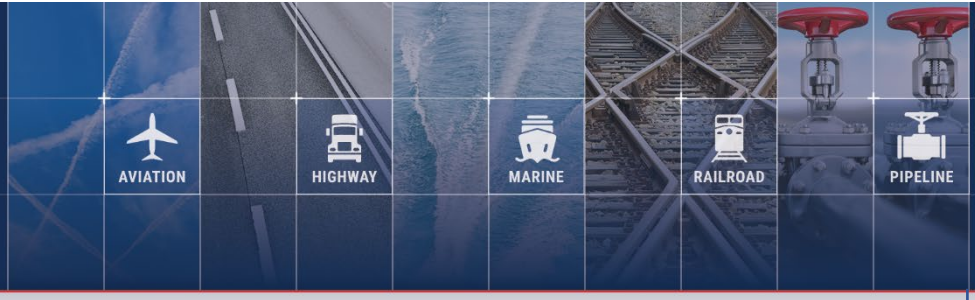

Adopted: July 3, 2023

MIR-23-14

Collision between US Coast Guard Cutter *Winslow Griesser* and Center-console Boat *Desakata*

Atlantic Ocean

Near Dorado, Puerto Rico

August 8, 2022

Abstract: This report discusses the August 8, 2022, collision between the US Coast Guard cutter *Winslow Griesser* and the center-console boat *Desakata*, in the Atlantic Ocean, about 4 miles north of Dorado, Puerto Rico. Safety issues identified in this report include (1) inadequate lookout on both vessels given the operating conditions and (2) difficulty detecting small vessels by radar. As part of its investigation, the National Transportation Safety Board makes two new safety recommendations to the Coast Guard.

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Acronyms and Abbreviations

AIS	automatic identification system
ARPA	automatic radar plotting aid
BRM	bridge resource management
CCTV	closed-circuit television
CFR	*Code of Federal Regulations*
COLREGS	*Convention on the International Regulations for Preventing Collisions at Sea, 1972*
ECDIS	electronic chart display and information system
FAD	fish aggregating device
GMDSS	Global Maritime Distress and Safety System
IMO	International Maritime Organization
NTSB	National Transportation Safety Board
PCO	prospective commanding officer
PXO	prospective executive officer
SIPR	secure internet protocol router
SOLAS	*International Convention for the Safety of Life at Sea*
VDR	voyage data recorder
VMS	vessel management system

Glossary

Automatic identification system: a maritime navigation safety communications system that provides vessel information automatically to appropriately equipped shore stations, other ships, and aircraft; automatically receives such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities.

Boundary Line: as defined in Title 46 *Code of Federal Regulations* Part 7, delineates inland and offshore waters for regulatory purposes.

Bridge resource management: an organizational practice that helps ensure safe vessel operation by managing teams, communications, hazards, and culture.

Cutter: a Coast Guard vessel 65 feet or greater in length, with accommodations for a crew to live aboard.

Eye height (standing): Anthropometric measurement of the vertical distance from the standing surface to eye level.

Fish aggregating device buoy: a buoy used by commercial and recreational fishermen to attract fish.

Freeboard: the vertical distance between a vessel's waterline and the highest watertight deck.

Gunwale: the upper edge of a ship or boat's side.

Height of eye: vertical distance measured from the water's surface to the eye level of a person on board a vessel.

Jacob's ladder: a rope ladder, usually with wooden rungs, used to board vessels at sea.

Officer of the deck: the commanding officer's direct representative in all matters pertaining to operations, navigation, and the vessel's daily routine.

Radar reflector: a device designed to create a strong reflection of radar waves in order to make it clearly visible on vessel radar screens.

SeaWatch: an integrated system used for navigation, radar, and tactical communications on select classes of Coast Guard cutters.

Secure internet protocol router net: a secure version of the internet used by Department of State, Department of Defense, and Department of Homeland Security.

Executive Summary

What Happened

On August 8, 2022, about 1417 local time, the 154-foot-long US Coast Guard cutter *Winslow Griesser* (WPC-1116) and the 23-foot-long center-console boat *Desakata* collided about 4 miles off the northern coast of Puerto Rico. The cutter, with a crew of 21, was transiting westbound along the coast, and the boat was transiting northbound while trolling (fishing). Of the two *Desakata* crewmembers, one was seriously injured, and one was fatally injured. None of the *Winslow Griesser* crewmembers were injured. No pollution was reported. The *Desakata,* valued at $58,800, was a total loss.

What We Found

We found that because neither vessel's crew saw the other vessel in the developing crossing situation before the collision, neither had time to assess or apply the navigation rules to avoid the collision. The *Winslow Griesser* should have been visible to the *Desakata* operator before the collision, but the operator was not maintaining a proper lookout. Similarly, the *Desakata* should have been visible to the *Winslow Griesser* crewmembers before the collision, but the bridge watchstanders were not maintaining a proper lookout. We also found that the *Winslow Griesser* commanding officer and officer of the deck did not take sufficient measures to increase situational awareness when the cutter was transiting at high speed.

During the investigation, the *Winslow Griesser* commanding officer, officer of the deck, and quartermaster of the watch declined requests of National Transportation Safety Board investigators to be interviewed based on advice of their counsel. We found that, had the *Winslow Griesser* been equipped with a voyage data recorder, or its equivalent, investigators would have been provided with additional critical factual information about the collision, which could help identify potential safety issues and result in safety improvements.

We also found that fitting small vessels with equipment—such as radar reflectors or automatic identification systems—when combined with proper visual lookout, would improve the opportunity for vessels with radar to detect them, therefore reducing the risk of a collision.

We determined that the probable cause of the collision between the US Coast Guard cutter *Winslow Griesser* and the center-console boat *Desakata* was the failure by both vessels' crews to maintain a proper lookout. Contributing to the casualty was the *Winslow Griesser* commanding officer and officer of the deck not taking sufficient measures to increase situational awareness while transiting at a high speed.

What We Recommended

Lessons learned from tragedies like this collision can be useful as training tools and for reviewing current watchstanding (in particular lookout) practices to identify weaknesses and find areas for improvement. Therefore, we recommended that the Coast Guard provide information about the circumstances of this collision to cutter crews and emphasize the importance of maintaining a proper lookout and ensuring situational awareness when transiting at high speed.

Charged by Congress as the only independent investigator of Coast Guard casualties, the NTSB requires the availability of objective, time-stamped data, such as that provided by a voyage data recorder, to complete timely and thorough investigations that involve Coast Guard cutters. Voyage data recorders are one of the most valuable sources of information following a marine casualty because they maintain continuous, sequential records of data relating to a ship's equipment and its command and control, and they also capture bridge audio. Although investigators gathered vital information from camera footage, interviews with crewmembers not on watch, and other sources, the presence of a voyage data recorder on board the *Winslow Griesser* would have provided access to additional critical data. Therefore, we recommended that the Coast Guard install equipment on all cutters that records vessel parametric data and audio information that is equivalent to International Maritime Organization voyage data recorder performance standards.

1 Factual Information

1.1 Event Sequence

1.1.1 Synopsis

On August 8, 2022, about 1417 local time, the 154-foot-long US Coast Guard cutter *Winslow Griesser* (WPC-1116) and the 23-foot-long center-console boat *Desakata* collided about 4 miles off the northern coast of Puerto Rico (see Figures 1 and 2).[1] The cutter, with a crew of 21, was transiting westbound along the coast, and the boat was transiting northbound while trolling (fishing). Of the two *Desakata* crewmembers, one was seriously injured, and one was fatally injured. None of the *Winslow Griesser* crewmembers were injured. No pollution was reported. The *Desakata*, valued at $58,800, was a total loss.

Figure 1. US Coast Guard cutter *Winslow Griesser*. (Source: Coast Guard)

[1] (a) All times in this report are Atlantic standard time, and all miles are nautical miles (1.15 statute miles). (b) Visit ntsb.gov to find additional information in the public docket for this NTSB investigation (case no. DCA22PM034). Use the CAROL Query to search investigations.

Figure 2. Center-console boat *Desakata* before the collision. (Source: Samuel Rosario)

1.1.2 Precasualty Events

The *Winslow Griesser* was scheduled to get underway from Coast Guard Base San Juan, Puerto Rico, at 0830 on August 8, 2022. The cutter's destination was Punta Cana, Dominican Republic, to pick up two Dominican naval officers for a routine patrol in and around the Mona Passage, a strait that separates the islands of Hispaniola (where the Dominican Republic is located) and Puerto Rico. The crew held a navigation brief at 0800, during which the crew used their prescribed risk management tool, called GAR 2.0, to assess their risk for the transit. They assessed the risk as low. During pre-underway checks, the crew discovered a loss of pressure in the propulsion engine-cooling seawater system, and the trip was delayed while crewmembers resolved the issue. Once the engines were started, the bridge team and other watch station personnel on the vessel conducted short refresher navigation and risk assessment briefs. The cutter got underway at 1335.

