

MA2021-1

**MARINE ACCIDENT
INVESTIGATION REPORT**

January 21, 2021



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

Vessel type and name: Cargo ship CAPE VERDE

IMO number: 9670054

Gross tonnage: 107,054 tons

Vessel type and name: Fishing vessel MUNEYOSHI MARU

Fishing vessel registration number: HG3-37707

Gross tonnage: 4.8 tons

Accident type: Collision (Fishing gear)

Date and time: Around 08:35, December 21, 2018 (Local time, UTC+9)

Location: Off the east of Sumoto Port, Sumoto City, Hyogo Prefecture

Around 156° true bearing, 1.2 nautical miles from the Sumoto Offing Light Buoy

(Approximately 34°20.2'N, 135°01.1'E)

December 16, 2020

Adopted by the Japan Transport Safety Board

Chairperson TAKEDA Nobuo

Member SATO Yuji

Member TAMURA Kenkichi

Member KAKISHIMA Yoshiko

Member OKAMOTO Makiko

SYNOPSIS

<Summary of the Accident>

The cargo ship CAPE VERDE, with a master and 23 crewmembers on board, proceeded northeast to Fukuyama Port in Fukuyama City, Hiroshima Prefecture on pilotage by a pilot and the fishing vessel MUNEYOSHI MARU, with a skipper and a crewmember, proceeded northeast while pulling the fishing net. At around 08:35 on December 21, 2018, CAPE VERDE collided with the fishing gear of MUNEYOSHI MARU near the Sumoto Offing Light Buoy.

In MUNEYOSHI MARU, the crewmember drowned, the hull capsized and the fishing gear was damaged.

CAPE VERDE had scratches on the rudder, but there were no casualties.

<Probable Causes>

It is probable that the accident occurred when, while Vessel A was proceeding northeast under pilotage by Pilot A and Vessel B was proceeding northeast while pulling the fishing net off the east of Sumoto Port under circumstances of heavy traffic and many ships, Vessel A collided with the fishing gear of Vessel B because Vessel A turned to starboard close to the stern of Vessel B.

It is probable that Vessel A turned to starboard close to the stern of Vessel B because Pilot A noticed that it was difficult to carry out the originally planned idea of passing between Vessel C and Vessel D on the port bow and believed that, considering the visually measured distance of about 1 M from Vessel B, it would be safe to pass over the fishing gear of Vessel B.

It is somewhat likely that the situation that Master A left the bridge, leaving Pilot A alone to make decisions about ship maneuvering contributed to the occurrence of this accident.

1 PROCESS AND PROGRESS OF THE INVESTIGATION

1.1 Summary of the Accident

The cargo ship CAPE VERDE, with a master and 23 crewmembers on board, proceeded northeast to Fukuyama Port in Fukuyama City, Hiroshima Prefecture on pilotage by a pilot and the fishing vessel MUNHEYOSHI MARU, with a skipper and a crewmember, proceeded northeast while pulling the fishing net. At around 08:35 on December 21, 2018, CAPE VERDE collided with the fishing gear of MUNHEYOSHI MARU near the Sumoto Offing Light Buoy.

In MUNHEYOSHI MARU, the crewmember drowned, the hull capsized and the fishing gear was damaged.

CAPE VERDE had scratches on the rudder, but there were no casualties.

1.2 Outline of the Accident Investigation

1.2.1 Setup of the Investigation

The Japan Transport Safety Board appointed an investigator-in-charge and two other investigators to investigate this accident on December 21, 2018.

1.2.2 Collection of Evidence

December 22 and 23, 2018: On-site investigations and interviews

December 25 and 26, 2018 and March 14, June 14 and July 5, 2019: Collection of questionnaires

January 22 and April 15, 16 and 22, 2019: Interviews

January 23, 2019: On-site investigation and collection of questionnaires

1.2.3 Comments from Parties Relevant to the Cause

Comments on the draft report were invited from the parties relevant to the cause of the accident.

