



DEPARTMENT OF THE NAVY
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MEMORANDUM FOR DISTRIBUTION

Enclosure (1) Report on the Collision between USS LAKE CHAMPLAIN (CG 57) and Fishing Vessel NAM YANG 502

The collision between USS LAKE CHAMPLAIN (CG 57) and fishing vessel NAM YANG 502 was avoidable. The command Admiralty investigation concerning this incident is complete. As Chief of Naval Operations, I have determined to retain the legal privilege that exists with the command Admiralty investigation in order to protect the legal interests of the United States Government. At the same time, it is paramount that the Navy transparently explain the causes and lessons learned to the American people. As noted in earlier reports detailing the investigation results of recent collisions involving USS FITZGERALD (DDG 62) and USS JOHN S MCCAIN (DDG 56), I am committed to make every effort to ensure these types of incidents do not happen again.

The Navy's Comprehensive Review of Surface Fleet Incidents was ordered to take a broader look at the systemic causes surrounding the four incidents in 2017 involving Forward Deployed Naval Forces in Japan. The Comprehensive Review, previously released in conjunction with the FITZGERALD and MCCAIN reports, included a summary and root causes of the LAKE CHAMPLAIN collision. This follow-on report provides additional details on the background and findings. The Comprehensive Review, as well as the FITZGERALD and MCCAIN reports can be found online at Navy.mil. This assessment is not intended to imply that NAM YANG 502's mistakes were not factors in the collision. Instead, this report focuses on what the Navy did wrong, what we can do better, and how to avoid these mistakes in the future.

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UNCLASSIFIED

ENCLOSURE (1)

REPORT ON THE COLLISION BETWEEN USS LAKE CHAMPLAIN (CG 57)
AND FISHING VESSEL NAM YANG 502

29 NOV 2017

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1. EXECUTIVE SUMMARY

1.1 Introduction

USS LAKE CHAMPLAIN (CG 57) collided with fishing vessel NAM YANG 502 on 9 May 2017 in the Sea of Japan.

LAKE CHAMPLAIN is a Ticonderoga Class Guided Missile Cruiser homeported in San Diego, California. Approximately 400 Sailors serve aboard LAKE CHAMPLAIN. LAKE CHAMPLAIN is 567 feet in length, 55 feet wide, and carries a gross tonnage of approximately 10,200 tons.

NAM YANG 502 is a fishing vessel with an unknown crew size. NAM YANG 502 is approximately 60 feet in length, 15 feet wide, and carries a gross tonnage of approximately 10 tons. NAM YANG 502 was en route to the Republic of Korea prior to the collision.

The collision between LAKE CHAMPLAIN and NAM YANG 502 resulted in no injuries. Each vessel sustained minor hull damage.

1.2 Summary of Findings

The Navy determined that numerous failures occurred on the part of watchstanders as follows:

- Failure to execute basic watchstanding practices.
- Failure to adhere to sound navigation practices.
- Failure to properly use available navigation tools.
- Failure to respond deliberately and effectively when in extremis.

2. DESCRIPTION OF EVENTS

2.1 Background

Prior to the collision, LAKE CHAMPLAIN was deployed to the Western Pacific, conducting patrols within the Sea of Japan, and routinely operating within the vicinity of fishing vessels. Inside of 24 hours before the collision, LAKE CHAMPLAIN conducted the following operations: refueling at sea, engineering training, flight operations, and a damage control drill. On the morning of 9 May 2017, LAKE CHAMPLAIN was operating in the Sea of Japan with the U.S. aircraft carrier USS CARL VINSON (CVN 70) and the South Korean warship ROKS YANGMANCHUN (DDH 973). See Figure 1.

