

MA2020-10

**MARINE ACCIDENT
INVESTIGATION REPORT**

November 26, 2020



The objective of the investigation conducted by the Japan Transport Safety Board in accordance with the Act for Establishment of the Japan Transport Safety Board is to determine the causes of an accident and damage incidental to such an accident, thereby preventing future accidents and reducing damage. It is not the purpose of the investigation to apportion blame or liability.

TAKEDA Nobuo
Chairperson
Japan Transport Safety Board

Note:

This report is a translation of the Japanese original investigation report. The text in Japanese shall prevail in the interpretation of the report.

MARINE ACCIDENT INVESTIGATION REPORT

October 21, 2020

Adopted by the Japan Transport Safety Board

Chairperson TAKEDA Nobuo

Member SATO Yuji

Member TAMURA Kenkichi

Member KAKISHIMA Yoshiko

Member OKAMOTO Makiko

Accident type	Collision
Date and time	Around 17:20 on March 11, 2019 (local time, UTC+9 hours)
Location	North Passage, Nagoya Port, Aichi Prefecture Around 095° true bearing, 760 m from Kinjo signal station, Nagoya-Ko Vessel Traffic Service Center (approximately 35°02.1'N, 136°51.3'E)
Summary of the Accident	As the oil tanker and chemical tanker EOS was proceeding southwest and the cargo ship AISHO No. 8 was proceeding north, both vessels collided in the Nagoya Port North Passage. EOS sustained a breach and other damage to her port bow plating shell and AISHO No. 8 sustained dents and other damage to her bow bulwark.
Process and Progress of the Investigation	The Japan Transport Safety Board (hereinafter referred to as "JTSB") appointed an investigator-in-charge and two other marine accident investigators to investigate this accident on March 12, 2019. March 12, and 13, 2019: On-site investigations and interviews March 14, 2019: Interviews June 3, 19, 26, 27, July 5, August 1 and 19, 2019: Collection of questionnaires Comments on the draft report were invited from parties relevant to the cause of accident. Comments on the draft report were invited invited from the Flag State of Vessel A.
Factual Information	Vessel A Oil tanker and chemical tanker EOS (registry: Republic of Korea) Gross tonnage 4,251 tons Vessel number 9253428 (IMO number), Owner, etc. GSM CO., LTD (hereinafter referred to as "Company A") L×B×D, Hull material 106.98 m x 16.80 m x 9.00 m, Steel Engine, Output Diesel engine, 3,120 kW Date of launch, etc. October 16, 2001 Vessel B Cargo ship AISHO No. 8

	<p>299 tons 140750 Aichi Kaiun Co. Ltd. (hereinafter referred to as “Company B”) 60.16 m x 10.50 m x 6.00 m, Steel Diesel engine, 735 kW March 11, 2008</p>
Crew Information	<p>A Master A (nationality: Republic of Korea), male, 63 years old Certificate of first grade maritime officer (navigation) (issued by the Republic of Korea) Date of issue: February 25, 2015 (valid until July 13, 2020)</p> <p>B Master B, male, 68 years old Fifth grade maritime officer (navigation) Date of license: October 18, 1974 Date of issue: March 30, 2015 Date of expiry: September 4, 2020</p>
Injuries to Persons	None
Damage to Vessel	<p>Vessel A: Breach and dents in port bow plating shell Vessel B: Dents in bow center bulwark and abrasions on bulbous bow</p>
Weather and Sea Conditions	<p>Weather: Weather - clear, Wind - north-northwest, Wind force - approx. 6.0 m/s, Visibility - good Sea conditions: Wave height - approx. 0.5 m, tide - mid-stage of incoming tide Sunset: Around 17:56</p>
Events Leading to the Accident	<p>At around 17:00 on March 11, 2019, Vessel A, with Master A and 17 other crew members aboard (two nationals of the Republic of Korea, 14 nationals of the Republic of the Philippines, and one national of the Socialist Republic of Vietnam) weighed anchor in an anchorage near Shiomi Pier and headed toward Yokkaichi Port, Mie Prefecture, with an empty hold and with a plan of going through Nagoya Port North Passage (hereinafter, when a passage name starts with “Nagoya Port,” this portion shall be omitted).</p> <p>With Master A conning the vessel and stationing two crew members, a navigation officer and an able seamen, on the bridge, Master A decided, with the intention of shortening sailing time in order to have more cargo handling time at the destination, to enter the North Passage from the area near the passage intersection on the North Passage’s south side and not pass the waypoint near the North Passage’s midpoint as originally planned, and therefore had Vessel A proceed southwest on a course of 236° (true bearing; hereinafter the same) and speed of approximately 9 knots (kn) (speed over the ground; hereinafter the same).</p>