1.2.4 Comments from the Flag State

Comments on the draft report were invited from the flag state of CAPE VERDE.

2 FACTUAL INFORMATION

2.1 Events Leading to the Accident

2.1.1 Operations of CAPE VERDE according to the Records of AIS Information

According to ‘the records of the Automatic Identification System (AIS)*¹ received by a private information company in Japan’ (hereinafter referred to as “AIS records”), operations of CAPE VERDE (hereinafter referred to as “Vessel A”) between around 08:15 and 08:45 on December 21, 2018 are as shown in Table 2.1-1.

The ship position of Vessel A is the position of the GPS antenna attached above the bridge. The course over the ground (COG) and the heading are true.

Table 2.1-1 AIS Records (Excerpts)

Time (hh:mm:ss)	Ship Position		COG (°)	Heading (°)	SOG* ² (kn)
	LAT N (°-′-″)	LNG E (°-′-″)			
08:15:06	34-16-16.1	134-12-25.8	356.6	359	13.7
08:20:03	34-17-34.5	134-58-54.9	012.8	028	13.7
08:21:03	34-17-47.3	134-59-00.3	023.3	035	13.3
08:22:00	34-17-58.2	134-59-07.3	029.3	036	13.2
08:24:00	34-18-21.0	134-59-23.4	030.5	031	13.2
08:26:09	34-18-46.9	134-59-37.7	023.2	030	13.3
08:28:09	34-19-10.5	134-59-52.2	036.9	042	12.8
08:29:09	34-19-20.7	135-00-01.9	040.7	043	12.7
08:30:09	34-19-30.4	135-00-12.1	041.1	042	12.7
08:31:09	34-19-40.0	135-00-22.0	040.3	041	12.7
08:32:09	34-19-49.6	135-00-31.8	041.2	042	12.7
08:33:09	34-19-59.5	135-00-41.9	039.7	052	12.7
08:34:02	34-20-07.0	135-00-51.8	054.4	079	12.2
08:34:12	34-20-08.0	135-00-53.8	058.0	085	12.0
08:34:31	34-20-09.4	135-00-57.9	069.7	094	11.3
08:35:03	34-20-10.2	135-01-04.7	087.2	104	10.5
08:35:39	34-20-09.6	135-01-12.1	099.7	108	10.2
08:36:09	34-20-08.3	135-01-18.0	106.2	108	10.2

¹*1 “Automatic Identification System (AIS)” is a system that enables ships to automatically exchange navigation information, such as call sign, type, name, position, course, speed, destination and navigation state, with other ships or with shore facilities.

²*2 “SOG (speed over the ground)” is the speed of a ship measured based on a point of the earth surface, while the speed of a ship measured based on the water on which the ship is afloat is called the “log speed.”

08:37:08	34-20-04.8	135-01-29.5	111.4	101	10.5
08:38:08	34-20-01.6	135-01-41.7	101.6	083	10.5
08:39:08	34-20-01.0	135-01-54.1	087.4	068	10.2
08:40:08	34-20-02.9	135-02-06.1	073.3	055	9.8
08:41:08	34-20-06.8	135-02-16.8	064.7	048	9.7
08:42:08	34-20-11.9	135-02-26.7	052.6	037	9.4
08:43:09	34-20-18.4	135-02-34.9	043.8	034	9.4
08:44:09	34-20-25.6	135-02-42.6	039.1	031	9.7
08:45:09	34-20-33.5	135-02-49.7	035.0	030	9.9

According to Table 2.1-1, the navigation track of Vessel A was as shown in Figure 2.1-1, Attached Figure 1 “Navigation tracks” and Attached Figure 2-1 “Navigation tracks (Close-up).”