LAKE CHAMPLAIN and YANGMANCHUN were “formation-steaming” with CARL VINSON, meaning they were maneuvering as necessary to maintain designated relative position (i.e., bearings and ranges) from CARL VINSON. Aircraft carriers like CARL VINSON frequently vary course and speed in order to support flight operations (launching and recovering aircraft). Formation-steaming allows the carrier to conduct maneuvers as necessary while ensuring a safe distance for its supporting ships. In this case, LAKE CHAMPLAIN and YANGMANCHUN were directed to maintain

a distance of five to ten nautical miles from the carrier. LAKE CHAMPLAIN was directed to maintain presence to the south and west of the carrier, while the YANGMANCHUN was directed to maintain presence to the north and east.

The weather was overcast, with visibility ranging from three to nine nautical miles throughout the morning. There was a slight chop and swell. All of LAKE CHAMPLAIN's military radars were operational; however, the ship's commercial radar display on the bridge was not operational due to a system casualty. LAKE CHAMPLAIN was not transmitting its Automatic Identification System (AIS) information, which provides a ship's location, course, speed, and other pertinent information to nearby vessels. LAKE CHAMPLAIN had no combat systems casualties or routine maintenance being performed on the morning of the collision. One of four Gas Turbine Main Engines was not available for use due to scheduled maintenance. At the time of collision, LAKE CHAMPLAIN was operating the propulsion plant at trail shaft configuration, meaning that only one of four main engines was providing propulsion to the ship. This is a commonly used fuel conservation plant configuration, though it limited LAKE CHAMPLAIN's maximum speed to 18 knots.

At the time of collision, LAKE CHAMPLAIN's Commanding Officer (CO) was not aboard, as he was attending meetings on board CARL VINSON. The Executive Officer (XO) was not on the bridge and was unaware of the navigational situation until seconds before impact.

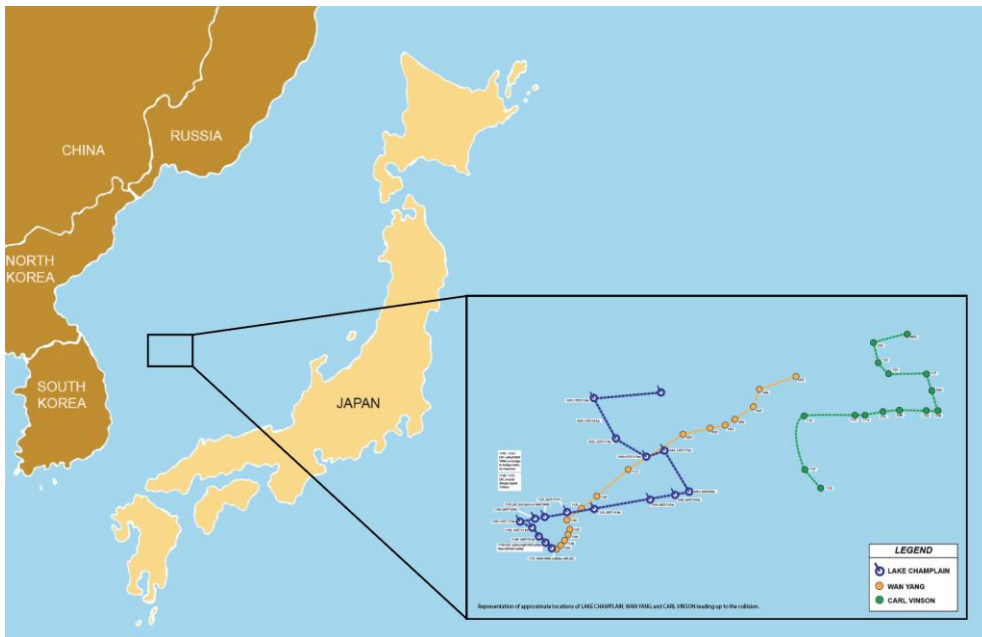


Figure 1 – Illustration Map of Approximate Collision Location

2.2 Events Leading to the Collision

On the morning of 9 May 2017, LAKE CHAMPLAIN and YANGMANCHUN were assigned sectors around the CARL VINSON to maintain 360 degree coverage around the aircraft carrier. At 7:00 am, LAKE CHAMPLAIN's CO departed the ship by helicopter to attend meetings on board CARL VINSON. In the CO's absence, the XO was in charge of the ship.