At around 17:15, Master A observed a vessel towing another vessel heading north diagonally across the North Passage ahead (hereinafter "Vessel Column C") and decided to pass Vessel Column C starboard-to-starboard.

After Vessel Column C crossed the bow on the starboard side, Master A observed Vessel B off of the bow at around 17:17 but he assumed that Vessel A and Vessel B were in a meeting relationship and would pass port-to-port, and that Vessel B would cross the North Passage on an easterly course and head in the direction that Vessel A had come.

At around 17:18, Master A decided to alert Vessel B, which he could see off of the bow, and he sounded the whistle; however, thereafter, he noticed that Vessel B had turned to port and was heading north in the North Passage.

Vessel B approached Vessel A's bow, at this time Master A sensed the danger of collision and he set the rudder hard to starboard, sounded the whistle in short blasts repeatedly and stopped the main engine with the intention of avoiding a collision by passing port-to-port because Vessel B had come too close for Vessel A to pass Vessel B's stern; Thereafter, although he continued to blow the whistle, Vessel A's port bow and Vessel B's bow collided at around 17:20.

At around 17:30, Master A notified Japan Coast Guard of the accident and subsequently berthed at a wharf in Nagoya Port as instructed by Japan Coast Guard.

At around 17:10, Vessel B, with Master B and four other crew members aboard, left Tobishima Pier with an empty hold, with Master B handling ship maneuvering alone, and headed to an anchorage near Nagoya Port Garden Pier with a plan of going through the North Passage.

Master B decided to enter the North Passage by making a wide turn near the eastern edge of the passage with the intention of staying to the passage's right side as a vessel navigating the passage. At around 17:15, he began a gradual turn to port at a speed of approximately 12 kn while watching the North Passage No. 1 Light Buoy on the starboard side.

At around 17:16, Master B observed Vessel A proceeding southwest in the sea area to the east of the North Passage, he gradually reduced speed, he saw that Vessel A and Vessel Column C were in a state where they would pass starboard-to-starboard,

	<p>and he thought that Vessel A would pass Vessel B starboard-to-starboard in a similar manner as with Vessel Column C.</p> <p>At around 17:18, Master B was heading north on the same course after turning to port, thinking that Vessel B, which was navigating within the North Passage, was in a position of maintaining her course and Vessel A, which was about to enter the North Passage, would give way to Vessel B. At around 17:19, Master B saw Vessel A's bow approaching off the bow and make a sudden turn to starboard, he sensed the danger of collision and sounded the whistle once in a prolonged blast, and he set the main engine to full astern. However, despite these actions, Vessel B collided with Vessel A.</p> <p>At around 17:24, Master B notified Nagoya-ko Vessel Traffic Service Center of the accident and subsequently berthed at a wharf in Nagoya Port in accordance as instructed by Japan Coast Guard. (See Attached Figure 1 "Outline Map of the Course of the Accident Events," Attached Table 1 "AIS Record of Vessel A (Excerpt)," Attached Table 2 "AIS Record of Vessel B (Excerpt)," Attached Table 3 "Information on Voice Communication, etc., Recorded by Vessel A's VDR (Excerpt)")</p>
Other Matters	<p>Both Master A and Master B had plentiful experience navigating in the sea area of the accident site.</p> <p>Nagoya-ko Vessel Traffic Service Center did not communicate information on Vessel B's departure to Vessel A because, when it received a notification of departure from Vessel A at around 16:24, it had not received a notification of departure from Vessel B by that time.</p> <p>Nagoya-ko Vessel Traffic Service Center received a notification of departure from Vessel B at around 17:04 and informed Vessel B that Vessel A would leave port by going from the direction of the North Passage toward the East Passage.</p> <p>At the time of the accident, Vessel A was indicating using international signal flags that she would depart Nagoya Port via the East Passage and Vessel B was indicating, also using international signal flags, that she would head toward the northern port area of the North Passage. However, Master A assumed that Vessel B would cross the North Passage to the east and therefore did not see Vessel B's signals, and Master B assumed that Vessel A would give way to Vessel B and therefore did not see Vessel A's signals.</p>