2.1.2 Information on Positions of MUNEYOSHI MARU, etc. according to VDR Radar Images

According to the voyage data recorder (hereinafter referred to as “VDR”) of Vessel A, the positions of MUNEYOSHI MARU (hereinafter referred to as “Vessel B”), a ‘fishing vessel on the port bow of Vessel A’ (hereinafter referred to as “Vessel C”) and a ‘fishing vessel on the bow side of Vessel A’ (hereinafter referred to as “Vessel D”) from around 08:23 to 08:34 on December 21, 2018 are as shown in Tables 2.1-2, 2.1-3 and 2.1-4, respectively.

The position of each ship is estimated by distance and bearing from the ships displayed on the radar image recorded in the VDR of Vessel A and the position of the GPS antenna of Vessel A.

Table 2.1-2 Approximate Positions of Vessel B on Radar Image (Excerpts)

Time (hh:mm:ss)	Position of Vessel B	
	LAT N (°.'")	LNG E (°.'")
08:23:57	34-20-12.3	135-00-32.5
08:25:12	34-20-01.8	135-00-37.0
08:26:12	34-19-51.9	135-00-39.7
08:26:57	34-19-48.7	135-00-43.1
08:28:12	34-19-53.0	135-00-51.8
08:29:12	34-19-55.0	135-00-48.5

08:30:12	34-20-01.9	135-00-54.9
08:31:27	34-20-03.3	135-00-55.5
08:32:12	34-20-05.7	135-00-59.0
08:32:42	34-20-07.0	135-00-59.5
08:33:12	34-20-08.1	135-01-01.6
08:33:42	34-20-08.8	135-01-02.4
08:34:12	34-20-10.0	135-01-04.5

According to Table 2.1-2, the navigation track of Vessel B from around 08:23:57 to around 08:34:12 was as shown in Figure 2.1-1, Attached Figure 1 “Navigation tracks” and Attached Figure 2-1 “Navigation tracks (Close-up).”

Table 2.1-3 Approximate Positions of Vessel C on Radar Image (Excerpts)

Time (hh:mm:ss)	Position of Vessel C	
	LAT N (^o . ['] . ^{''})	LNG E (^o . ['] . ^{''})
08:28:42	34-20-21.3	135-00-56.6
08:29:12	34-20-21.9	135-00-57.6
08:30:12	34-20-23.8	135-00-59.3
08:31:27	34-20-24.1	135-01-00.5
08:32:12	34-20-22.4	135-01-00.6
08:32:42	34-20-23.0	135-01-00.2
08:33:12	34-20-23.9	135-01-00.2
08:33:42	34-20-24.3	135-01-01.1
08:34:12	34-20-23.4	135-01-00.4
08:34:27	34-20-24.7	135-01-00.5
08:34:42	34-20-23.5	135-01-00.2

According to Table 2.1-3, the navigation track of Vessel C from around 08:28:42 to around 08:34:42 was shown in Figure 2.1-1.

Table 2.1-4 Approximate Positions of Vessel D on Radar Image (Excerpts)

Time (hh:mm:ss)	Position of Vessel D	
	LAT N (^o . ['] . ^{''})	LNG E (^o . ['] . ^{''})
08:29:12	34-20-08.2	135-00-54.4

08:30:12	34-20-13.4	135-01-00.3
08:31:27	34-20-17.7	135-01-04.7
08:32:12	34-20-19.0	135-01-07.7
08:32:42	34-20-21.4	135-01-09.4
08:33:12	34-20-23.7	135-01-07.8
08:33:42	34-20-24.9	135-01-07.2
08:34:12	34-20-25.3	135-01-08.0
08:34:27	34-20-25.2	135-01-07.3

According to Table 2.1-4, the navigation track of Vessel D from around 08:29:12 to around 08:34:27 was as shown in Figure 2.1-1.