At 10:31 am, CARL VINSON gained initial radar and AIS tracks on NAM YANG 502. NAM YANG 502's course was 230 degrees, speed approximately 12 knots, and distance approximately 11

nautical miles from LAKE CHAMPLAIN. As required for all new surface contacts, CARL VINSON made a corresponding report to the Commander, Destroyer Squadron ONE, serving as the Sea Combat Commander on the carrier. It was not until 10:50 am that LAKE CHAMPLAIN gained radar track and electro-optical sight sensor on NAM YANG 502, at a range of 4.7 nautical miles. For approximately the next 45 minutes, LAKE CHAMPLAIN held intermittent track on NAM YANG 502.

At 11:35 am, LAKE CHAMPLAIN lost radar track on NAM YANG 502, which was then operating at a range of 2.4 nautical miles. While changing course to maintain relative position with the escorted aircraft carrier, LAKE CHAMPLAIN turned in front of the fishing vessel without realizing the risk of collision. The bridge watch team was slow to react and executed improper and untimely maneuvers in an attempt to avoid collision. Specifically, LAKE CHAMPLAIN ordered maximum speed (18 knots due to engine configuration) and maximum rudder orders (30 degrees) – first to the right and then to the left. Several minutes before the collision, LAKE CHAMPLAIN twice unsuccessfully attempted to establish communications with NAM YANG 502 on bridge-to-bridge radio. LAKE CHAMPLAIN also sounded five short blasts of the ship’s whistle (which represents the internationally-recognized danger signal for ships) at least three times. NAM YANG 502 did not respond to LAKE CHAMPLAIN’s radio attempts, use its whistle, or take necessary action to avoid collision. At 11:51am, NAM YANG 502 collided with LAKE CHAMPLAIN’s port beam. See Figure 2 and Figure 3.

