys were designed to roll under an ice floe and then pop back up when the ice broke up or melted.

Damage

Inspection of the two hulls showed no damage or flooding. The weekend after the grounding, the cooling water systems for the main engines were partially disassembled to remove accumulated sand that had been ingested during the grounding. The following Monday, the *Finest* began a normally scheduled run from New Jersey to New York. During that trip, the engines overheated whenever they were operated at a high speed. After discharging passengers in New York, the remaining morning runs were cancelled and the crew spent the day cleaning out the engine cooling systems once again.

Personnel Information

Small passenger vessels carrying more than six passengers for hire may not be operated without a valid Coast Guard Certificate of Inspection (COI), which is issued by the Coast Guard Officer in Charge, Marine Inspection (OCMI) for the zone. The COI, among other conditions, stipulates the minimum staffing requirements. When determining the number and competencies of the crewmembers, the OCMI considers many factors including the size of the vessel, its route, the type and horsepower of the vessel's propulsion machinery, the number of passengers, the type and location of lifesaving equipment, and the hazards peculiar to the route and service. According to its COI, the *Finest* was required to carry a specific complement of crewmembers based on the number of passengers. (See table 2.)

Table 2. Required Crewmember Complement for the *Finest*

<i>Number of Passengers</i>	Required Crewmembers*
1–149	One master, two deckhands
150–299	One master, one licensed mate, two deckhands
300–350	One master, one licensed mate, three deckhands

*The licensed mate can be substituted with a senior deckhand, designated in writing by the master and qualified in accordance with policy contained in Coast Guard Navigation and Vessel Inspection Circular (NVIC) 1-91, "Recommended Qualifications for Small Passenger Vessel Deckhands."

In accordance with the COI,

When underway on the navigable waters of the United States, the vessel must be under the direction and control of an individual qualified to serve as a pilot. The requirement for a pilot may be met by a first class pilot or a master or mate. When using a master or mate to serve as pilot, the individual must:

- (1) Be at least 21 years old;

- (2) Maintain current knowledge of the waters to be navigated by having made one round trip within the past 60 months; and
- (3) Have 4 round trips over the route. If the route is to be traversed during darkness, then 1 of the 4 round trips used to qualify must be made during darkness.

At the time of the grounding the vessel crew included a master, senior deckhand, and three other deckhands. According to the Company's *Vessel Operating Manual*, the duties of the crewmembers were as follows:

Master Total responsibility for the operation of the vessel and the safety of the passengers, crew and the overall condition of the vessel.

“Navigator” (Senior Deckhand) Assist with the operation of navigational equipment, act as lookout when required and operation of deck gear.

“Steward” (Deckhand) Operation of the service bar including its stocking, maintenance and sales transactions. Also responsible for passenger saloon cleaning and proper garbage removal from vessel.

“Engineer” (Deckhand) Operation of the main and auxiliary machinery, its daily startup and shut down and logs.

Master

The master, age 30, held a license as a “Master Near Coastal Steam or Motor Vessels of not More than 100 gross tons” and held a radar observers endorsement. He had been in the maritime industry since 1990, serving on fishing, towing, and small passenger vessels. He had previously worked as a master for another ferry company in New York. He joined NYFF in September 1999 as a deckhand and was promoted to master in the spring of 2000. He had no experience on domestic high-speed vessels before being hired at NYFF.

The master had completed a Coast Guard approved Basic Radar and Simulator Course in 1997, which covered radar theory, observation, operation and use, interpretation and plotting, advanced radar plotting, collision avoidance, and navigational exercises. Before becoming master, while serving as a mate on a high-speed vessel, the master received on-the-job training under the supervision of a master. The master of the *Finest* stated that it took three months of training on the single stick jet control system for him to become proficient in its use. The port captain observed the master on several trips before he was made the master on the *Finest*. However, NYFF had no piloting or radar training requirements or formal evaluation of these skills.