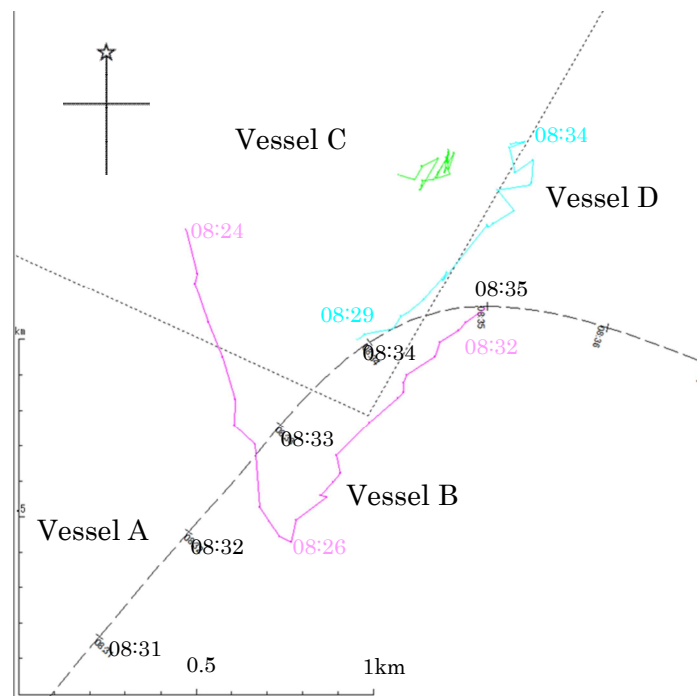


Figure 2.1-1 Navigation Tracks of Vessels B, C and D

2.1.3 Voice Information in VDR

According to the records on the VDR, voice information on the bridge of Vessel A at around 08:03:09 and between 08:26:04 and 08:48:09 on December 21, 2018 was as shown in Table 2.1-5. It should be noted that voices in Japanese are shown in italics.

Table 2.1-5 Voice Information (Excerpts)

Time	Voice
08:03:09	Master of Vessel A: Sir, I just wanna go down for a while.

	Pilot of Vessel A: OK.
	(Omitted)
08:26:04	Pilot of Vessel A: Starboard 10. Steersman of Vessel A: Starboard 10. Rudder starboard 10 sir.
08:26:14	Pilot Trainee: Back right, clear. Pilot of Vessel A: OK.
08:26:32	Pilot of Vessel A: Midship. Steersman of Vessel A: Midship. Rudder midship, sir. Pilot of Vessel A: Thank you.
08:27:22	Pilot of Vessel A: 040. Steersman of Vessel A: 040.
08:27:56	Pilot of Vessel A: Steady. Steersman of Vessel A: Steady. Steersman of Vessel A: Steady, heading 043 sir. Pilot of Vessel A: Thank you.
08:28:51	Pilot Trainee: <i>A fishing vessel is going to pass the port side.</i> Pilot of Vessel A: <i>OK.</i>
08:29:39	Pilot of Vessel A: <i>On that side maybe...</i> Pilot Trainee: <i>Yes, sir. It seems to. Then the next one will ...</i> Pilot of Vessel A: <i>The white one....</i> Pilot Trainee: <i>The blue one maybe....</i>
08:29:55	Pilot of Vessel A: [Not clear] Pilot Trainee: <i>Fishing sea bream for the New Year, instead of buying it.</i>
08:32:08	Pilot Trainee: <i>The left ship is moving back.</i> Pilot of Vessel A: <i>That one on the left.</i> Pilot Trainee: <i>The net is lifted.</i>
08:32:17	Pilot of Vessel A: Starboard 10. Steersman of Vessel A: Starboard 10.
08:32:25	Steersman of Vessel A: Rudder starboard 10 sir.
08:32:29	Pilot of Vessel A: Thank you, starboard 20. Steersman of Vessel A: Starboard 20. Pilot Trainee: <i>Back right, clear.</i> Pilot of Vessel A: <i>OK.</i>
08:32:33	Steersman of Vessel A: Rudder starboard 20 sir. Pilot of Vessel A: Thank you.
08:33:01	Steersman of Vessel A: Passing 050 sir. Pilot of Vessel A: Thank you.
08:33:26	Steersman of Vessel A: Passing 060 sir.

