



National Transportation Safety Board

Washington, D.C. 20594

Marine Accident Brief

Accident No.: DCA-97-MM-033
Vessel No. 1: Panamanian Container Ship *Ever Grade*, Lloyds Register No. 1392784, 757 feet long, 37,042 gross tons, built in 1984
Vessel No. 2: U.S. Coast Guard buoy tender *Cowslip* (WLB-277), 180 feet long, 790 gross tons, built in 1942
Accident Type: Collision
Location: Columbia River near Astoria, Oregon
Date: May 14, 1997
Time: 2125 (local)
Owner/Operator: *Ever Grade*: Evergreen International S.A., Panama
Cowslip: U.S. Coast Guard, Washington, D.C.
Property Damage: \$1.2 million
Injuries: *Ever Grade* - 0
Cowslip - 1
Complement: *Ever Grade* - 18
Cowslip - 51

The Accident

About 1900 on May 14, 1997, the U.S. Coast Guard buoy tender *Cowslip* completed routine maintenance work on the buoy marking the entrance to the Columbia River. The commanding officer (CO) set a special sea detail¹ in preparation for proceeding up the Columbia River to the *Cowslip*'s home port of Astoria, Oregon.

The weather was calm with visibility severely reduced by fog to about 200 yards. The current in the river was ebbing at 1 to 1.5 knots.

About 1920, the *Cowslip*'s shipping officer obtained a report of the vessel traffic in the river by radio from the pilot boat *Columbia*, which was outbound in the river. She

¹ The special sea detail was composed of an Officer of the Deck (OOD), a shipping officer, a navigation team, lookouts, and a phone talker. The OOD was responsible for conning the vessel during the inbound transit, issuing all rudder orders, and controlling the vessel's engine. The shipping officer was responsible for plotting all contacts on radar and making periodic reports to the OOD regarding collision avoidance. The navigation team was responsible for periodically taking navigation fixes and reporting navigation information and recommendations to the OOD. The lookouts were posted on the bow and on the bridge. The bow lookout was in radio contact with the OOD. The phone talker was in continuous communication with personnel in the engine room and the after-steering station, so that he could immediately report any propulsion or steering problem.

wrote on the conning board² the names of the vessels in the order in which the *Cowslip* would encounter them and briefed both the CO and the OOD concerning the vessel traffic. The shipping officer reported that, in addition to the *Columbia*, traffic in the river consisted of two outbound tows and three deep draft ships, the third of which was the Panamanian container ship *Ever Grade*. The CO instructed the OOD to keep the *Cowslip* on the inbound right-hand side³ of the channel at a safe speed during the inbound transit.

The OOD kept the vessel along the inbound right-hand edge of the channel as it proceeded up the river. The *Cowslip* was so far to the right that the navigation team members were able to see each red buoy as they passed it.

As the *Cowslip* continued inbound, it met and passed the pilot boat *Columbia* and the first two deep draft vessels without incident. Two fishing vessels, which had not been cited by the *Columbia*, were also underway in the river at the time. One fishing vessel was directly ahead of the second deep draft ship and was passed without difficulty. The other fishing vessel was operating outside the channel and was never close enough to the *Cowslip* to require a passing agreement.

About 2055 at the pilot station east of the Astoria Bridge, a Columbia Bar Pilots Association pilot boarded the Panamanian container ship *Ever Grade* to relieve the two river pilots who had conducted the vessel downriver from Portland, Oregon. The bar pilot had a brief exchange of information with the Columbia River Pilots Association pilots before their departure. According to the bar pilot, the river pilots told him that the vessel had 1° of gyro error, that the port radar was “better” to use than the starboard, and that the ship’s radios were set to VHF-FM channels 13 and 16. The bar pilot, who had never before piloted the *Ever Grade*, had no other discussion with the off-going river pilots. At 2100, the bar pilot assumed responsibility to pilot the *Ever Grade*.

The *Ever Grade* master spoke briefly with the bar pilot, explaining the speed relationships for the various maneuvering engine orders⁴ for the vessel. He also expressed his opinion that, with the fog, a slow speed would be preferable. The master told investigators that the pilot made no response; the pilot did not discuss the river traffic with the master, nor did he discuss any intended maneuvers. When interviewed, the pilot stated that “There wasn’t sufficient time to discuss much of anything.”

The pilot took his station at the port-side radar on the *Ever Grade* and remained there up to the time of the collision. Also on duty in the pilothouse with the master and

² A piece of Plexiglas covering a copy of the navigation chart placed on the bridge wings for the reference of the OOD. The chart already had the courses to steer for each leg of the inbound transit marked on it. The conning board had a column in which vessel names could be written in grease pencil.