The center-console boat *Desakata* left Cerro Gordo, Vega Alta, Puerto Rico, about 0930 headed northeasterly toward a fish aggregating device (FAD) buoy 7.4 miles north of the coastline. On board were two brothers (one was the owner).

1.1.3 Event Sequence

While the cutter was getting underway, extra crewmembers (known as a special sea detail) were added to the normal bridge watchstanding team for the vessel's transit out of port. The bridge watchstanders consisted of an officer of the deck, conning officer, navigation evaluator, and quartermaster of the watch.

At 1345, as the vessel exited San Juan harbor, personnel assumed their normal at-sea watches. During normal at-sea operations, bridge watches aboard the *Winslow Griesser* consisted of an officer of the deck and a quartermaster of the watch. The crewmember who had been the navigation evaluator assumed duties as officer of the deck. The quartermaster of the watch remained on watch. The executive officer, who had been the conning officer while the cutter maneuvered out of port, went below, while the commanding officer, though not on watch, remained on the bridge. The cutter's training petty officer, who had transferred recently and was working toward his quartermaster of the watch qualification, helped secure the deck, fenders, and flags, and then he arrived on the bridge for training. A visiting port engineer shadowed the officer of the deck as he explained the uses of various bridge equipment including the helm station. She was aboard for familiarization and was working on naval engineering qualifications, which required, among other things, experience as a deck watch officer.

At 1350, once clear of shoal water, on the west side of the San Juan harbor approach, the bridge team altered the cutter's course to a northwesterly direction and increased speed from 15 to 29 knots.[2] The automatic identification system (AIS) transmitter was secured at 1353, after the vessel exited restricted waters, in accordance with the vessel's checklist for getting underway (the cutter did not transmit AIS due to its law enforcement mission). About 1406, the bridge team again altered the cutter's course to port, closer to a westerly course.

After departing Cerro Gordo, following the coast, then turning north, the *Desakata* slowly proceeded north while trolling for fish with four lines in the water. The owner operated the *Desakata* from the center console as the boat headed toward a FAD buoy, making about 5 knots with the seas on the starboard beam. The coastal weather forecast issued at 1106 called for 15– to 20-knot easterly winds and 4- to 6-foot seas with occasional 8-foot seas. Figure 3 shows the vessels' tracks.

[2] All speeds in this report are speed over ground.

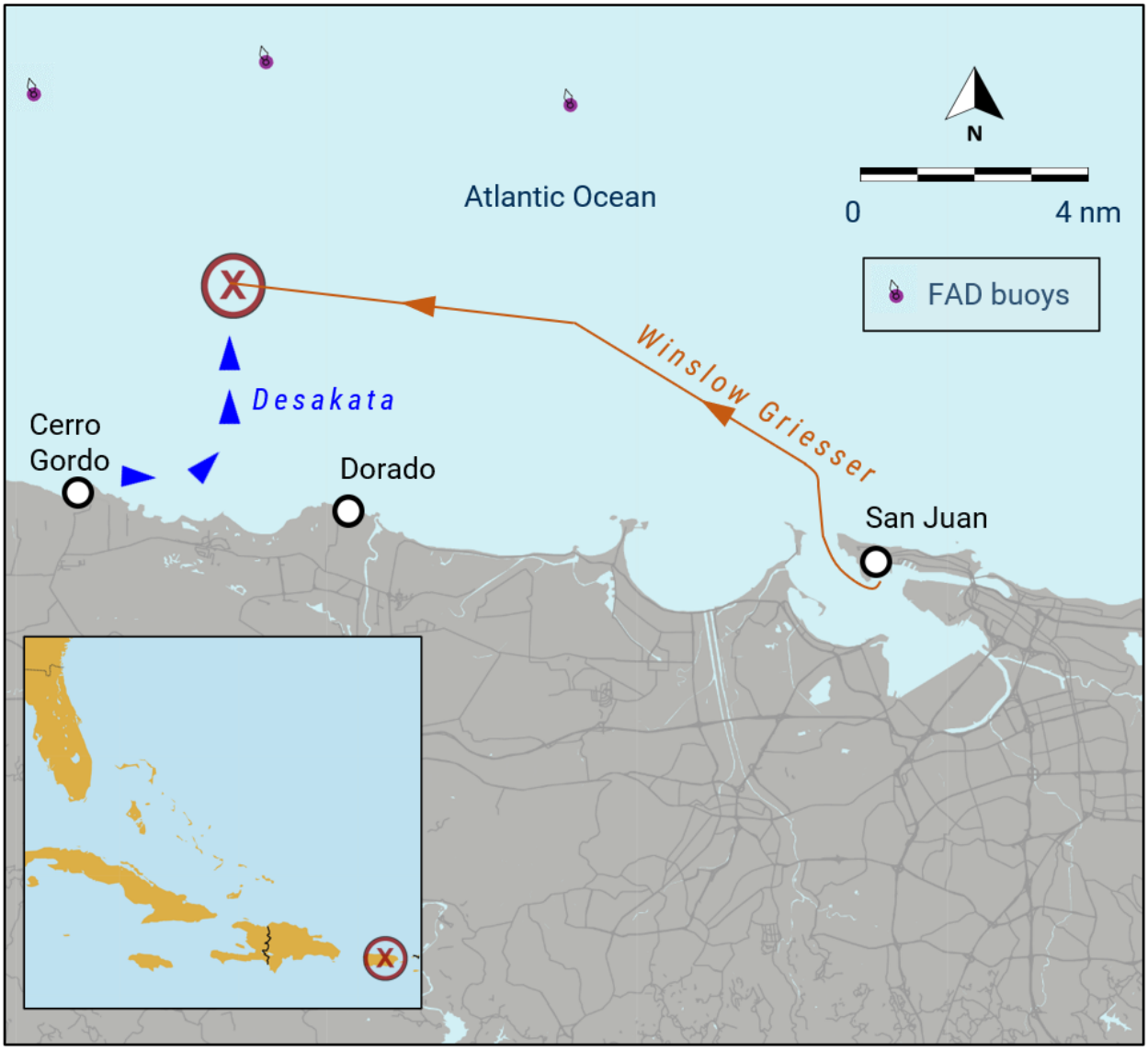

Figure 3. Area where the *Winslow Griesser* and *Desakata* collided, as indicated by a red *X*. The *Desakata*'s trackline is approximate. (Background source: Google Maps)

An airline passenger on a flight from Miami to San Juan noticed the two vessels. As the aircraft approached the coastline near Dorado, Puerto Rico, from an altitude of about 5,000 feet, he observed both vessels traveling on a constant heading. He described the *Winslow Griesser,* assuming it was a naval vessel, as proceeding "pretty fast" and the *Desakata* as "struggling because of the waves" and "going fairly slow" though "moving the whole time."

The cutter was proceeding at 29 knots with seas and swells from astern. Standing watch at the forward console with the vessel on autopilot to maintain heading, the officer of the deck continued to review equipment with the port

engineer, who told investigators she was not aware of any visual targets and she was not looking at the radar (see Figure 8 in section 1.5.1).[3]

According to the port engineer and the training petty officer, the quartermaster of the watch was attending to administrative tasks in the aft part of the bridge. At one point, the port engineer and training petty officer observed the commanding officer working on the port forward console, adjusting the tracklines to Punta Cana.

The *Winslow Griesser* was outfitted with at least 16 closed-circuit television (CCTV) cameras. A forward-looking camera high on the *Winslow Griesser*'s mast above the bridge first captured the *Desakata* about 19 seconds before the collision, crossing from port to starboard at a near right angle roughly 10° off the bow (see Figure 4). The camera footage, which was not clear because of a salt-crusted lens, appeared to show the *Desakata* disappearing and reappearing in the waves a few times. Camera footage also showed the *Winslow Griesser* yawing to port and starboard in following seas.

Figure 4. The *Desakata* as recorded from the *Winslow Griesser*'s salt-encrusted mast camera at 1416:53, 19 seconds before the collision. (Source: Coast Guard)

[3] The commanding officer, officer of the deck, and quartermaster of the watch declined requests of the NTSB to be interviewed.

About 1417, as seen from the forward-looking camera on the mast, the cutter and the fishing boat collided (see Figure 5). Crewmembers on the cutter's mess deck, located on the main deck below the bridge, felt a shudder and heard a bang. One crewmember stated that he thought they hit a whale. Onboard cameras captured the crew's reaction to the collision on the mess deck and other crewmembers checking for damage in the engine room.