Similarly, Master A and Master B did not engage in communication by VHF or other means between Vessel A and Vessel B because each had the assumptions described above.

The AIS installed on Vessel B was a simplified AIS*¹ and could not input or output information concerning destination.

The Act on Port Regulations states the following.

(Navigation)

Article 14

A vessel entering a Passage from outside or seeking to leave a Passage must give way to other vessels navigating the Passage.

(2) to (4) (Omitted)

Article 18

(Omitted)

(2) A vessel that has a tonnage of up to that which Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism specifies within the scope of 500 tonnes or less of gross tonnage, and which is not a Steam Launch, etc. (hereinafter referred to as a "Small Vessel"), shall give way to any vessel that is not a Steam Launch, etc. or a Small Vessel in a Specified Port with extremely congested marine traffic which is provided for in the Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism.

(3) When a vessel that is not a Steam Launch, etc. or a Small Vessel navigates in a Specified Port referred to in the preceding paragraph, it shall hoist a sign of the style provided for by Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism in a prominent manner on its mast.

The Ordinance for Enforcement of the Act on Port Regulations states the following.

Article 8 (3)

The Specified Ports with extremely congested marine traffic which are provided for in the Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism of Article 18-2 of the Act are Chiba Ko, Keihin Ko, Nagoya Ko, Yokkaichi Ko (limited to Route No. 1 and Umaokoshi Route;

*¹ "Simplified AIS" refers to an AIS device that has smaller output than the AIS (Automatic Identification System) required in specified vessels under international conventions and which can only send and receive information pertaining to ship name, position, speed, course, and ship type.