	Pilot of Vessel A: Thank you.
08:33:49	Steersman of Vessel A: Passing 070 sir. Pilot of Vessel A: Thank you.
08:34:03	Pilot of Vessel A: Midship. Steersman of Vessel A: Midship. Rudder midship sir. Pilot of Vessel A: Thank you.
08:34:20	Steersman of Vessel A: Passing 090 sir. Pilot of Vessel A: Thank you.
08:34:32	Pilot of Vessel A: Port 20. Steersman of Vessel A: Port 20.
08:34:44	Steersman of Vessel A: Rudder port 20 sir. Pilot of Vessel A: Thank you.
08:34:50	Steersman of Vessel A: Passing 100 sir. Pilot of Vessel A: Thank you. Pilot of Vessel A: [Not clear]
08:35:00	Pilot Trainee: <i>Passing on the port side.</i>
08:37:27	Pilot of Vessel A: Midship. Steersman of Vessel A: Midship. Rudder midship sir. Pilot of Vessel A: Thank you.
08:37:44	Steersman of Vessel A: Passing 090 sir. Pilot of Vessel A: Thank you.
08:38:20	Steersman of Vessel A: Passing 080 sir. Pilot of Vessel A: Thank you.
08:38:59	Steersman of Vessel A: Passing 070 sir. Pilot of Vessel A: Thank you.
08:39:43	Steersman of Vessel A: Passing 060 sir. Pilot of Vessel A: Thank you.
08:39:54	Pilot of Vessel A: Starboard 20. Steersman of Vessel A: Starboard 20.
08:40:06	Steersman of Vessel A: Rudder starboard 20 sir. Pilot of Vessel A: Thank you.
08:40:08	VHF radiophone: <i>Uh...big ship east of AIS, do you hear me, over.</i>
08:40:20	Pilot of Vessel A: Midship. Steersman of Vessel A: Midship. Rudder midship sir. Pilot of Vessel A: Thank you.
08:40:42	Pilot of Vessel A: Port 10. Steersman of Vessel A: Port 10. Rudder port 10 sir.
08:40:53	Pilot of Vessel A: 030.

	Steersman of Vessel A: 030.
08:41:12	Pilot of Vessel A: 035. Steersman of Vessel A: 035.
	(Omitted)
08:45:46	VHF radiophone: <i>Hello. The big ship sailing east of Sumoto AIS, do you hear me, over.</i>
	(Omitted)
08:47:15	VHF radiophone: <i>Hello. The big ship sailing east of Sumoto AIS, do you hear me, over.</i>
08:47:20	Pilot Trainee: <i>Isn't it this ship? This is the only big ship on the east of Sumoto.</i>
08:47:36	Pilot Trainee: (Reply to VHF radiophone) <i>About the ship on the east of Sumoto, is it this ship? 300 m long, and heading up north.</i> VHF radiophone: <i>Yes, uh..., your ship may have caught the dragnet, and uh...the ship just rolled upside down, over.</i> Pilot Trainee: (Reply to VHF radiophone) <i>All right, roger.</i>
08:47:54	VHF radiophone: <i>A recreational fishing vessel near this ship, uh...is calling the Japan Coast Guard in the Kansai, uh... Kansai International Airport, over.</i> Pilot of Vessel A: (Reply to VHF radiophone) <i>All right, roger.</i>
08:48:05	Pilot of Vessel A: Call captain. Office of Vessel A: Call captain.