Another crewmember was outside taking a break behind the bridge. He saw wreckage drift down the cutter's port side. He immediately reported this to the bridge watch, who had not realized that the cutter had struck anything.

According to the owner of the *Desakata*, who survived the collision, the vessel was trolling about 5 knots at the time of the collision. The owner was operating the boat from the center console and talking to his brother, while his brother was reaching for bait at the time of the collision. Following the collision, the *Desakata* owner told a cutter crewmember that he didn't see the cutter before the collision. He later told investigators that neither he nor his brother saw or heard the cutter approach.

Figure 5. The *Desakata* as recorded from the *Winslow Griesser*'s salt-encrusted mast camera at 1417:12, immediately before the collision. (Source: Coast Guard)

The airline passenger had watched the vessels for about 5 minutes as they proceeded on constant headings until the "cutter passes [*sic*] on top of the boat." He stated that it was "like they were on a collision course [the whole time] and didn't know it."

1.2 Response

The commanding officer of the cutter relieved the officer of the deck and maneuvered the vessel as the crew went to man overboard stations (the crewmember who had been on watch as officer of the deck was the designated coxswain for the cutter's deployable small boat). The *Desakata* had been split in two, and among the wreckage, the cutter crew spotted the owner waving to them and holding his brother (the owner later told investigators that at this point he believed his brother was dead). Neither was wearing a lifejacket. The crew maneuvered the cutter alongside and deployed liferings and the Jacob's ladder while they prepared to launch the small boat and a rescue swimmer. The *Desakata* owner was unable to climb the ladder in the rough seas. The coxswain maneuvered the small boat, and the owner swam (still holding his brother) to it. The small boat crew recovered both the owner and his injured and nonresponsive brother and returned to the cutter.

The *Winslow Griesser*'s crew treated the owner for head trauma. They medically assessed his brother and determined he had been fatally injured. Coast Guard Sector San Juan diverted a 45-foot response boat-medium and a 33-foot special purpose craft to the scene. The Sector also considered and decided against a helicopter medical evacuation, as all personnel were accounted for and the cutter was expected to return to port before a helicopter could arrive. The *Winslow Griesser* departed the scene at 1440 en route to San Juan and moored at the Charlie South Pier at Sector San Juan at 1550, where emergency medical services met the vessel. The owner was transported to the emergency department at Centro Médico in San Juan, treated, and released the next day.

1.3 Injuries

The *Desakata* owner sustained hematomas to his scalp and torso and suffered a spine fracture. The deceased *Desakata* crewmember's cause of death was bodily trauma. Table 1 shows the injuries sustained in the casualty.

Table 1. Injuries sustained in the casualty.[4]

Type of Injury	*Winslow Griesser*	*Desakata*	Total
Fatal	0	1	1
Serious	0	1	1
Minor	0	0	0
None	21	0	21

1.4 Damage

The *Desakata* was a total loss; its bow later washed ashore (see Figure 6). The vessel and fishing gear were valued at an estimated $55,600 and $3,200 respectively. The *Winslow Griesser* sustained cosmetic damage to its hull coatings.

[4] The NTSB uses the International Civil Aviation Organization injury criteria in all of its casualty reports, regardless of transportation mode. A serious injury is a nonfatal injury that 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; 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% of the body surface.

Figure 6. The *Desakata*'s bow section adrift immediately after the collision. (Source: Coast Guard)

1.5 Vessel Information

1.5.1 *Winslow Griesser*

1.5.1.1 General

The 154-foot-long *Winslow Griesser* was a steel-hulled fast response cutter. The cutter was the sixteenth of 64 planned Sentinel-class cutters. The cutter was built in 2015 at Bollinger Shipyard in Lockport, Louisiana, and was one of six fast response cutters homeported in San Juan. The vessels patrolled Sector San Juan's area of responsibility, conducting search and rescue, drug interdiction, migrant interdiction, and other Coast Guard missions.

The cutter had been out of service for about 7 weeks due to engineering issues. Following the maintenance period, the vessel and crew had transited to St. Thomas the week before the collision for crew familiarization and to test vessel systems and performance. The casualty transit was the first patrol for about half the crew.

1.5.1.2 Bridge Layout and Equipment

The *Winslow Griesser* was outfitted with two radars, a Vega electronic chart display and information system (ECDIS), and a Global Maritime Distress and Safety System (GMDSS) console, among other Coast Guard-specific equipment. On the bridge forward console, from port to starboard, was a Furuno DRS4A radar display and a SeaWatch station in front of the captain's chair; another SeaWatch station and the helm station in front of the helmsman's chair; a vessel management system (VMS) console; and a Furuno AN/SPS-50 radar (see Figures 7 and 8).

Figure 7. *Winslow Griesser* bridge, looking forward and to port.

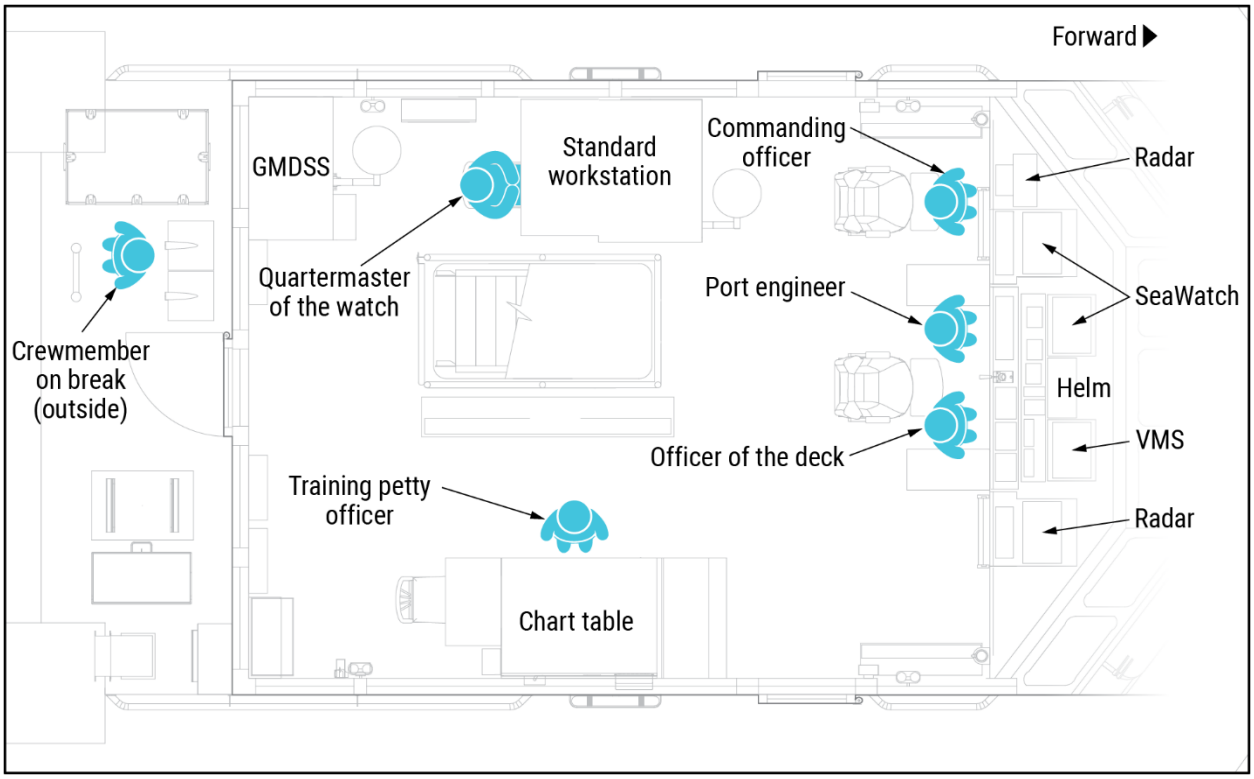

Figure 8. *Winslow Griesser* bridge arrangement and approximate location of individuals at the time of the collision.

Both SeaWatch consoles could display either the Vega ECDIS software for navigation or a secure internet protocol router net (SIPR) chat window to communicate with other law enforcement units and with shoreside command and control. The monitors could also display stand-alone automatic radar plotting aid (ARPA) data fed from the AN/SPS-50.

The *Winslow Griesser* was equipped with an AIS, which consisted of a receiver and a VHF transponder that transmitted the vessel's identity, position, course, speed, size, and destination. According to the cutter's *Navigation Standards*, which the commanding officer issued to promulgate unit navigation standards and watchstanding procedures for the safe navigation of *Winslow Griesser* and its small boat, the *Winslow Griesser*'s AIS transmitter was normally secured when the cutter was operating outside of restricted waters.