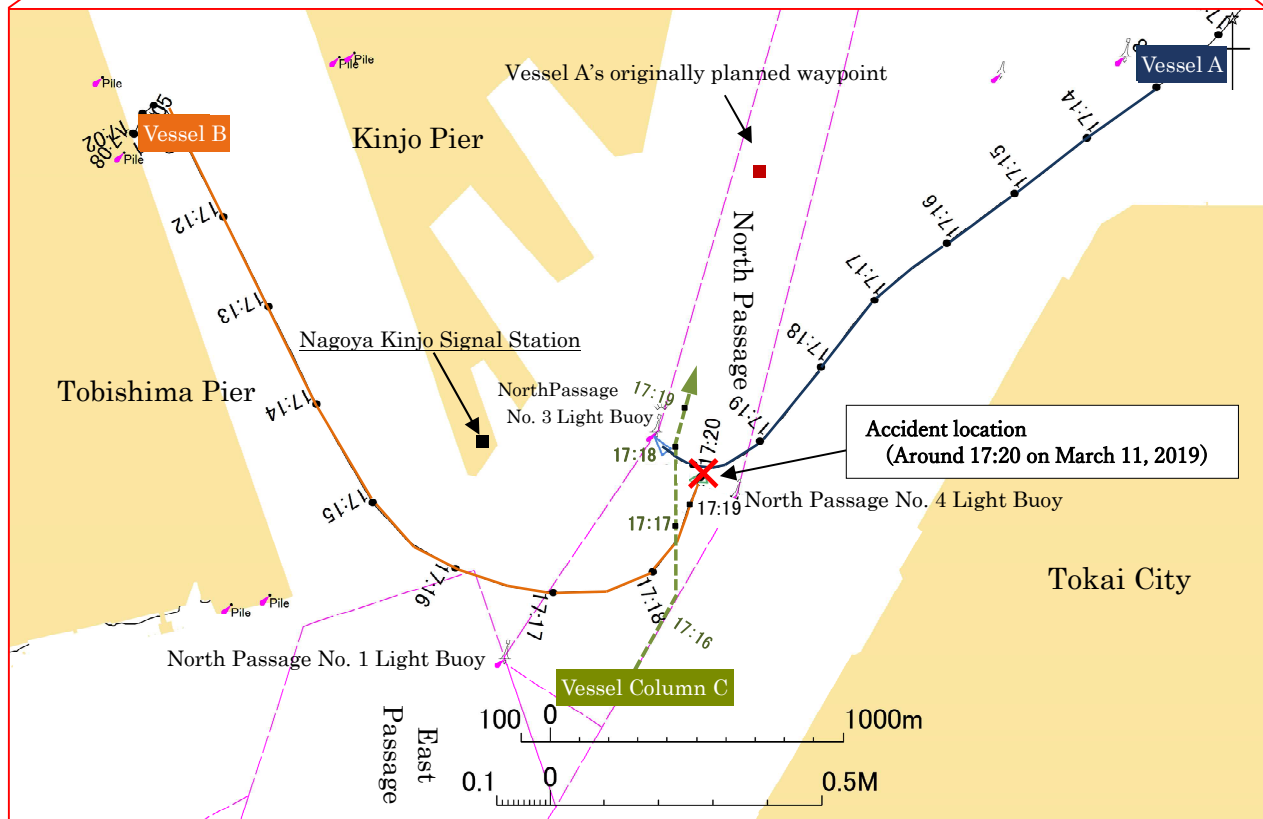
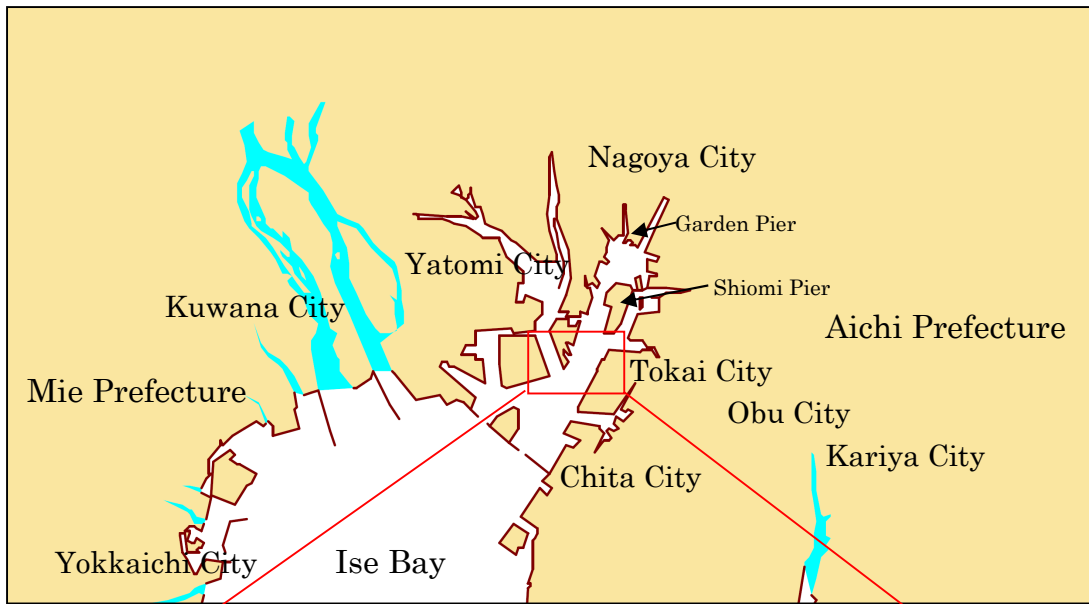
	<p><i>hereinafter the same in this Article), Hanshin Ko (excluding Amagasaki-Nishinomiya-Ashiya Ku; hereinafter the same in this Article), and Kanmon Ko (excluding Hibiki-Shinko Ku; hereinafter the same in this Article), and the tonnages which are provided for in the Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism of the same paragraph are 500 tonnes for Chiba Ko, Keihin Ko, Nagoya Ko, Yokkaichi Ko and Hanshin Ko and 300 tonnes for Kanmon Ko.</i></p> <p>Article 18 (2) of the Act on Port Regulations takes precedence over Article 14 (1) of the Act.</p>
<p>Analysis</p> <p>Involvement of crew members</p> <p>Involvement of vessel, engine, etc.</p> <p>Involvement of weather and sea conditions</p> <p>Analysis of the findings</p>	<p>A: Applicable B: Applicable</p> <p>A: Not Applicable, B: Not Applicable</p> <p>A: Not Applicable, B: Not Applicable</p> <p>It is highly probable that Master A decided, with the intention of shortening sailing time in order to have more cargo handling time at the destination, to enter the North Passage from the area near the passage intersection on the North Passage’s south edge and not pass the waypoint near the North Passage’s midpoint as originally planned.</p> <p>It is probable that when Master A observed Vessel B off of the bow, he assumed that Vessel A and Vessel B were in a meeting relationship and would pass port-to-port and that Vessel B would cross the North Passage on an easterly course and head in the direction that Vessel A had come, and he continued proceeding southwest at the same speed without checking Vessel B’s course signal indicated using international signal flags.</p> <p>It is probable that Master A saw Vessel B approach Vessel A’s bow and set the rudder hard to starboard, stopped the main engine with the intention of avoiding a collision by passing port-to-port because Vessel B had come too close for Vessel A to sail to Vessel B’s stern.</p> <p>It is highly probable that Master A assumed that Vessel B would cross the North Passage to the east and therefore did not engage in appropriate communication with Vessel B by VHF or other means.</p> <p>It is probable that, even though Vessel B was required to keep out of the way of Vessel A in accordance with the provisions of the</p>