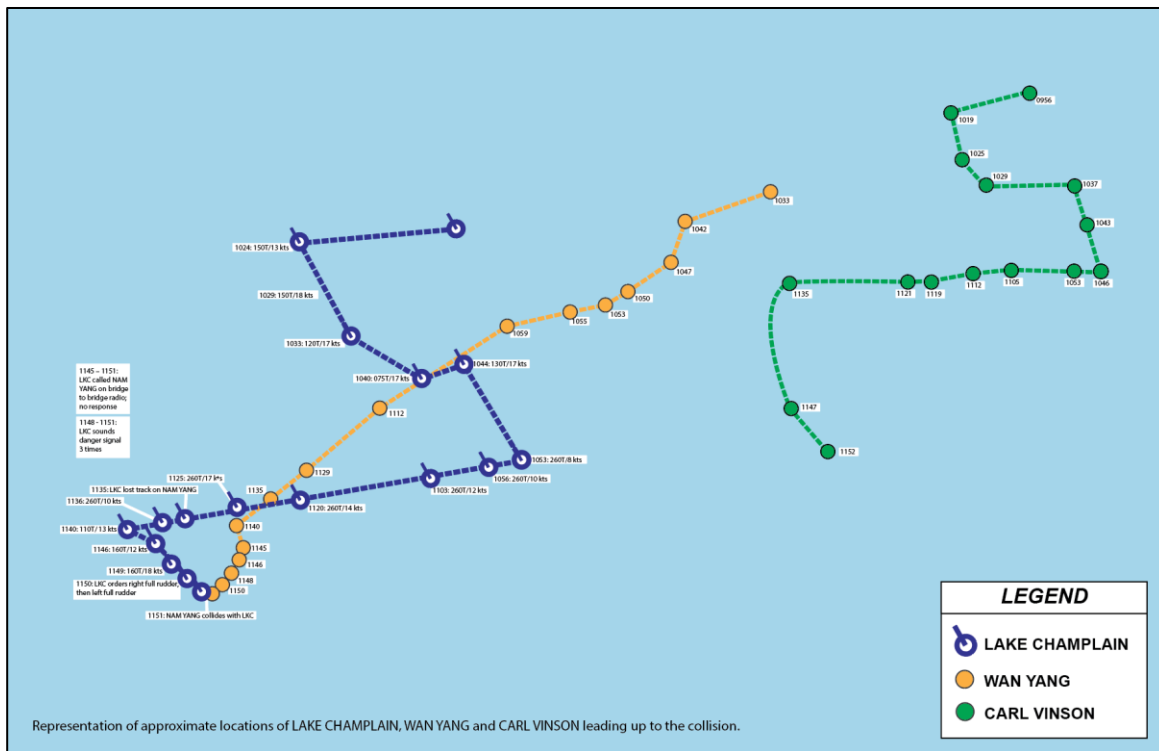


Figure 2 – Illustration Map of Approximate Collision Location

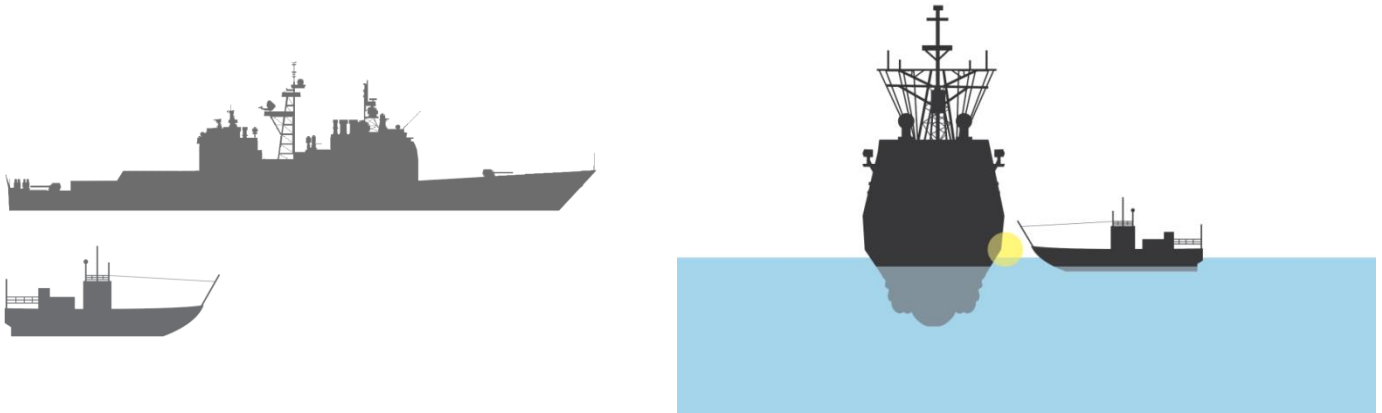


Figure 3 – Depiction of the Relative Size of Ships and Collision

3. IMPACT OF THE COLLISION

The bow of NAM YANG 502 impacted LAKE CHAMPLAIN on the port (left) midships (center). NAM YANG 502 then pivoted with her starboard (right) side against LAKE CHAMPLAIN and scraped down the side of the hull. NAM YANG 502 finally separated near LAKE CHAMPLAIN's port quarter. The impact created a 3 foot by 5 foot wide dent on LAKE CHAMPLAIN, as well as visible scrapes to the paint from the point of impact to the point of separation. There were no cracks or leaks to LAKE CHAMPLAIN. There were no reported personnel injuries onboard LAKE CHAMPLAIN or NAM YANG 502 as a result of the collision.

As required by Navy procedures, damage control efforts on LAKE CHAMPLAIN began almost immediately. LAKE CHAMPLAIN sailors reported a protrusion near the beverage line passageway bulkhead. The XO ordered all three ship's generators online (emergency tri-power) to support damage control efforts and ordered the start of another engine (split-plant) for better maneuverability. LAKE CHAMPLAIN remained on scene to ensure the safety of NAM YANG 502.

For nearly an hour, LAKE CHAMPLAIN's interpreter was unsuccessful in establishing communications with NAM YANG 502 via bridge-to-bridge radio.