The vessel was outfitted with at least 16 CCTV cameras. However, not all camera channels could be recorded; investigators reviewed 14 camera channels following the collision. Camera footage on the bridge and stern was not recorded.

The height of eye of the bridge watchstanders was, at a minimum, about 19 feet 6 inches above the water's surface. The height of the forward-looking CCTV camera mounted on the vessel's mast was about 40 feet above the water.

1.5.2 *Desakata*

The *Desakata* was a 23-foot-long, owner-operated, 45-year-old Robalo 23 open center-console boat constructed of fiberglass. The boat was registered as a commercial fishing vessel in Puerto Rico, and the owner had a commercial fishing license. There was no record of a Coast Guard commercial fishing vessel safety examination for the *Desakata*.[5] The owner purchased and refitted the boat about 2 years before the collision, replacing the outboard engines in 2021. He told the cutter crew that he and his brother normally worked near Dorado. According to the owner, "the boat hasn't even been in use 8 months." The *Desakata's* white canopy over the center console was 9 feet above the water's surface, and its gunwales were about 2.5 feet above the water's surface (freeboard of 2.5 feet). The *Desakata* was equipped with a fathometer, GPS, and VHF radios only. Table 2 shows the vessel particulars for the *Winslow Griesser* and the *Desakata*.

[5] Under the Coast Guard Authorization Act of 2010, commercial fishing vessel safety examinations are required once every 5 years for fishing vessels that operate 3 miles beyond shore. These safety examinations help ensure that all the required safety equipment and systems on board are in serviceable condition; examinations do not include the hull, electrical systems, or machinery as required for Coast Guard-inspected vessels.

Table 2. Vessel particulars.

Vessel	*Winslow Griesser*	*Desakata*
Type	Patrol/Small Craft (Coast Guard fast response cutter)	Fishing (Fishing vessel)
Owner/Operator	Coast Guard (Government)	Private owner (Private)
Flag	United States	United States
Port of registry	San Juan, Puerto Rico	San Juan, Puerto Rico
Year built	2015	1977
Official number (US)	N/A	PR4157AA
IMO number	4686175	N/A
Classification society	N/A	N/A
Length	153.5 ft (46.8 m)	23.0 ft (7.0 m)
Beam	25.4 ft (7.7 m)	8.3 ft (2.5 m)
Draft	9.8 ft (3.0 m)	1.5 ft (0.5 m)
Displacement	353 metric tons	1.8 metric tons
Engine power; manufacturer	1 x 5,800 hp (4,325 kW); MTU	2 x 115 hp (86 kW); Yamaha
Persons on board	21	2

1.6 Waterway Information

The collision occurred 3.8 miles north of Dorado, in about 2,000 feet of water. The coastline between San Juan and Dorado runs generally east and west. According to the *United States Coast Pilot*, the prevailing east winds cause a west drift along the coast. "The coast is indented by many coves with reefs and rocky islets extending 0.5 to a mile offshore; breakers show at many of the reefs. All dangers will be avoided by staying 2 miles or more offshore" (NOAA 2023).

According to a former commanding officer of a different San Juan-based cutter, fast response cutters typically transit between San Juan and the Mona Passage closer to shore than the FAD buoys (see Figure 3). He recalled there was relatively little traffic off the north coast of Puerto Rico.

1.7 Environmental Conditions

At the time of the collision, a small craft warning was in effect for the northern coastal waters of Puerto Rico, out to 10 miles. The coastal weather forecast issued at 1106 called for 15– to 20-knot easterly winds and 4- to 6-foot seas with occasional 8-foot seas. At 0156, the closest automated weather station, at San Juan airport, 18 miles east of the collision site, reported 18-knot winds from 070°, gusting to 23 knots, and an air temperature of 89°F. A weather satellite recorded clear visibility over the site at 1416. Wave height at 1426, as measured by a Caribbean Integrated Coastal Ocean Observing System buoy 23 miles west of the collision location, was reported as 5.8 feet from an east-northeasterly direction.

The *Winslow Griesser* crew logged the on-scene weather at 1500 as scattered clouds, 16-knot winds from 073°, visibility 9 miles, 85°F air temperature, and 80°F water temperature. There were 2-foot seas and 4-foot swells (combined seas of 6 feet) (see Figure 9).

Figure 9. The seas immediately following the collision, with *Winslow Griesser*'s small boat in view. (Source: Coast Guard)

1.8 Operations

The San Juan fast response cutter commanding officers reported to the Sector San Juan Response department head. A former commanding officer of a different San Juan-based fast response cutter reported that the cutters are each underway about 2,500 hours a year.

Bridge watches aboard the *Winslow Griesser* during normal at-sea operations consisted of an officer of the deck and a quartermaster of the watch. The officer of the deck was responsible for navigating the vessel, including steering, monitoring traffic, and using electronic navigation tools such as radar and ECDIS. The quartermaster of the watch maintained the navigation plot, logs, and weather reports and also acted as a lookout. Aboard *Winslow Griesser*, no one person was designated solely as a lookout with no other duties. According to one of the cutter's qualified quartermasters of the watch, at least one watchstander, by practice, was to keep an eye forward for hazards at all times. According to a crewmember who was a qualified quartermaster of the watch but off watch during the casualty, "the lookout is mainly everybody's job." Although the *Winslow Griesser* commanding officer's *Standing Orders to the Officer of the Deck* contained expectations and responsibilities for the

officer of the deck and all other bridge watchstanders when the cutter was not in port, they did not specifically mention lookout duties.

The cutter's *Navigation Standards* instructed officers of the deck to use the centerline SeaWatch station as an ECDIS. Both radars were used for collision avoidance. However, bridge watchstanders did not routinely use the radar overlay on the SeaWatch. The same former commanding officer described the fast response cutter as handling well while traveling down swell at high speed.

The cutter's *Navigation Standards*, regarding safe speed, stated:

> Planned speed of advance must balance a multitude of factors. The ideal speed is one that balances fuel consumption and crew comfort while ensuring maximum on-scene time and operational revelance. Typical transit speeds will be between 15–20 knots.

The *Navigation Standards* also included a chapter on operation risk management. The cutter's *Navigation Standards* stated, "[officers of the deck] shall take measures to increase situational awareness when transiting at high speeds, or if circumstances dictate, reduce speed in accordance with [the collision regulations]."

1.9 Crew Information

The *Winslow Griesser* commanding officer had been in the Coast Guard for 9 years and in command for about 1 year. His last bridge resource management (BRM) training was during his prospective commanding officer (PCO)/prospective executive officer (PXO) course in January 2020.

The executive officer had been in the Coast Guard for 2 years and assigned to *Winslow Griesser* for about 2 months. His last BRM training was during his PCO/PXO course in 2022. He held a merchant mariner credential endorsed as master of 100-ton vessels.

The officer of the deck had been in the Coast Guard for 5 years and assigned to *Winslow Griesser* for about 13 months. He had been qualified as officer of the deck for 8 months.

The quartermaster of the watch had been in the Coast Guard for 4 years and assigned to *Winslow Griesser* and qualified quartermaster of the watch for about 1 year.

The training petty officer who was on the bridge working toward his quartermaster of the watch qualification had been in the Coast Guard for 16 years and was newly assigned to *Winslow Griesser*. This was his first patrol.

The port engineer had been in the Coast Guard for 2 years and was newly assigned to the Surface Forces Logistics Center, overseeing drydock contracts for the San Juan fleet of fast response cutters. She was aboard *Winslow Griesser* to work on naval engineer qualifications, specifically the deck officer chapter. She had been in Puerto Rico for 3 weeks, and this was her first time underway on a fast response cutter.

1.9.1 Work/Rest

Before the collision, the *Winslow Griesser* was in port for 7 days (with minimum crew on board for a 4-day weekend before the cutter got underway). The crew reported to the cutter Monday morning, and the cutter got underway on Monday afternoon. Following the collision, investigators reviewed 72-hour work-rest history forms detailing activities in the previous 3 days for all personnel on the bridge at the time of the collision: the commanding officer, officer of the deck, quartermaster of the watch, training petty officer, and the visiting port engineer.

The commanding officer reported receiving 8 hours of continuous sleep the night before the collision, reporting that he went to sleep at 2100 and woke up at 0500 to commute to the cutter and prepare to get underway. In the 2 days before the collision, the commanding officer reported receiving continuous sleep of 10 hours on Saturday night and 8 hours on Friday night.

The officer of the deck's 72-hour work-rest history form was missing pages for the 2 days before the collision and only provided complete entries from 0500 on Friday through 0400 on Sunday. The officer of the deck reported receiving 8 hours of continuous sleep on Friday night, reporting that he went to sleep at 2300 and woke up at 0700. The form indicated that the officer of the deck went to sleep at 0400 on Sunday morning. The remainder of the entries for Sunday and Monday were missing, and the amount of sleep he received on Sunday morning and Sunday night could not be determined.