	<p>Act on Port Regulations, Master B assumed that Vessel B, which was navigating within the North Passage, was in a position of maintaining her course and Vessel A, which was about to enter the North Passage, would give way to Vessel B, and that, seeing Vessel A and Vessel Column C pass starboard-to-starboard, Master B thought that Vessel A would also pass Vessel B starboard-to-starboard in a similar manner as with Vessel Column C, and therefore he turned to port and proceeded north in the North Passage.</p> <p>It is highly probable that, because Master B assumed that Vessel A would give way to Vessel B, he did not engage in appropriate communication with Vessel A by VHF or other means and did not check Vessel A's course signal indicated using international signal flags.</p> <p>It is highly probable that, because the AIS installed on Vessel B was a simplified AIS and did not input or output information concerning destination, it was not possible to obtain information concerning Vessel A's and Vessel B's destinations from the AIS on either vessel.</p>
<p>Probable Causes</p>	<p>It is probable that both vessels collided in Nagoya Port because, as Vessel A was proceeding southwest toward the North Passage, Master A, when he observed Vessel B off of the bow, assumed that Vessel A and Vessel B were in a meeting relationship and would pass port-to-port and, further, that Vessel B would cross the North Passage on an easterly course and head in the direction that Vessel A had come, and therefore he continued navigating at the same course and speed, and because Master B assumed that Vessel B, which was navigating within the North Passage, was in a position of maintaining her course and Vessel A, which was about to enter the North Passage, would give way to Vessel B, and therefore he turned to port and proceeded north.</p> <p>It is probable that each master respectively attempted to avoid an accident, as Master A set the rudder hard to starboard, stopped the main engine with the intention of avoiding a collision by passing port-to-port because Vessel B had come too close for Vessel A to sail to Vessel B's stern, and Master B saw Vessel A's bow approaching off the bow and make a sudden turn to starboard, sensed the danger of collision, and set the main engine to full astern.</p> <p>It is probable that the fact that course signals made using</p>