³ The inbound right-hand side of the channel is marked with red buoys, and the inbound left-hand side of the channel is marked with green buoys. The sides are referred to as the “red side” and the “green side,” respectively.

⁴ He informed the pilot that an engine order for “dead slow ahead” produced a speed of 6 knots, an engine order for “slow ahead” produced a speed of 9 knots, and an engine order for “half ahead” produced a speed of 12 knots.

the pilot were a helmsman and the third officer. The third officer's duties were to check the vessel's position on the navigation chart, monitor the performance of the helmsman, and execute engine orders from the pilot.

The severely limited visibility obscured visual reference points, forcing the pilot to rely entirely on the radar to pilot the *Ever Grade*. The pilot did not plot contacts on the radar, nor did he plot the *Ever Grade*'s position as it proceeded outbound. He said he made estimates of the *Ever Grade*'s position and progress by looking at and mentally assessing the visual radar image. He did not ask the master, who was stationed at the other radar, to make any radar plots for him. He told investigators that piloting was a "seat of the pants" operation.

At 2101, the pilot ordered the *Ever Grade*'s engine first to "slow ahead," and then, in the same minute, to "half ahead," as he maneuvered the ship toward the Astoria Bridge. (See figure 1.) At 2107, the *Ever Grade* passed beneath the Astoria Bridge, and the pilot transmitted a security call⁵ on VHF-FM channel 13 announcing, "This is the container ship *Ever Grade* passing under the Astoria Bridge outbound with a draft of 36 1/2 feet. The container ship *Ever Grade* outbound."

As the *Ever Grade* passed under the Astoria Bridge, the pilot ordered the helmsman to steer a course of 265° or 266°,⁶ and he maintained the vessel at an engine order of "half ahead." The pilot told investigators that he had not been satisfied with the radar image's clarity and that once the *Ever Grade* was clear of the Astoria Bridge, he had occupied himself for a few moments in adjusting the radar picture.

On the *Cowslip*, as the vessel approached buoy 22, the CO and the OOD heard the pilot of the *Ever Grade* make the security call. Both the CO and the OOD on the *Cowslip* noted the draft information, which signified to them that the *Ever Grade* was a very large vessel that would need most of the channel in which to navigate.

The CO stated that, after discussing the situation with the OOD, he radioed the pilot of the *Ever Grade* and, at the pilot's insistence, agreed to a port-to-port meeting. According to the *Ever Grade* pilot, in agreeing to meet port to port, the *Cowslip* CO stated, "Okay, port to port. I will give you all the room possible." At this time, based on the relative distance between the two vessels, the CO estimated that the inbound *Cowslip* and the outbound *Ever Grade* would meet near Tansy Point, where an outbound ship must turn sharply to the right to remain in the channel. At the turn, the outbound course of the channel changes 48°, from 264° to 312°.

The *Cowslip* continued inbound in Upper Desdemona Shoal Channel on a course of 132° at a speed of 9.2 knots.⁷ At 2122, the CO suggested that the OOD change course

⁵ A security call is an informational message of a safety nature issued to all area vessels.

⁶ All headings cited in the report are True headings.

⁷ Taking into account the 1 to 1.5-knot ebb current, the *Cowslip* was making good a speed of about 7.7 knots.