The quartermaster of the watch reported receiving 8 hours of continuous sleep the night before the collision, reporting that he went to sleep at 2300 and woke up at 0700 to prepare to get underway. In the 2 days before the collision, the quartermaster of the watch reported receiving continuous sleep of 11 hours on both Friday and Saturday nights.

The training petty officer reported receiving 8 hours of continuous sleep the night before the collision, reporting that he went to sleep at 2200 and woke up at 0600 to commute to the cutter and prepare to get underway. In the 2 days before the collision, the training petty officer reported receiving continuous sleep of 10 hours on Saturday night and 9 hours on Friday night.

The port engineer reported receiving 8 hours of continuous sleep the night before the collision, reporting that she went to sleep at 2200 and woke up at 0600 to commute to the cutter and prepare to get underway. In the 2 days before the collision, the port engineer reported receiving continuous sleep of 10 hours on Saturday night and 4 hours on Friday night.

1.9.2 Toxicological Information

The *Winslow Griesser* commanding officer, officer of the deck, quartermaster of the watch, training petty officer, and visiting port engineer all tested negative for alcohol and other tested-for drugs.[6] According to Coast Guard representatives, alcohol and other drug testing was completed within the Coast Guard's time requirements, which were to complete alcohol testing within 2 hours of the collision and complete other drug testing within 32 hours of the collision.

Two laboratories performed postmortem toxicological testing of the fatally injured *Desakata* crewmember. One laboratory detected cannabinoids in central blood and did not detect ethanol in central blood or vitreous. The other laboratory detected ethanol at 0.012 g/dL in cavity blood and did not detect ethanol in liver or brain tissue.[7] That laboratory also detected delta-9-tetrahydrocannabinol (THC) in lung tissue at 17.3 ng/mL, did not detect delta-9-THC in cavity blood, detected carboxy-delta-9-THC at 2.8 ng/mL in cavity blood, and reported carboxy-delta-8-THC as "inconclusive" in lung tissue.[8]

1.10 Industry Overview

1.10.1 Collision Regulations (Navigation Rules)

The *Convention on the International Regulations for Preventing Collisions at Sea, 1972* (72 COLREGS) are regulations that aid mariners in safe navigation.

[6] Each of these crewmembers had a urine specimen tested for selected drugs of abuse and a blood specimen tested for volatiles (ethanol, methanol, isopropanol, and acetone).

[7] Ethanol is a type of alcohol. It is the intoxicating alcohol in beer, wine, and liquor. Consumption of alcoholic beverages is not the only possible source of ethanol in postmortem specimens. Ethanol can be produced by microbes in a person's body after death. Postmortem ethanol production can cause an affected toxicological specimen to test positive for ethanol while another specimen from the same person tests negative (Kugelberg 2007).

[8] Delta-9-THC is the primary psychoactive chemical in marijuana and hashish, which are products derived from the cannabis plant. Carboxy-delta-9-THC is a non-psychoactive metabolite of delta-9-THC. Carboxy-delta-8-THC is a non-psychoactive metabolite of delta-8-THC, which is another psychoactive chemical derived from cannabis. Delta-9-THC and delta-8-THC are both among the chemicals in cannabis that are referred to collectively as cannabinoids.

Rule 3 – General Definitions includes the definition for a vessel engaged in fishing as "any vessel fishing with nets, lines, trawls, or other fishing apparatus which restrict maneuverability, but does not include a vessel fishing with trolling lines or other fishing apparatus which do not restrict maneuverability." Rule 3 also states that "vessels shall be deemed to be in sight of one another only when one can be observed visually from the other."

Rule 5 – Lookout states, "Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision."

Rule 6 – Safe Speed states, "Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions."

Rule 15 – Crossing Situation, which applies to vessels in sight of one another, states, "When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel."

1.10.2 Bridge Resource Management

BRM is an organizational practice that helps ensure safe vessel operation by managing teams, communications, hazards, and culture. Among the many concepts practiced, the objective is to enhance situational awareness by ensuring all bridge team members have a common operational picture. This requires open communication among team members and using all available means of safe navigation and collision avoidance.

The Coast Guard references BRM as part of its overall risk management program. According to *Commandant Instruction 3500.3A, Risk Management*,

> The [risk management] process relies on effective teamwork and communication to identify, assess, control, mitigate, and manage potential hazards. Research has identified seven critical human factors (mission analysis, leadership, adaptability and flexibility, situational awareness, decision making, communication, and assertiveness) that if not managed will increase the potential for error-induced mishaps. These human factors are the foundation for community specific risk management programs, including… Bridge Resource Management (BRM) (Coast Guard 2018).

The instruction also requires real-time risk assessments, which are intended to promote discussion regarding potential hazards, mitigation strategies, and roles/responsibilities during the mission. As a mission proceeds, members monitor for changes (e.g., crew fatigue, mission characteristics, and environmental conditions) and consider if or how the changes affect risk levels.

1.10.3 Small Vessel Detection Enhancement

1.10.3.1 Radar Reflectors

According to a Transport Canada bulletin on radar reflectors,

> Small vessels generally make poor radar targets because they are mainly constructed of non-metallic materials and because they present a low profile due to their small amount of superstructure. Even in good visibility, they are difficult to see from the bridge of a large vessel since they are so low down on the horizon that they do not show against the sky. In rough weather, they are often screened by spray or may not be seen when in the trough of a swell (Transport Canada 1995).

A radar reflector is a device designed to create a strong reflection of radar waves in order to make it clearly visible on vessel radar screens (see Figure 10). The reflector is mounted as high as possible on a boat, typically by hoisting the reflector from an existing or purposed mast. The Coast Guard issued a safety alert in 1997 emphasizing that

> all small boat operators can significantly reduce the risk of having a collision with other vessels by ensuring that their boat provides the biggest, strongest, most visible and continuous radar signatures possible. Small vessels can make themselves more visible to radar by installing radar reflectors (Coast Guard 1997).

Figure 10. An example of a tubular style radar reflector (*left*), and a tubular radar reflector mounted on a pole aboard a recreational vessel (*right*). (Source: ayamarnautico.com)

The International Maritime Organization's (IMO) *International Convention for the Safety of Life at Sea* (*SOLAS*), 1974, Chapter V Regulation 19.2.1.7 states that a ship shall have "if less than 150 gross tonnage and if practicable, a radar reflector, or other means, to enable detection by ships navigating by radar…" However, the regulation left it to flag states to determine whether this applied to fishing vessels. The IMO also established performance standards for radar reflectors in a 1977 resolution (IMO 1977). Title 46 *Code of Federal Regulations* (*CFR*) Part 28 requires radar reflectors for federally documented fishing vessels operating beyond the Boundary Line, though not registered vessels such as the *Desakata*.[9]

[9] 46 *CFR* Part 28, Subpart C, states that a documented fishing vessel with a nonmetallic hull must have a radar reflector if it meets any of the following conditions: 1) operates beyond the Boundary Line; operates with more than 16 individuals on board; or is a fish tender vessel engaged in the Aleutian trade (except for a vessel rigged with gear that provides a radar signature from a distance of 6 miles).

1.10.3.2 Automatic Identification Systems

AIS is a maritime navigation safety communications system that provides vessel information automatically to appropriately equipped shore stations, other ships, and aircraft; automatically receives such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. An AIS transponder consists of a GPS receiver and a VHF data radio. The transponder transmits a vessel's GPS position on VHF channels dedicated to AIS. There are two types of AIS. The standard for larger ocean-going vessels is AIS Class A, which meets performance standards and requirements adopted by *SOLAS* and is required to be fitted aboard international voyaging ships with 300 or more gross tonnage, and all passenger ships regardless of size, among others.[10] AIS Class B transmitters were developed to provide the safety and navigation benefits of AIS to smaller vessels with lower cost and simpler installation when compared to AIS Class A. AIS Class B transponders have lower power output (maximum range of 8-10 miles to nearby vessels, and transmissions are often not received by AIS satellites that provide global vessel tracking), are less expensive, and transmit a vessel's position less frequently than an AIS Class A transponder. Recently, another class of AIS transponder, AIS B+, was introduced. AIS B+ has greater range and transmits position more frequently than an AIS Class B transponder, but it has less capability than an AIS Class A transponder. AIS Class B and B+ units are available at recreational marine suppliers and are currently used on many smaller vessels such as sailing vessels, yachts, and power boats. The *Winslow Griesser* was equipped with AIS, but it was not transmitting at the time of the collision. The *Desakata* did not have AIS nor was it required.