The master had been off one week before the grounding and stated he was well rested. He reported that, on the day of the grounding, he had followed his normal

schedule and that there were no factors that interfered with his judgment.

Senior Deckhand

The senior deckhand, age 28, held no license, nor was he required to be licensed. On October 10, 2000, he had been qualified as a senior deckhand by the master, as permitted by the vessel's COI and Navigation and Vessel Inspection Circular (NVIC) 1-91. The Coast Guard recommends that a deckhand have 30 days experience on board the vessel and 30 hours at the helm under the supervision of a master or mate in order to qualify as the senior deckhand. The senior deckhand had joined the company in August 2000. His previous maritime experience was as a boatswain mate in the Coast Guard, serving both on large cutters and at small boat stations.

Deckhands

There were three other deckhands. The second deckhand was the designated engineer and held a license as a "Master Inland Steam or Motor Vessels of Not More Than 100 Gross Tons," although he was not required to have a license. Another deckhand was assigned to serve as engineer and held a license as a "Master Near Coastal Steam or Motor Vessels of Not More Than 50 Gross Tons." He, too, was not required to have a license. The last deckhand was assigned to the service bar to provide concession duties and did not hold a Coast Guard license. All of the crewmembers reported that, on the day of the grounding, they had not done any unusual work and that they had followed their normal schedules, which included taking naps in the afternoon.

Vessel Information

The *Finest* is an aluminum catamaran ferry built in 1996 by Derektor Shipyards, Mamaroneck, NY. Its overall length is 127 feet, with a beam 33 of feet. It is powered by twin diesel water jet drives and had a maximum speed of about 38 knots. The *Finest* had a capacity of 349 passengers, which could be carried in two cabins on the main deck and the upper deck. There was a concession stand on the main deck in the center of the vessel. The vessel's draft varied from 3.6 ft to 6.6 ft forward and 4.9 ft to 5.9 feet aft depending on the load condition. NYFF is a wholly owned subsidiary of Lighthouse Fast Ferry, Inc.

The *Finest's* COI permitted the vessel to operate on a "LIMITED COASTWISE, Atlantic Ocean On COI all letters between quotes are capitalized) not more than 20 miles from a harbor of safe refuge between Montauk Point, New York and Cape May, New Jersey." All of this would be capitalized.

The *Finest's* navigation and communications equipment included the following:

- 2 VHF-FM Marine band radios

- 2 3-centimeter radars, one Automatic Radar Plotting Aid (ARPA)⁴ equipped.
- 1 PinPoint Electronic Chart Plotter
- 1 Global Positioning System (GPS) with Differential GPS (DGPS)/chart plotter
- 1 Autopilot
- 1 Digital gyro compass
- 6 portable FM business band radios

The main propulsion cooling systems on the *Finest* had been modified to allow for operation in the ice. However, the cooling water for the two electrical generators had not been modified and frequently became clogged when operating in ice. It was, therefore, a routine practice for vessel personnel to secure the generators when in an ice field. The engine's computerized monitoring system, the emergency lighting, the PinPoint chart plotter, and the 3-centimeter radar used by the captain operated on the 24-volt D.C. circuit and were operational if the generators were secured. Batteries powered the 24-volt system. The public address system,⁵ the second radar with ARPA, and the heating, ventilation, and cooling system required 120-volt power supplied by either one of the two generators and were not operational while the vessel was in the ice. The public address system was operated from the steering station on the bridge and in postaccident testing was found to be loud and clear in both cabins. Communications between the crew was via portable radios on the FM business spectrum.

Waterway Information

The *Finest* operated in New York Harbor from the East 34th St. terminal in the East River to the SHBM terminal in the Shrewsbury River, an overall distance of 23 nautical miles. The route included passage through the Upper Bay through the Narrows into the Lower Bay of New York Harbor. The Upper Bay is bounded by the boroughs of Manhattan, Brooklyn, and Staten Island, in New York City, New York, and Bayonne, New Jersey.