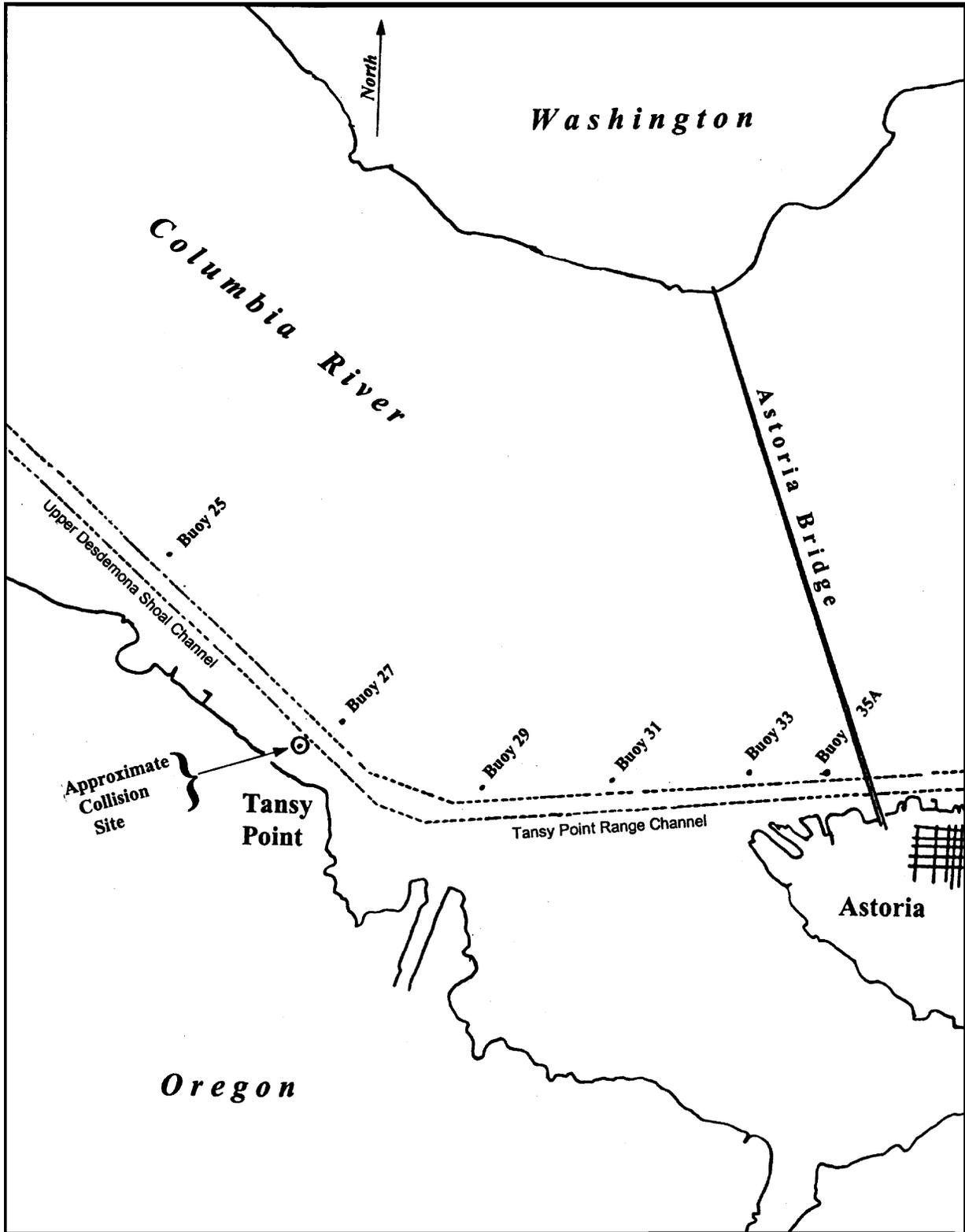


Figure 1. Chart of area showing approximate collision site.

10° to the right; the OOD ordered the course changed to 142° and reduced the vessel's speed to 4 knots. This course change took the *Cowslip* out of the buoyed channel.

About this time, the *Cowslip*'s shipping officer was able to acquire the *Ever Grade* on the automatic radar plotting aid (ARPA) radar, which began to track the container ship, automatically providing course, speed, and closest point of approach (CPA) information. When it was acquired on ARPA radar, the *Ever Grade* was located between buoys 31 and 29 and was moving at 10 knots. The shipping officer told the CO that she had acquired the *Ever Grade* on the ARPA radar and that the ship was outbound on Tansy Point Range, the first leg of the channel outbound from the Astoria Bridge.

The pilot on the *Ever Grade* ordered 10° right rudder to begin the outbound Tansy Point turn about the time the vessel passed abeam of buoy 29, which is about 1 mile from Tansy Point. The pilot stated that the *Ever Grade* was in the center of the channel when he began the turn and that he knew it would be a slow turn because of the *Ever Grade*'s slow speed and the effects of the 1-knot ebb current. He also stated that he delayed starting the turn longer than he would have in good visibility because he wanted to be sure that the *Ever Grade* was clear of navigation aids during its turn. After holding 10° right rudder for about 1 minute, the pilot said he ordered 15° right rudder to increase the rate of turn.

The *Cowslip*'s shipping officer continued to monitor the progress of the *Ever Grade* on the ARPA radar. After the *Ever Grade* passed buoy 29, the CO came to the ARPA radar and looked at the radar presentation. The shipping officer noted that the *Ever Grade* was then swinging to its right, away from the *Cowslip*.

The pilot of the *Ever Grade* told investigators that about this time, he became apprehensive about the position of the *Cowslip* on the radar, as it seemed that the *Cowslip* was very close to the channel centerline. The pilot called the *Cowslip* and said, "Do you know that there is a great amount of water over to your right, and you can actually go over and kiss the shore without getting into trouble." According to the *Ever Grade* pilot, the *Cowslip* radio operator responded with words to the effect that the *Cowslip* would come right and give all the room possible to the *Ever Grade*. The *Cowslip* CO stated that he did not respond to the transmission.