1.11 Related Casualties and NTSB Recommendations

1.11.1 NTSB Study: Collisions of Radar-equipped Merchant Ships and Preventive Recommendations

On November 22, 1968, the NTSB published a safety study to determine why ship collisions persist despite the use of radar, and what safety recommendations could be made to prevent future collisions involving radar-equipped vessels (NTSB 1968). In this study, the NTSB issued Safety Recommendation M-69-8 to the Coast Guard to

[10] *Gross tonnage* relates to vessel volume and appears on a documented vessel's Certificate of Documentation. Along with net tonnage, gross tonnage is widely used as the basis for vessel regulation and assessment of taxes and fees, and it is not to be confused with displacement or weight tonnage, often expressed in pounds, tons, or long tons.

> Consider means to encourage the use of radar reflectors by vessels constructed of material having poor radar reflecting capability, such as wood and plastics. Specify the most effective size, type, installation, etc.

The Coast Guard replied in a memo that it was following the work of the subcommittee on safety of navigation at IMO and would continue to encourage use of commercially available radar reflectors. The recommendation was subsequently classified Closed—Acceptable Action.

1.11.2 Collision between US Coast Guard Cutter *Key Largo* and Fishing Vessel *Sea Shepherd*, with Subsequent Sinking of *Sea Shepherd* – 2014

On September 23, 2014, the Coast Guard cutter *Key Largo* and the fishing vessel *Sea Shepherd* collided about 9 miles east-northeast of Vieques Island, Puerto Rico (NTSB 2016). The *Key Largo* was a 110-foot, Island-class patrol boat homeported in San Juan. The *Sea Shepherd* sank as a result of the collision, without any injuries to its crewmembers. The NTSB determined the probable cause of the collision was the failure of the cutter's officer of the deck to detect and avoid the *Sea Shepherd*, most likely because he had fallen asleep before the collision. Contributing to the collision was the officer of the deck's failure to report to the commanding officer his unfitness for duty due to lack of sleep. The NTSB issued Safety Recommendation M-16-4 to the Coast Guard to

> Address the risks associated with watchstander fatigue by implementing *Commandant Instruction 3500.2, Crew Endurance Management*, issued on March 30, 2006, in all operational units.

The Coast Guard revised and combined the instruction with other risk management training, including BRM, into the current Commandant Instruction 3500.3A, *Risk Management*. Pending the Coast Guard's explanation of how its new policy has been implemented, the recommendation is classified Open—Acceptable Alternate Response.

1.12 Postcasualty Actions

Immediately following the collision, the *Winslow Griesser* commanding officer was administratively reassigned to Sector San Juan. On February 17, 2023, he was relieved of duties as the commanding officer.

The Coast Guard initiated several investigations following the collision. Among these are a Marine Casualty Investigation pursuant to Title 46 *CFR* Part 4, a Marine Accident Board, and an Administration Investigation. The results of these investigations were not yet available at the time of adoption of this report.

2 Analysis

2.1 Introduction

On August 8, 2022, about 1417 local time, the 154-foot-long Coast Guard cutter *Winslow Griesser* (WPC-1116) and the 23-foot-long center-console boat *Desakata* collided about 4 miles off the northern coast of Puerto Rico. The cutter, with a crew of 21, was transiting westbound along the coast, and the boat was transiting northbound while trolling (fishing). Of the two *Desakata* crewmembers, one was seriously injured, and one was fatally injured. None of the *Winslow Griesser* crewmembers were injured. No pollution was reported. The *Desakata,* valued at $58,800, was a total loss.

This analysis evaluates the following safety issues:

- Inadequate lookout on both vessels given the operating conditions (Section 2.2)
- Difficulty detecting small vessels by radar (Section 2.3)

Having completed a comprehensive review of the circumstances that led to the collision, the investigation established that the following factors did not contribute to its cause:

- *Mechanical systems*. The cutter had just completed a maintenance period. Although the crew delayed their departure to address a loss of pressure in the propulsion engine-cooling seawater system, it was successfully resolved, and there was no evidence of a mechanical issue before the collision. None of the witnesses interviewed noted any issues with vessel systems or equipment.
- *Alcohol or other drug use by the* Winslow Griesser *crew*. The *Winslow Griesser* commanding officer, officer of the deck, quartermaster of the watch, training petty officer, and visiting port engineer all tested negative for alcohol and other tested-for drugs.
- *Impairment of the* Winslow Griesser *commanding officer, quartermaster of the watch, training petty officer, or visiting port engineer due to fatigue*. The *Winslow Griesser* crew had several nonworking days with the cutter in port, allowing the crewmembers the opportunity to rest before getting underway, and these crewmembers used this time to obtain sufficient rest. There was no evidence of impairment due to fatigue for the commanding officer, quartermaster of the watch, training petty officer, and the visiting port engineer.

Therefore, the NTSB concludes that none of the following were safety issues identified for the casualty: (1) mechanical systems, (2) alcohol or other drug use by

the *Winslow Griesser* crew, or (3) impairment of the *Winslow Griesser* commanding officer, quartermaster of the watch, training petty officer, or visiting port engineer due to fatigue.

The investigation established that evidence was insufficient to determine whether the following factors contributed to the casualty:

- *Alcohol or other drug use by the* Desakata *crewmembers*. The toxicology results for the fatally injured *Desakata* crewmember indicated that he had used a cannabis product. The timing of his cannabis use, and whether cannabis was affecting him at the time of the collision, could not be determined. Some or all of the small amount of ethanol detected in his blood specimen may have been from postmortem production; the absence of detected ethanol in any of his other specimens makes it unlikely that he was impaired by ethanol effects at the time of the collision. Drug and alcohol testing of the *Desakata* owner was not conducted.
- *Impairment of the* Winslow Griesser *officer of the deck and the* Desakata *crewmembers due to fatigue*. The officer of the deck's 72-hour work/rest history form was missing pages for the 2 days before the collision. Work/rest information was not collected for the *Desakata* crewmembers.

Therefore, the NTSB concludes that evidence was insufficient to determine whether the following were safety issues identified for the casualty: (1) alcohol or other drug use by the *Desakata* crewmembers, and (2) impairment of the *Winslow Griesser* officer of the deck and the *Desakata* crewmembers due to fatigue.

2.2 Inadequate Lookout

Leading up to the collision, the vessels were heading toward each other, and the crewmembers on board did not see the other vessel, despite having opportunities to visually identify the other. According to the airline passenger witness, it was "like they were on a collision course [the whole time] and didn't know it." The *Winslow Griesser* bridge watch was not aware they had hit anything until a crewmember who had been taking a break outside behind the bridge reported seeing the center-console boat's wreckage floating down the port side of the cutter. Rule 15 of the navigation rules, Crossing Situation, applies to vessels in sight of one another, but neither crew detected the other vessel leading up to the collision. Therefore, the NTSB concludes that because neither vessel's crew saw the other vessel in the developing crossing situation before the collision, neither had time to assess or apply the navigation rules to avoid the collision.

2.2.1 Proper Lookout

Regulations and long-standing prudent maritime practice require a proper lookout for safe navigation. Maintaining a proper lookout, by sight and sound, is a

fundamental rule of the COLREGS for vessels, regardless of their size or activity. Rule 5 specifically states, "Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision." A proper lookout by suitably trained crewmembers is essential in determining the risk of collision. The effective use of all available resources by a bridge team, including visual scanning, radars, electronic charts, and an AIS, increases collective situational awareness and contributes to a safe navigation watch. The crews on board the *Winslow Griesser* and *Desakata* did not maintain an adequate level of situational awareness in the moments leading to the collision. Situational awareness is a mental picture of where you are and what is going on around you based on the perception and understanding of information gathered about the operating environment. This understanding allows operators to make informed decisions and project information forward to anticipate future events or required actions.

2.2.1.1 *Desakata*

Aboard *Desakata,* one crewmember (the owner) operated the boat at the center console. According to the owner, the other crewmember was reaching for bait at the time of the collision. The *Desakata* owner told investigators and a cutter crewmember that he didn't see or hear the cutter before the collision. With no radar on board, the crewmembers had to rely on sight and hearing in order to maintain a proper lookout. The crewmember who was reaching for bait at the time of the collision was occupied with fishing activities on the boat. The owner, who was operating the boat at the center console and trolling about 5 knots, may also have been preoccupied with the vessel's fishing activities or navigation.