Sandy Hook Bay and the Shrewsbury River are located in the southeast area of Lower New York Bay, which is bounded in the east by Sandy Hook peninsula. A vessel entering Sandy Hook Bay from the north will pass buoy 17, which is located 4/10 miles west of the northern tip of the peninsula. It was a direct course line from buoy 17 to the Shrewsbury River channel approach buoy number 2 at a distance of 3.5 miles.

⁴ ARPA – Automatic Radar Plotting Aid

⁵ 46CFR121.610 requires the vessel to be equipped with a public address system operated from the bridge. The installed public address system required ship's generators to operate.

The channel into the Shrewsbury River was 100 yards wide and began at buoy number 2 about 6/10 mile north of the shore. The depth in the channel approaching Sandy Hook Bay Marina is 13-17 feet at mean lower low water (MLLW).⁶ Immediately to the east of the channel is a shoal where the MLLW is 2 feet and on which a vessel wreck is exposed at low tide.

At the time of grounding, the tide was ebbing⁷ and its level was 0.7 feet above MLLW; the tide dropped to a low level of 0.2 feet above MLLW at 2125. The *Finest* was refloated at 0007 on January 5, when the flood tide reached 1.8 feet above MLLW.

Ice coverage of the bay and river varies from year to year depending upon the winter temperatures. Ice coverage this year had begun developing two weeks before the night of the grounding. The prevailing west wind for the previous two days had blown all the ice in Sandy Hook Bay to the east side of the bay.

The *Light List Vol. I, Atlantic Coast*,⁸ listed the buoys in the Shrewsbury River with the caution that, “Buoys in river are maintained from April 15 to December 1 unless otherwise noted.” The buoys in the river are replaced as needed in the winter with smaller unlighted buoys that are less susceptible to ice damage. This replacement had occurred the week before the accident. On January 3, the Coast Guard had issued a Broadcast Notice to Mariners⁹ advising that aids to navigation on the Shrewsbury River may be off station or missing. They further warned: “Mariners are advised not to rely upon navigational aids to affix their position.”

Operational Information

On the day of the accident, NYFF operated two domestic high-speed vessels from Highlands New Jersey to Manhattan, New York City, New York. The combined daily ridership was approximately 2,000 passengers. The company reported a 6% increase in annual ridership to 297,775 passengers from the Highlands site for the year 2001. Highlands, New Jersey is located on the Shrewsbury River in Monmouth County, New Jersey. High-speed vessel service from the Highlands began in 1996 and supplemented bus and rail service into Manhattan. The distance by highway between Highlands and midtown Manhattan is about 55 statute miles.

⁶ MLLW is the chart datum (reference point) for charted depths used in this area of the coast and is the average of the lower of two daily low tides. At most states of the tide, the mariner has at least the water depth as marked on the navigation charts. Tide tables use the same reference as the navigation charts.

⁷ An ebbing tide is when water is going out (North in this case) and the water level is decreasing. A flood tide is the reverse, water coming in and water level increasing.

⁸ Department of Transportation, Light List, Volume 1, Atlantic Coast, 2000 edition.

⁹ A Broadcast Notice to Mariners is transmitted by the Coast Guard as an advisory to all mariners on VHF-FM radio every 6 hours in the area that is effected by the information.

Meteorological Information

The weather at the time of the accident was reported¹⁰ to be partly cloudy, with visibility greater than 10 miles. Winds were from the West at 10 knots and had been westerly for the preceding 48 hours. Air temperature was 31 F°, and it had been below freezing for more than 4 days.

Toxicological Testing

At 0128 on January 5, a Coast Guard boarding team from Coast Guard Station Sandy Hook arrived at the SHBM to conduct a postaccident test for alcohol of the master. The alcohol (breathalyzer) test was administered to the master at 0130 on January 5, approximately 6 hours after the grounding, with negative results. The president of NYFF then took the master and the 5 crewmembers to a local hospital for screening for illicit drugs. Those results were also negative.

¹⁰ From Newark Airport, 14 miles to the Northwest.