4. FINDINGS

The LAKE CHAMPLAIN crew was ultimately unprepared for the situation in which they found themselves through a lack of preparation, ineffective command and control, and deficiencies in training. NAM YANG 502's global positioning system (GPS) and radio were not functional, which contributed to the collision.

4.1 Training

Shipboard training programs regarding the International Rules of the Nautical Road were ineffective, and LAKE CHAMPLAIN officers possessed insufficient knowledge of these Rules.

The bridge team was inexperienced and had not discussed or trained for emergency actions. See Figure 5 for bridge team schematic of LAKE CHAMPLAIN at the time of the collision. Watchstanders highlighted in green were on the bridge at the time of the collision, and watchstanders in gray were not. The senior bridge team watchstander was the Officer of the Deck (OOD), and supporting watchstanders included the Officer of the Deck Under Instruction (OOD U/I), Conning Officer (CONN), Quartermaster of the Watch (QMOW), Boatswain Mate of the Watch (BMOW), Helmsman (HELM), the Messenger of the Watch (MOW), and the lookout. The CO, XO, and Navigator (NAV) were not on the bridge at the time of the collision.

Watch team members were not familiar with basic radar fundamentals, impeding effective use. LAKE CHAMPLAIN did not hold radar track on NAM YANG 502 for sixteen minutes leading up to the collision, and it is possible that proper radar tuning would have prevented this problem.

The LAKE CHAMPLAIN Officer of the Deck failed to start additional engines (e.g. change from trail shaft to split plant) that would provide more speed and maneuverability.

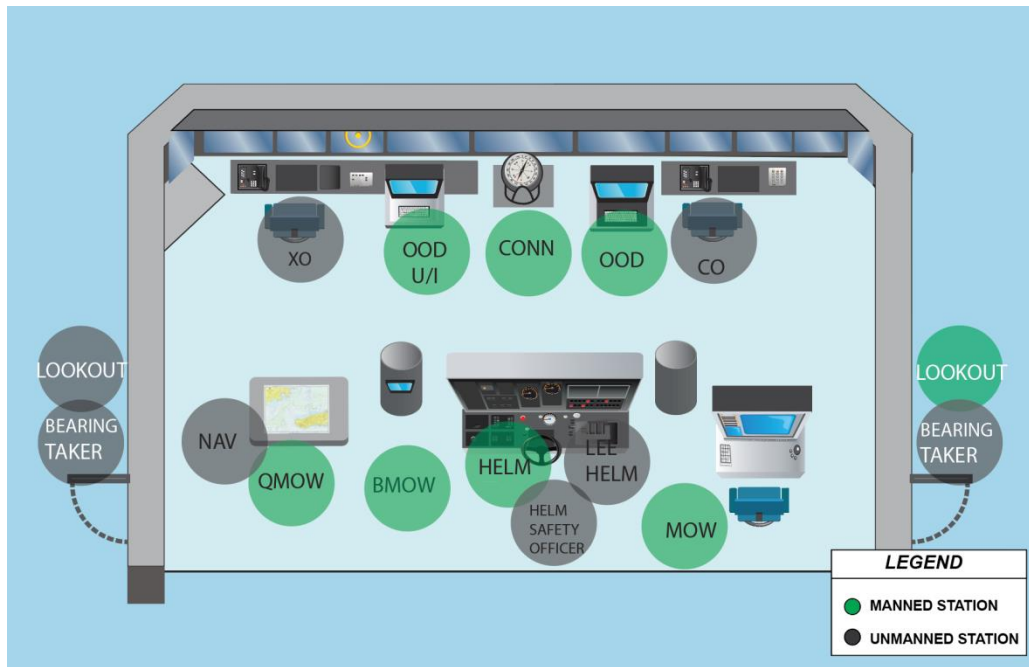


Figure 4 – Bridge schematic of LAKE CHAMPLAIN

4.2 Seamanship and Navigation

The Officer of the Deck and bridge team failed to comply with the International Rules of the Road. Specifically:

LAKE CHAMPLAIN did not sound signals with the ship's whistle to indicate turns to port or starboard.