With the vessel's deck 1 foot above the water and a standing operator with a 5-foot eye height (for a 6-foot height of eye above the water surface), the horizon on a clear day, independent of sea state, weather conditions, and structural obstructions to visibility, would have been about 3 miles away, and the entire *Winslow Griesser* cutter would have been visible to the *Desakata* crewmembers at this distance. Under these conditions, with the *Winslow Griesser* approaching at 29 knots, the *Desakata* crewmembers should have been able to see the *Winslow Griesser* about 5 minutes before the collision. Although the *Desakata* operator may not have had a view over the seas while in the trough of each swell in the combined 6-foot seas, he had a reasonable chance of seeing the approaching cutter if he was looking in that direction. Therefore, the NTSB concludes that the *Winslow Griesser* should have been visible to the *Desakata* operator before the collision, but the operator was not maintaining a proper lookout.

2.2.1.2 *Winslow Griesser*

Aboard the *Winslow Griesser*, the bridge watch consisted of a quartermaster of the watch and an officer of the deck. No other bridge watch member was designated solely as a lookout with no other duties; Coast Guard practice was that all members of the bridge watch are responsible for shared lookout duties. However, Coast Guard directives do not explicitly provide guidance on what constitutes a proper lookout. Locally, the *Winslow Griesser* commanding officer's *Navigation Standards* and *Standing Orders to the Officer of the Deck* did not have a robust section on the importance and criteria for what constitutes a proper lookout.

Although only two were formally on watch, five people were on the bridge (the other personnel included the cutter's commanding officer, the training petty officer, and a visiting port engineer). The commanding officer at one point in the minutes leading up to the collision was engaged in either voyage planning or other administrative tasks at the forward console. The training petty officer was training to qualify as quartermaster of the watch and was new to the vessel. He was the last to arrive on the bridge and was waiting to start his training with the quartermaster of the watch. The quartermaster of the watch was at an aft console attending to administrative duties. From his location in the aft part of the bridge, and because he was engaged in other tasks, he was not looking out. With the quartermaster of the watch occupied, the officer of the deck was left to keep a lookout. At the forward console, the officer of the deck and port engineer were reviewing and discussing the operation of various equipment at the helm station.

Standing on the bridge of the cutter, the officer of the deck's height of eye would have been about 19.5 feet above the vessel's waterline. From this height of eye, the horizon on a clear day, independent of sea state, weather conditions, and structural obstructions to visibility, would be about 5 miles away, and the cutter crewmembers should have been able to see the entire 2.5-foot-high *Deskata* hull (without considering the canopy) at this distance. At a speed of 29 knots, the cutter would travel 5 miles in about 9 minutes. In combined seas of 6 feet, the fishing vessel may have been only intermittently visible. The fishing vessel's white canopy, about 9 feet above the water, could have been confused for a whitecap in the seas. However, there was a reasonable chance that the bridge watchstanders could have visually sighted the *Desakata* if they were constantly scanning the water for contacts. Therefore, the NTSB concludes that the *Desakata* should have been visible to the *Winslow Griesser* crewmembers before the collision, but the bridge watchstanders were not maintaining a proper lookout.

The commanding officer's *Navigation Standards* stated, "[Officers of the deck] shall take measures to increase situational awareness when transiting at high speeds, or if circumstances dictate, reduce speed in accordance with COLREGS." The cutter's 29-knot speed warranted extra vigilance by the bridge watch. To increase situational awareness, the commanding officer or officer of the deck could have halted the

training taking place between the officer of the deck and the visiting port engineer or required the on-watch quartermaster of the watch to perform lookout duties. They also could have slowed the cutter's speed. At a minimum, the officer of the deck and quartermaster of the watch should have communicated to ensure that while one was occupied with other tasks, the other was looking forward. They took none of these actions. Therefore, the NTSB concludes that the *Winslow Griesser* commanding officer and officer of the deck did not take sufficient measures to increase their situational awareness when the cutter was transiting at high speed.

Section 1.11 discusses another NTSB investigation involving a collision of a Coast Guard cutter. While the 2014 *Key Largo* collision did occur on a cutter in similar operating conditions to the *Winslow Griesser* collision, the officer of the deck had fallen asleep due to fatigue. On the *Winslow Griesser*, a two-person bridge team was multi-tasking and engaged in other activities that distracted them from lookout duties. These circumstances are likely not unusual on other fast response cutters when operating in similar conditions. The Coast Guard's entire cutter fleet may also encounter conditions under which its bridge watchstanders are prone to multi-tasking or distraction. Lessons learned from tragedies like this one can be useful as training tools and for reviewing current watchstanding (in particular lookout) practices to identify weaknesses and find areas for improvement. Therefore, the NTSB concludes that Coast Guard cutter bridge watchstanders would benefit from learning about the circumstances of this collision to identify lessons learned about multi-tasking and distraction while on watch. The NTSB recommends that the Coast Guard provide information about the circumstances of this collision to cutter crews and emphasize the importance of maintaining a proper lookout and ensuring situational awareness when transiting at high speed.

Had either the operator of the *Desakata* or the two on-watch bridge team members on the *Winslow Griesser* kept a proper lookout for the operating conditions at the time, they likely would have detected the other vessel and taken action to avoid the collision. Both vessels were extremely maneuverable and could have made necessary course and speed changes to avoid or mitigate the collision.[11]

2.2.2 Vessel Performance Data and Casualty Prevention

During investigations of major marine casualties, the NTSB develops the facts and establishes the probable cause through interviews with vessels' crews and shoreside personnel and by reviewing training records, ship's deck and engineering logs, weather, and data from voyage data recorders (VDRs) or other recording devices. VDRs are one of the most valuable sources of information following a marine

[11] The *Desakata* was fishing with trolling lines or other fishing apparatus which did not restrict its maneuverability and was not considered a vessel engaged in fishing as defined by Rule 3 of the navigation rules.

casualty. They maintain continuous, sequential records of data relating to a ship's equipment and its command and control, and they also capture bridge audio.

The major marine casualties that the NTSB investigates often involve serious injury, significant property damage, or pollution. Because of the potential criminal or civil liability that may attach, those involved in major marine casualties sometimes invoke their right to refuse to speak with the NTSB. When this happens, the NTSB must rely on other sources of information to determine what happened and recommend safety measures that could be taken to avoid future casualties.

The *Winslow Griesser* commanding officer, officer of the deck, and quartermaster of the watch declined NTSB requests to be interviewed based on advice of their counsel. The *Winslow Griesser* was not equipped with nor required to have a VDR, or an equivalent device, which would have captured the cutter's parametric data, including the radar picture, and recorded the conversations that took place on the bridge before the collision. As a result, the NTSB did not have recorded information about radar contacts, steering and helm orders, and other vital information that would have helped us understand the circumstances leading up to the collision. For example, audio recordings from the bridge would have informed the NTSB about the extent of distraction and extraneous conversations on the bridge; the radar picture would have shown whether the *Desakata* appeared on the cutter's radar screen before the collision; and a lack of steering and helm orders immediately before the collision would have corroborated witness statements that the bridge watchstanders did not see the *Desakata*.

Although the NTSB gathered vital information from CCTV footage, interviews with crewmembers not on watch, documentation, and many other sources, the presence of a VDR on board the *Winslow Griesser* would have provided access to additional critical data. Further, VDR records would have yielded information that could have enhanced the range and depth of evidence subject to analysis, closed gaps in information, and allowed resolution of conflicting information. Therefore, the NTSB concludes that had the *Winslow Griesser* been equipped with a voyage data recorder, or its equivalent, investigators would have been provided with additional critical information about the collision, which could help identify potential safety issues and result in safety improvements.

The NTSB has investigated several other casualties in which the lack of information that would have been provided by a VDR hampered the investigation and prevented better identification of potential safety issues. For example, in its report on the 2008 collision of the passenger ferry *Block Island* and Coast Guard cutter *Morro Bay*, the NTSB cited the reliance on limited information from crew and passenger interviews, electronic chart information, and security camera video (NTSB 2011). The NTSB's investigation of the 2010 contact of the passenger ferry *Andrew J. Barberi* with the terminal structure at the St. George Terminal, Staten Island, New York, also was hampered by a lack of VDR information (NTSB 2012).