After receiving the *Ever Grade*'s transmission, the CO checked the *Cowslip*'s position and heading. He looked at the chart viewer and walked to the bridge's port wing and instructed the OOD to bring the ship 5° farther to the right. At 2124, the OOD ordered the helmsman to change course to the right from 142° to 147°.

Shortly thereafter, the *Cowslip*'s bow lookout reported to the OOD that he heard the *Ever Grade*'s fog signal about 5° off the port bow. Meanwhile, the shipping officer noticed that the ARPA radar heading flasher for the *Ever Grade* appeared to be swinging back toward the *Cowslip*. She also noted that the CPA for the *Ever Grade* was closing from 100 yards to 60 yards. She called loudly, "CPA .03 miles in 2 minutes." About the same time, the CO and the OOD saw the bow of the *Ever Grade* emerge from the fog

ahead of the *Cowslip*. Concurrent with her own sighting of the *Ever Grade*, the OOD received a report from the bow lookout that he had sighted the vessel ahead. The OOD immediately placed the engine throttle in the “full astern” position. Moments later, the CO called out for the helmsman to apply “right full rudder” and moved the throttle to the “full ahead” position in an attempt to move away from the oncoming *Ever Grade*. He also ordered the danger signal⁸ sounded on the ship’s whistle. A navigation team member standing near the whistle sounded the signal.

The *Cowslip* CO continued to watch the *Ever Grade* as it approached the *Cowslip*, and when he judged that its bow was past the *Cowslip*’s pivot point, he ordered “left full rudder” in an attempt to swing the *Cowslip*’s stern away from the approaching ship. At 2125, about the same time that the CO ordered “left full rudder,” the bow of the *Ever Grade* struck the port bridge wing of the *Cowslip*, crushing it inward and pinning the throttle control in the “full ahead” position. (See figure 2.) The impact heeled the *Cowslip* to starboard and knocked the CO to the deck, injuring him slightly.

According to the pilot on the *Ever Grade*, about the time of his last radio transmission, the *Cowslip* entered a blind spot in front of the *Ever Grade*, and he could no longer see it on his radar. After holding 20° for about a minute, the pilot said, he became concerned that the *Ever Grade* might swing so far to the right that it would run aground on the shoal on the “green side” of the channel, so he ordered “rudder amidships.” He said that he might even have ordered the rudder 10° left at this time, but that before the rudder could have reached the amidships position, the *Ever Grade* master yelled, “It is right ahead of us.” Hearing this, the pilot looked up and sighted the *Cowslip* dead ahead. He stated that both he and the master then simultaneously ordered “hard right rudder.” Seconds later, the pilot heard the *Cowslip*’s danger signal, and he knew that a collision was inevitable. Moments later, the two ships collided. The pilot said that immediately after impact, he and the master both ordered the rudder hard to port, intending to swing the *Ever Grade*’s stern away from the *Cowslip*.

According to the *Ever Grade* master’s recollection of events, he had been continuing to monitor the progress of the *Cowslip* on the ARPA radar. When he noted that the *Cowslip* was directly ahead of the *Ever Grade* at a range of 0.2 mile, he looked up and sighted the *Cowslip*’s range lights in line, dead ahead. At the same time, the chief officer on the bow radioed the master, reporting that he sighted the lights dead ahead. The master stated that he immediately shouted, “The range lights! Hard starboard!” The master said that when he shouted this order to the *Ever Grade* helmsman, the pilot looked up from the radar and said, “What?” The master told investigators that the pilot had seemed very surprised and did not appear to know what to do. The master said that when the two vessels collided, he, and not the pilot, ordered the rudder hard to port, to swing the *Ever Grade*’s stern away from the *Cowslip*.

⁸ At least five rapid blasts on the ship’s whistle.