LAKE CHAMPLAIN failed to use all available means to determine if risk of collision existed as the bridge team did not use an alidade, bearing circle, AIS, or electro-optical sighting system to determine bearing drift.

LAKE CHAMPLAIN failed to maneuver early as required with risk of collision present, as the Officer of the Deck initially delayed maneuvering upon recognizing the risk of collision.

LAKE CHAMPLAIN failed to make proper use of lookouts, as the aft lookout did not report the closing range or bearing drift of NAM YANG 502 as LAKE CHAMPLAIN maneuvered.

LAKE CHAMPLAIN failed to maintain course and speed as the stand-on vessel.

4.3 Leadership and Culture

The bridge team and Combat Information Center (CIC) team did not communicate effectively.

The Tactical Action Officer, the Officer of the Deck, and other watch team members did not communicate information and concerns to one another as the situation developed.

The Officer of the Deck, responsible for the safe navigation of the ship, did not call the XO on multiple occasions when required by the CO's Standing Orders.

Watchstanders did not maintain proper logs, and supervisors failed to recognize that junior watchstanders were not maintaining the surface contact log as required.

Though LAKE CHAMPLAIN was using a circadian watchbill, the watchbill was not supported with an effective ship's routine, as watch reliefs were required for meals. Fatigue was not considered to be a factor in the collision.

ANNEX A – TIMELINE OF EVENTS

9 May 2017

- 0700 LAKE CHAMPLAIN CO departed LAKE CHAMPLAIN via helicopter to attend meetings onboard CARL VINSON.
- 0900 The Officer of the Deck and the Conning Officer who remained on the bridge throughout the collision assumed the watch.
- 0955 LAKE CHAMPLAIN was operating in formation with USS CARL VINSON and ROKS YANGMANCHUN in the Sea of Japan on course 264 at 10 knots.
- 1000 The Tactical Action Officer—the senior officer on the Combat Information Center watch team—assumed the watch.
- 1012 LAKE CHAMPLAIN slowed to 5 knots.
- 1024 LAKE CHAMPLAIN altered course to 150 and increased speed to 13 knots.
- 1029 LAKE CHAMPLAIN steadied on course 150 and increased speed to 17 knots, and then 18 knots.
- 1030 CARL VINSON held track on NAM YANG 502, which was off of LAKE CHAMPLAIN's port beam at a range of 11 nautical miles.
- 1031 CARL VINSON gained radar track and held correlating AIS track on NAM YANG, and held NAM YANG 502 traveling on a course of approximately 230 at a speed of 12 knots from this time until the collision.
- 1033 LAKE CHAMPLAIN altered course to 120 at 17 knots. NAM YANG 502 was off LAKE CHAMPLAIN's port beam at a range of 10.7 nautical miles.
- 1040 LAKE CHAMPLAIN altered course to 075.
- 1042 LAKE CHAMPLAIN steadied on course 075. NAM YANG 502 was off of LAKE CHAMPLAIN's port bow at a range of 6.7 nautical miles.
- 1044 LAKE CHAMPLAIN altered course to 130.
- 1047 LAKE CHAMPLAIN steadied on course 130. NAM YANG 502 was positioned off of LAKE CHAMPLAIN's port beam at a range of 5.4 nautical miles.
- 1050 LAKE CHAMPLAIN gained track on NAM YANG 502 with radar and electro-optical sight off the port beam at a range of 4.7 nautical miles. CARL VINSON and LAKE CHAMPLAIN both held NAM YANG 502 traveling on a southwesterly course at 12 knots.