	<p>international signal flags were not checked and communication by VHF or other means was not made between Vessel A and Vessel B contributed to the accident.</p>
<p>Safety Actions</p>	<p>1. Safety actions taken following the accident</p> <p>Company A implemented the following measures following the accident.</p> <ol style="list-style-type: none"> (1) Issued the following instructions to all of its vessels. <ul style="list-style-type: none"> ▪ Maintain safe speeds and safe distances based on conventions, laws, and ordinances. ▪ Never hesitate to use the engine in an emergency situation. ▪ Never decide maneuvering of other vessels in advance as a personal presumption. (2) Decided to revise its company QSMS procedure and add the stationing of a navigation officer on the bridge when entering and leaving port. (3) Decided to shorten intervals between BRTM-related training and practice sessions. (4) Decided to conduct unannounced safety management monitoring and supervision visits of its vessels. <p>Company B implemented the following measures following the accident.</p> <ol style="list-style-type: none"> (1) Decided to station one conning officer and at least one person on watch and radar on the bridge when entering or leaving port and navigating within a port, and specifically mentioned this in operational standards. (2) Had crew members of its vessels recheck procedures for avoiding hazards, including engaging in radio communication by VHF or other means and issuing warnings with acoustic signals at an early stage. (3) Decided to provide periodic crew education concerning understanding of applicable laws and ordinances using this accident and past accidents, with particular focus on important sections of the Act on Port Regulations, etc. <p>2. It is probable that the following actions will be useful in preventing the reoccurrence of a similar accident.</p> <ul style="list-style-type: none"> ▪ When there is uncertainty about another vessel's movements, bridge watchkeepers mutually confirm ship maneuvering intentions with course signals using international signal flags for vessel encounters and actively and appropriately arouse the other vessel's attention by VHF communication or

	<p>acoustic signals, rather than make decisions based on assumptions of the other vessel's movements.</p> <ul style="list-style-type: none">▪ Bridge watchkeepers accurately comprehend and follow navigation rules established in the Act on Port Regulations, etc.
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Attached Figure 1 Outline Map of the Course of the Accident Events



Attached Table 1 AIS Record of Vessel A (Excerpt)

Time (HH:MM:SS)	Ship's position*		Course Over the Ground* (°)	Heading* (°)	Speed Over the Ground (knots [kn])
	Latitude (N) (°.'")	Longitude (E) (°.'")			
17:15:01	35-02-33.3	136-51-57.2	234.0	236	9.4
17:15:10	35-02-32.6	136-51-56.0	234.0	236	9.5
17:15:21	35-02-31.4	136-51-54.0	234.0	235	9.5
17:15:30	35-02-30.7	136-51-52.7	234.0	235	9.6
17:15:40	35-02-29.9	136-51-51.5	233.0	235	9.6
17:15:50	35-02-28.7	136-51-49.5	233.0	235	9.6
17:16:01	35-02-27.8	136-51-48.1	233.0	235	9.7
17:16:10	35-02-27.3	136-51-47.0	233.0	234	9.7
17:16:21	35-02-25.7	136-51-44.5	233.0	233	9.7
17:16:29	35-02-24.9	136-51-43.2	233.0	231	9.7
17:16:39	35-02-24.2	136-51-41.9	232.0	229	9.7
17:16:50	35-02-23.0	136-51-40.3	231.0	225	9.7
17:17:01	35-02-21.5	136-51-38.3	229.0	221	9.7
17:17:07	35-02-21.2	136-51-37.9	227.0	219	9.7
17:17:14	35-02-20.2	136-51-36.8	223.0	219	9.7
17:17:21	35-02-19.2	136-51-35.9	221.0	219	9.7
17:17:31	35-02-17.8	136-51-34.6	219.0	219	9.8
17:17:39	35-02-16.8	136-51-33.7	218.0	219	9.8
17:17:50	35-02-15.2	136-51-32.2	218.0	219	9.9
17:18:01	35-02-14.1	136-51-31.1	217.0	219	10.0
17:18:10	35-02-12.5	136-51-29.6	217.0	219	10.1
17:18:21	35-02-11.0	136-51-28.3	216.0	221	10.2
17:18:31	35-02-09.9	136-51-27.3	217.0	225	10.2
17:18:39	35-02-08.7	136-51-26.3	218.0	227	10.2
17:18:50	35-02-07.3	136-51-24.6	220.0	232	10.2
17:19:01	35-02-05.9	136-51-23.0	222.0	242	10.0
17:19:10	35-02-04.9	136-51-21.7	225.0	250	9.7
17:19:21	35-02-04.0	136-51-20.0	233.0	262	9.2
17:19:31	35-02-03.5	136-51-18.6	241.0	272	8.5
17:19:39	35-02-03.1	136-51-17.5	247.0	284	8.1
17:19:46	35-02-03.0	136-51-16.3	256.0	292	7.4
17:19:54	35-02-03.1	136-51-15.2	263.0	299	7.1
17:20:01	35-02-03.3	136-51-14.0	273.0	304	6.7
17:20:10	35-02-03.5	136-51-13.1	282.0	309	6.1
17:20:17	35-02-03.8	136-51-12.5	287.0	313	5.7
17:20:27	35-02-04.2	136-51-11.6	295.0	317	5.0
17:20:37	35-02-04.7	136-51-10.8	301.0	319	4.4
17:20:47	35-02-05.0	136-51-10.4	305.0	321	4.1