2.1.4 Events Leading to the Accident according to Oral Statements from Crewmembers

According to the oral statements from the master of Vessel A (hereinafter referred to as “Master A”), officer of Vessel A (hereinafter referred to as “Officer A₁”), steersman of Vessel A (hereinafter referred to as “Steersman A₁”), pilot of Vessel A (hereinafter referred to as “Pilot A”), skipper of Vessel B (hereinafter referred to as “Skipper B”), skipper of a fishing vessel witnessing the accident from about 400 m northwest of Vessel B (hereinafter referred to as “Skipper E”), skipper of a recreational fishing vessel which called Vessel A via the VHF radiophone and pilot trainee boarding Vessel A (hereinafter referred to as “Trainee A”) and according to the logbook of Vessel A and the reply to the questionnaire by K Line RoRo Bulk Ship Management Co., Ltd. (hereinafter referred to as “Company A”), the events leading to the accident were as follows:

(1) Vessel A

Vessel A, with Master A (nationality of Republic of the Philippines) and 22 crewmembers (all from Republic of the Philippines), departed Port Walcott, Commonwealth of Australia on December 9, 2018 to Fukuyama Port, Fukuyama City, Hiroshima Prefecture.

Pilot A and Trainee A boarded Vessel A at the pilot station*³ off the south of Tomogashima, Wakayama City, Wakayama Prefecture at about 07:45 on December 21 and Pilot A, after informing Master A of the scheduled arrival time, planned course and speed for off Cape Wada, Kobe City, Hyogo Prefecture, which is the takeover location for the pilot of the Inland sea Pilot District and exchanging information such as the maneuvering performance of Vessel A, started piloting Vessel A.

Vessel A, conned by Master A, with an officer other than Officer A₁ (hereinafter referred to as “Officer A₂”) as a lookout and an operator of the main engine remote-controller, a steersman other than Steersman A₁ (hereinafter referred to as “Steersman A₂”) as a manual steerer and Trainee A as an assistant lookout using radar and ECDIS, proceeding to Tomogashima Suido channel with a COG of 355° (true bearing, the same shall apply hereinafter) and speed of about 12 kn (SOG, the same shall apply hereinafter).

At around 08:00, bridge duty was changed from Officer A₂ who had engaged lookout and the operation of the main engine remote-controller to Officer A₁, and from Steersman A₂ who had been engaged in manual steering to Steersman A₁.

Master A asked Pilot A whether he could get off the bridge and obtained approval from Pilot A.

While navigating in Yura Seto on the Tomogashima Suido channel, Pilot A confirmed a fleet of fishing vessels southwest of Sumoto Offing Light Buoy (hereinafter referred to as “the Buoy”) by radar and visual observation and recognized it as a fleet of about 50 fishing vessels.

After passing Yura Seto, Pilot A continued navigating toward the east side of the Buoy with a COG of about 035°.

Pilot A first sighted a ship, potentially a fishing vessel, on the bow by radar observation and at around 08:25, when the ship reached about 2 M on the starboard bow, confirmed by binoculars and recognized Vessel B extending fishing gear from the stern and pulling the net.

At around 08:26, Master A left the bridge and headed for the cafeteria for breakfast.

*³ The “pilot station” is a water area provided for the pilot to join and board the ship requesting pilotage.

Pilot A navigated toward the east side of the Buoy while avoiding 5 to 6 fishing vessels and at around 08:29, confirmed Vessel B on the starboard bow, Vessel C on the port bow and Vessel D on the bow by radar and visual observation, thought that Vessel B was proceeding northeast, Vessel C was proceeding north-northwest and Vessel D was stopping, and continued navigating, believing it was possible to overtake Vessel B from the port side of Vessel B and traverse the space between Vessel C and Vessel D to shorten the course to a position off Cape Wada.

Officer A₁ visually confirmed Vessel B and Vessel D proceeding in the same direction on the starboard bow and Vessel C on the port bow of Vessel A, but did not report it to Pilot A without knowing Pilot A's intention for maneuvering as he did not have any instruction and Pilot A and Trainee A had a conversation in Japanese.