- 1051 LAKE CHAMPLAIN reported the track on NAM YANG 502 as an unknown radar and optical sight contact to the Sea Combat Commander.
- 1052 LAKE CHAMPLAIN lost track on NAM YANG 502.
- 1053 LAKE CHAMPLAIN altered course to 260 and slowed to 8 knots. LAKE CHAMPLAIN regained track on NAM YANG 502 at a range of 4 nautical miles. As LAKE CHAMPLAIN turned, the relative position of NAM YANG 502 changed from off the port quarter of LAKE CHAMPLAIN to off the starboard quarter of LAKE CHAMPLAIN. CARL VINSON still held track on NAM YANG 502.
- 1054 LAKE CHAMPLAIN lost track on NAM YANG 502 through the turn.
- 1055 LAKE CHAMPLAIN regained track on NAM YANG 502 off the starboard quarter at a range of 4 nautical miles. CARL VINSON still held track on NAM YANG 502, and both still held NAM YANG 502 traveling on a southeasterly course at 10-12 knots.
- 1056 LAKE CHAMPLAIN increased speed to 10 knots. LAKE CHAMPLAIN lost track, regained track, and lost track on NAM YANG 502 over the next minute.
- 1059 LAKE CHAMPLAIN steadied on course 260. NAM YANG 502 was off of LAKE CHAMPLAIN's starboard quarter at a range of 3.6 nautical miles.
- 1100 The Tactical Action Officer on watch was relieved by another qualified Tactical Action Officer in order to eat lunch prior to resuming the watch. Four members of the Surface Watch Team were relieved by two watchstanders for lunch.
- 1103 LAKE CHAMPLAIN increased speed to 12 knots.
- 1112 NAM YANG 502 was off of LAKE CHAMPLAIN's starboard quarter at a range of 2 nautical miles.
- 1120 LAKE CHAMPLAIN increased speed to 14 knots.
- 1125 LAKE CHAMPLAIN increased speed to 17 knots.
- 1129 LAKE CHAMPLAIN regained radar and optical sight track on NAM YANG 502 off the stern of LAKE CHAMPLAIN at a range of 1.9 nautical miles, and held NAM YANG 502 traveling on a southeasterly course at 10 knots.
- 1130 The Tactical Action Officer and the Surface Watch Team resumed the watch from the lunchtime watch reliefs.
- 1135 LAKE CHAMPLAIN lost track on NAM YANG 502. LAKE CHAMPLAIN did not regain track on NAM YANG 502 until after the collision.

- 1136 LAKE CHAMPLAIN slowed to 10 knots.
- 1140 LAKE CHAMPLAIN altered course to 110 and increased speed to 13 knots. When LAKE CHAMPLAIN began the turn, NAM YANG 502 was off LAKE CHAMPLAIN's port quarter at a range of 2.5 nautical miles.
- 1142 LAKE CHAMPLAIN steadied on course 110 at 11 knots. NAM YANG 502 was off LAKE CHAMPLAIN's port bow at a range of 2 nautical miles.
- 1145 – 1151 LAKE CHAMPLAIN called NAM YANG 502 on bridge-to-bridge radio two times, with no response.
- 1146 LAKE CHAMPLAIN altered course to 160. NAM YANG 502 was off of LAKE CHAMPLAIN's port side at a range of 1.6 nautical miles.
- 1148 LAKE CHAMPLAIN steadied on course 160 at 12 knots. LAKE CHAMPLAIN sounded five short blasts three times over the next three minutes. NAM YANG 502 was off of LAKE CHAMPLAIN's port beam at a range of 1 nautical mile.
- 1149 LAKE CHAMPLAIN increased speed to the maximum speed available given the ship's plant configuration, which was 18 knots.
- 1150 LAKE CHAMPLAIN ordered a right full (30°) rudder. NAM YANG 502 was off LAKE CHAMPLAIN's port beam at a range of 0.4 nautical miles (800 yards).
- 1150 LAKE CHAMPLAIN shifted the rudder from right full rudder to left full rudder (30°) and sounded five short blasts on the ship's whistle. NAM YANG 502 was off LAKE CHAMPLAIN's port beam at a range of 0.25 nautical miles (500 yards).
- 1151 NAM YANG 502 collided with LAKE CHAMPLAIN. LAKE CHAMPLAIN manned damage control teams and evaluated damage from the collision.