* The vessel position indicates the position of the GPS antenna installed above the bridge, and the courses over the ground and headings indicated in true bearings.

Attached Table 2 AIS Record of Vessel B (Excerpt)

Time (HH:MM:SS)	Ship's position*		Course Over the Ground* (°)	Heading* (°)	Speed Over the Ground (knots [kn])
	Latitude (N) (°.'")	Longitude (E) (°.'")			
17:15:22	35-01-59.1	136-50-31.0	146.9	139	12.1
17:15:53	35-01-54.7	136-50-36.0	127.0	121	11.7
17:16:23	35-01-51.8	136-50-42.1	115.0	110	11.6
17:16:53	35-01-49.9	136-50-48.8	102.1	100	11.6
17:17:21	35-01-49.1	136-50-55.2	092.8	090	11.7
17:17:52	35-01-49.3	136-51-02.5	079.8	071	11.4
17:18:22	35-01-51.4	136-51-08.6	052.1	038	10.5
17:18:51	35-01-55.4	136-51-12.1	023.0	014	10.1
17:19:22	35-02-00.2	136-51-14.0	016.7	013	8.4
17:19:51	35-02-01.7	136-51-15.0	068.6	319	0.6
17:20:23	35-02-01.9	136-51-15.0	347.6	279	0.1
17:20:51	35-02-01.8	136-51-15.1	241.2	259	0.5

* The vessel position indicates the position of the GPS antenna installed above the bridge, and the courses over the ground and headings indicated in true bearings.

Attached Table 3 Information on Voice Communication, etc., Recorded by Vessel A's VDR (Excerpt)

Time (hour:min: sec)	Speaker and others	Voices and sounds	
17:16:10~ 17:16:11	Master A Able Seaman	Port 10. Port 10 sir.	
17:16:31~ 17:16:35	Master A Able Seaman	Port 15. Port 15 sir.	
17:16:58~ 17:17:00	Master A Able Seaman	Midship. Midship sir.	
17:17:02~ 17:17:09	Master A Able Seaman	Steady. Steady sir.	
17:18:00~ 17:18:07	Master A Able Seaman	Starboard 10. Starboard 10 sir.	
17:18:24~ 17:18:25			<sound of whistle> One short blast
17:18:32~ 17:18:59	Master A Able Seaman Master A Officer	Hard starboard. Hard starboard. Stop engine. Stop engine.	<sound of whistle> more than 20 short blasts
17:18:59~ 17:19:32			<sound of whistle> continue for about 30 seconds
17:19:32~ 17:19:33	Sound of Impact		
17:19:35~ 17:19:42	Master A Able Seaman Master A Able Seaman Master A Able Seaman	Midship. Midship. Hard port. Hard port. Hard starboard. Hard starboard.	
17:19:43~ 17:19:56	Master A Officer	Full astern. Full astern sir.	