At around 08:32, Pilot A, intending to order a port turn to change course closer to Cape Wada, visually confirmed Vessel C about 1 M on the bow again and felt that Vessel C seemed to go astern south-southeast and thought that traversing the narrowing space between Vessel C and Vessel D would be difficult from now on. Accordingly, he ordered Steersman A₁ Starboard 20 following Starboard 10 as he thought that the Vessel A could pass astern of Vessel B safely, considering the visually measured distance from Vessel B was about 1 M, which would suffice, even to turn starboard, because Vessel A was going to pass above the fishing gear.

Trainee A confirmed the situation of Vessel A turning to starboard and the positional relationship with Vessel B by radar observation and when the hull of Vessel B was hidden behind the bow of Vessel A, moved to the end of the port wing to visually confirm Vessel B and confirmed Vessel B was proceeding on the port bow of Vessel A.

Pilot A could only see Vessel B's mast because Vessel B's hull was hidden by Vessel A's bow and therefore he continued keeping lookout for Vessel B. When Vessel B's hull subsequently became visible when she passed Vessel A's port side, Pilot A observed that Vessel B's heading had changed from northeast to northwest.

Pilot A confirmed that Vessel B had passed Vessel A port to port near the center of the hull of Vessel A and ordered Port 20 to return the course of Vessel A and prevent her kick.

Trainee A, after confirming that Vessel B had passed Vessel A port to port around 40 m from the port side of Vessel A and reached near the port stern of Vessel A, returned to the bridge and reported this to Pilot A.

Pilot A continued to navigate northeast toward off Cape Wada and instructed

Officer A₁ to call Master A when he heard the voice calling Vessel A from the VHF radio telephone (hereinafter referred to as “VHF”) at around 08:47, to which Trainee A responded and found that the caller was a recreational fishing vessel sailing nearby and it reported the capsizing of Vessel B to the Japan Coast Guard.

(2) Vessel B

Vessel B, with Skipper B and a crewmember on board, departed from Shioda Ward of Tsuna Port, Awaji City, Hyogo Prefecture, at around 03:15 on December 21 for the purpose of trawl fishing and commenced the first operation at around 04:20.

Skipper B finished the third operation near the Buoy at around 08:00 and while proceeding south-southeast toward the next operation spot, visually confirmed Vessel A passing Yura Seto from the wheelhouse, then started the fourth operation by throwing fishing gear around 1.5 M south-southeast of the Buoy.

While Vessel B was proceeding northeast with the main engine's control lever set to full ahead while pulling the net at a speed of 2 to 3 kn, when Skipper B looked at the stern of Vessel B 10 minutes after starting the fourth operation, he found that Vessel A was approaching close to the stern of Vessel B. He felt quite close and steered to port to avoid Vessel A, but Vessel B did not turn to port so easily, so the crewmember of Vessel B (hereinafter referred to as “Crewmember B”) let out the “fiber rope fastened from the port bow to the port tow rope” (hereinafter referred to as “Tottari ”) to turn Vessel B to port.

Skipper B visually confirmed that Vessel B was passing Vessel A at around 20 m from the port side of Vessel A and 20 to 30 seconds after Vessel B passed the port stern of Vessel A, felt that the stern of Vessel B was being pulled toward Vessel A.

Vessel B capsized on the starboard side and seawater flowed into the wheelhouse from the starboard-side window of the wheelhouse which Skipper B had opened.

Skipper E witnessed that after Vessel A had passed close to Vessel B, splashes appeared from the stern of Vessel B, whereupon Vessel B moved as if pulled toward Vessel A, the stern of Vessel B went down to the gunwale and Vessel B capsized on the starboard side.

The time of occurrence of this accident was around 08:35, December 21, 2018 and the location was around 156° 1.2 M from the Buoy.