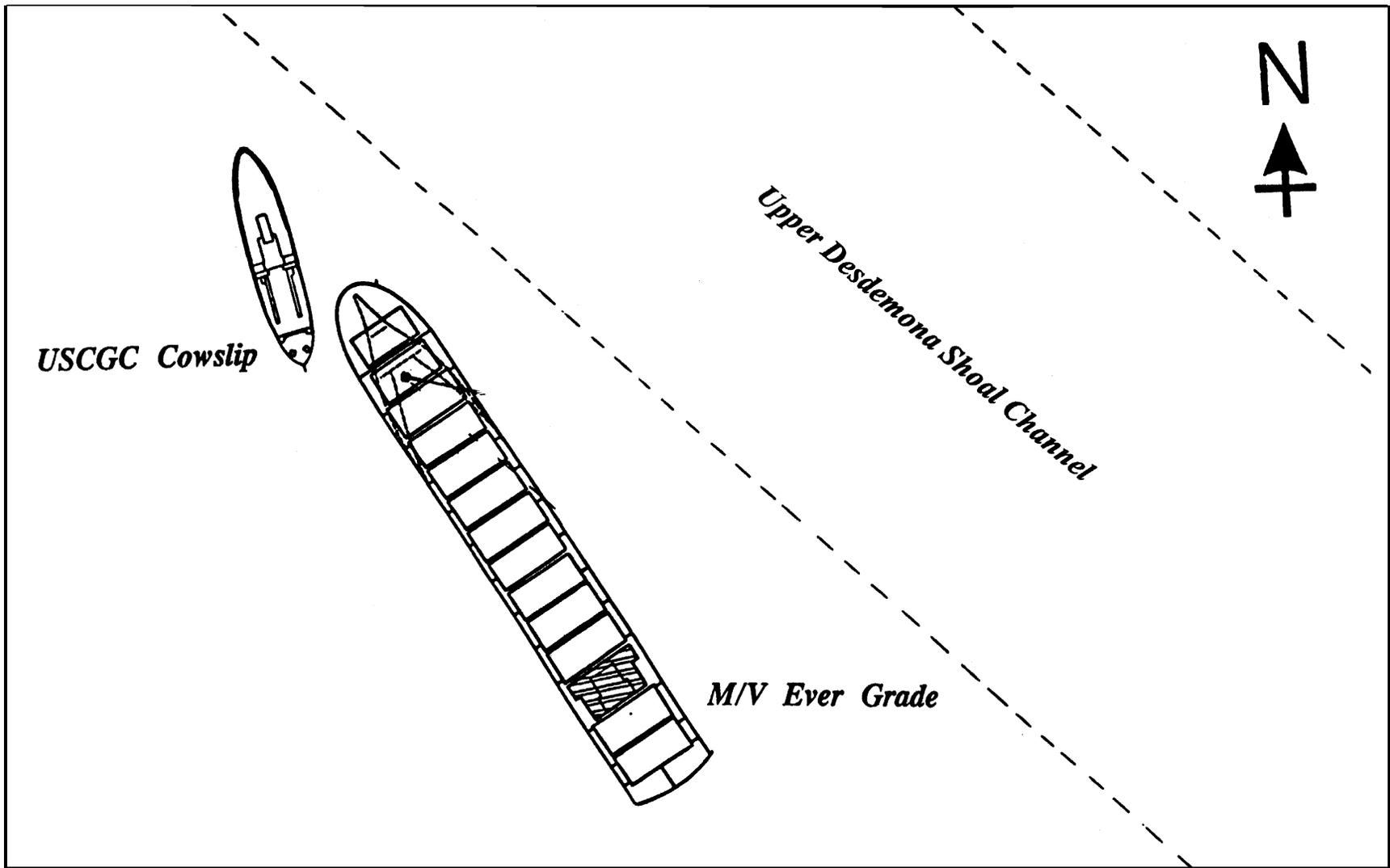


Figure 2. Sketch of vessels showing approximate angle of impact (not to scale).

After the collision, the *Cowslip* bounced off the *Ever Grade* and, moments later, it was hit a second time on the port quarter, near the motor room. The two vessels then separated and moved away from each other. Both vessels were subsequently anchored, and damage assessments were conducted.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between the Panamanian container ship *Ever Grade* and the U.S. Coast Guard buoy tender *Cowslip* was the failure of the pilot of the *Ever Grade* to gauge the turn at Tansy Point properly due to imprecise radar estimations of his vessel's position and late application of rudder, which combined to cause the ship to swing excessively wide in the turn and to strike the *Cowslip*. Contributing to the accident was the joint decision of the pilot of the *Ever Grade* and the commanding officer of the *Cowslip* to attempt a meeting at a sharp bend in the channel during a period of severely reduced visibility.

Adopted: December 30, 1999

Robert T. Francis II, Vice Chairman, filed the following additional statement with his concurrence on December 30, 1999:

I believe that the probable cause statement is sufficient as far as it goes, but it does not go far enough. Bridge resource management techniques and effective ship-to-ship communications are enormously important tools to enhance safety in maritime operations. Our failure to note breakdowns in communication on and between the vessels as a contributing factor in the collision does not, in my opinion, enhance either the safety of marine operations or the advancement of these issues in the maritime pilot community.