Although investigators obtained CCTV video recordings from the bridge, the system could not capture, record, and safeguard important detailed data from vessel navigation and control systems. The NTSB's report on the 2013 contact of the passenger ferry *Seastreak Wall Street* with Pier 11 in New York City stated that VDR data would have provided more complete evidence regarding several significant aspects of the casualty (NTSB 2014). For instance, a VDR could have recorded comprehensive engine, propeller, and steering orders and responses as well as audio recordings and main alarm activity. These data sets would have been central to determining the causes of the casualty. As a result of these investigations, the NTSB recommended that the Coast Guard require installation of VDRs that meet the IMO's performance standard for VDRs on new ferry vessels subject to 46 *CFR* Subchapters H and K (M-14-3), require installation of VDRs that meet the IMO's performance standard for simplified VDRs on existing ferry vessels subject to 46 *CFR* Subchapters H and K (M-14-4), and develop a US VDR standard for ferry vessels subject to 46 *CFR* Subchapter T and require the installation of such equipment where technically feasible (M-14-5). All three of these recommendations are currently classified as Open—Unacceptable Response.[12]

While the NTSB's previous recommendations about VDRs are specifically related to passenger vessels, this collision demonstrates a specific need for VDRs on Coast Guard vessels similar to the *Winslow Griesser*, a cutter. Charged by Congress as the only independent investigator of Coast Guard casualties, the NTSB requires the availability of objective, time-stamped data such as that provided by a VDR to complete timely and thorough investigations that involve Coast Guard cutters. Accurate evidence from multiple sources leads to more-precise findings and targeted conclusions, which enable the NTSB to make more-specific safety recommendations, which, if implemented, have a greater impact on improving vessel safety. Therefore, the NTSB recommends that the US Coast Guard install equipment on all US Coast Guard cutters that records vessel parametric data and audio information that is equivalent to IMO voyage data recorder performance standards.

2.3 Difficulty Detecting Small Vessels With Radar

Small wooden and fiberglass vessels are often difficult to detect by vessels equipped with radar, particularly if they disappear into the trough of each passing swell and the return is intermittent. Although a 1997 Coast Guard safety alert emphasized that small boat operators can use radar reflectors to significantly reduce the risk of collision, small fishing vessels such as the *Desakata*, which was constructed of fiberglass, were not required to have radar reflectors, and the *Desakata* was not

[12] The Coast Guard concluded that the overall benefits of VDRs do not justify the cost. The NTSB disagreed with the Coast Guard's assessment that the cost outweighs the benefit of installing VDRs because passenger safety is the most important aspect of vessel operations.

outfitted with a radar reflector. The Coast Guard requires radar reflectors for federally documented fishing vessels (with nonmetallic hulls) operating beyond the Boundary Line, among others, but not for vessels such as *Desakata*. The NTSB has advocated the use of radar reflectors since 1969, when we recommended that the Coast Guard find ways to encourage the use of radar reflectors. Although radar reflectors are not required for small vessels such as the *Desakata*, the use of these devices enhances safety—reducing collision risk by ensuring that the vessel is more visible to radar.

Similarly, the *Desakata* was not equipped with AIS, nor was it required. AIS Class B and, more recently, AIS B+ transponders have been developed to provide the safety and navigation benefits of AIS to smaller vessels at lower cost and with simpler installation than the more capable Class A type typically found on ocean-going and larger vessels. Had the *Desakata* been equipped with an AIS Class B or B+ transponder that was transmitting its location, its position would have been shown on AIS-equipped vessels up to several miles away. It is therefore more likely that the *Winslow Griesser* bridge watch may have been aware of the boat's presence nearby in the minutes leading up to the collision if the *Winslow Griesser* bridge watch had been monitoring radar or AIS before the collision. Regardless, the NTSB encourages recreational and fishing vessels to use radar reflectors and AIS Class B or B+ to improve their detectability.

Early detection of a vessel is one of the best ways to avoid collision. However, fitting a radar reflector or AIS does not reduce the need to maintain a proper lookout and use all available resources in order to avoid collision. The NTSB concludes that fitting small vessels with radar reflectors or AIS Class B or B+, when combined with proper visual lookout, would improve the opportunity for vessels with radar to detect them, therefore reducing the risk of a collision. The NTSB is issuing a Safety Alert on this topic to notify small vessel operators of the benefits and importance of radar reflectors and AIS Class B or B+ to improve their detectability. The Safety Alert is available on NTSB.gov. See the Safety Alerts listing or search for "SA-087."

3 Conclusions

3.1 Findings

1. None of the following were safety issues identified for the casualty: (1) mechanical systems, (2) alcohol or other drug use by the *Winslow Griesser* crew, or (3) impairment of the *Winslow Griesser* commanding officer, quartermaster of the watch, training petty officer, or visiting port engineer due to fatigue.

2. Evidence was insufficient to determine whether the following were safety issues identified for the casualty: (1) alcohol or other drug use by the *Desakata* crewmembers, and (2) impairment of the *Winslow Griesser* officer of the deck and the *Desakata* crewmembers due to fatigue.

3. Because neither vessel's crew saw the other vessel in the developing crossing situation before the collision, neither had time to assess or apply the navigation rules to avoid the collision.

4. The *Winslow Griesser* should have been visible to the *Desakata* operator before the collision, but the operator was not maintaining a proper lookout.

5. The *Desakata* should have been visible to the *Winslow Griesser* crewmembers before the collision, but the bridge watchstanders were not maintaining a proper lookout.

6. The *Winslow Griesser* commanding officer and officer of the deck did not take sufficient measures to increase their situational awareness when the cutter was transiting at high speed.

7. US Coast Guard cutter bridge watchstanders would benefit from learning about the circumstances of this collision to identify lessons learned about multi-tasking and distraction while on watch.

8. Had the *Winslow Griesser* been equipped with a voyage data recorder, or its equivalent, investigators would have been provided with additional critical information about the collision, which could help identify potential safety issues and result in safety improvements.

9. Fitting small vessels with radar reflectors or AIS Class B or B+, when combined with proper visual lookout, would improve the opportunity for vessels with radar to detect them, therefore reducing the risk of a collision.

3.2 Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between the US Coast Guard cutter *Winslow Griesser* and the center-console boat *Desakata* was the failure by both vessels' crews to maintain a proper lookout. Contributing to the casualty was the *Winslow Griesser* commanding officer and officer of the deck not taking sufficient measures to increase situational awareness while transiting at a high speed.

4 Recommendations

4.1 New Recommendations

As a result of this investigation, the National Transportation Safety Board makes the following new safety recommendations.

To the US Coast Guard:

Provide information about the circumstances of this collision to cutter crews and emphasize the importance of maintaining a proper lookout and ensuring situational awareness when transiting at high speed. (M-23-1)

Install equipment on all US Coast Guard cutters that records vessel parametric data and audio information that is equivalent to International Maritime Organization voyage data recorder performance standards. (M-23-2)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

JENNIFER HOMENDY
Chair

MICHAEL GRAHAM
Member

BRUCE LANDSBERG
Vice Chairman

THOMAS CHAPMAN
Member

Report Date: July 3, 2023

Appendixes

Appendix A: Investigation

The National Transportation Safety Board (NTSB) was the lead federal agency in this investigation. The NTSB learned of the casualty from the US Coast Guard on August 8, 2022. One investigator launched to San Juan, Puerto Rico, and participated with the Coast Guard in joint interviews of crewmembers, a search and rescue watchstander, the center-console boat owner, and other individuals familiar with the vessels. Investigators analyzed vessel design, operations standards, meteorology reports, and electronic data. The Coast Guard was a party to the investigation.

Appendix B: Consolidated Recommendation Information

Title 49 *United States Code* 1117(b) requires the following information on the recommendations in this report.

For each recommendation—

(1) a brief summary of the Board's collection and analysis of the specific accident investigation information most relevant to the recommendation;

(2) a description of the Board's use of external information, including studies, reports, and experts, other than the findings of a specific accident investigation, if any were used to inform or support the recommendation, including a brief summary of the specific safety benefits and other effects identified by each study, report, or expert; and

(3) a brief summary of any examples of actions taken by regulated entities before the publication of the safety recommendation, to the extent such actions are known to the Board, that were consistent with the recommendation.

To the US Coast Guard

M-23-1
Provide information about the circumstances of this collision to cutter crews and emphasize the importance of maintaining a proper lookout and ensuring situational awareness when transiting at high speed.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.2.1. Proper Lookout. Information supporting (b)(1) can be found on pages 25-28; (b)(2) can be found on page 28; and (b)(3) is not applicable.

M-23-2
Install equipment on all US Coast Guard cutters that records vessel parametric data and audio information that is equivalent to International Maritime Organization voyage data recorder performance standards.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.2.2, Vessel Performance Data and Casualty Prevention. Information supporting (b)(1) can be found on pages 28-30; (b)(2) can be found on pages 29-30; and (b)(3) is not applicable.

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Casualty type	Collision
Location	Atlantic Ocean, near Dorado, Puerto Rico 18°32.3′ N, 066°17.8′ W
Date	August 8, 2022
Time	1417 Atlantic standard time (coordinated universal time –4 hours)
Injuries	1 fatal, 1 serious
Property damage	$58,800 est.
Environmental damage	None

NTSB investigators worked closely with our counterparts from **Coast Guard Sector San Juan** throughout this investigation.