(Attached Figure 1 Navigation tracks, Attached Figure 2-1 Navigation tracks (Close-up), Attached Figure 3 Radar Images (Excerpts))

2.1.5 Search and Rescue

According to the oral statements from Pilot A, Skipper B, Skipper E and the skipper of consort ship of Vessel B, and the information from the Japan Coast Guard, the following took place:

(1) Vessel A

Pilot A acknowledged the occurrence of this accident by contact from VHF, decelerated and turned Vessel A around to the left with the consent of Master A to go to rescue Vessel B, while informing the Japan Coast Guard, which, in turn, informed that other fishing vessels had already rescued the crewmember of Vessel B and instructed Vessel A to stop for avoiding the risk of colliding with these fishing vessels. Accordingly Vessel A stopped.

(2) Vessel B

Skipper B escaped from the wheelhouse to the port side right after Vessel B capsized, climbed to the bottom of the ship by himself, told Skipper E who was approaching Vessel B about missing Crewmember B and asked him to call the consort ship of Vessel B which were operating nearby.

Crewmember B was rescued in the vicinity of the aisle of the port side of capsized Vessel B about an hour after the accident, but confirmed dead at an emergency medical center where he was carried in.

Skipper B and Crewmember B were not wearing life jackets at the time of the accident.

2.2 Injuries to Persons

According to the oral statements from Master A and Skipper B and Crewmember B's postmortem certificate, it was as follows:

(1) Vessel A

There were no casualties.

(2) Vessel B

Skipper B was uninjured.

Crewmember B was drowned.

2.3 Damage to Vessels

(1) Vessel A

According to the reply to the questionnaire by Company A, scratches on the bow

side of the rudder and multiple scratches about 3 to 12 mm wide and about 6 cm long at a location about 0.3 m from the bottom of Vessel A (about 15.7 m under water based on the draft at the time of the accident).

Additionally, according to the statement of Pilot A, no scratches associated with the accident were observed in the plating shell, etc.

(2) Vessel B

On Vessel B, the fishing net tow rope on the starboard side broke and the main engine and other parts were damaged by sea water. (See Figure 2.3-1 and Photo 2.3-1.)

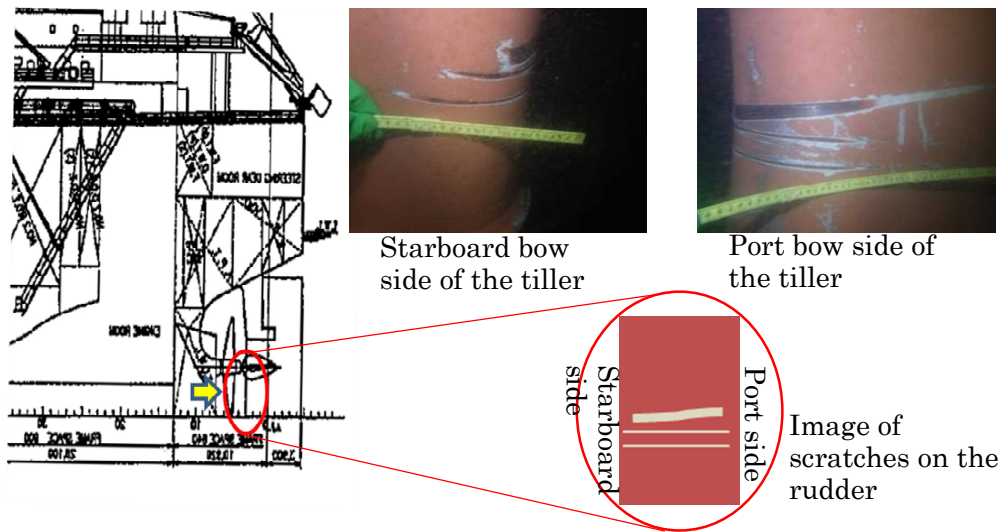


Figure 2.3-1 Scratches on the Rudder of Vessel A



Ship side

Net side

Photo 2.3-1 Broken Fishing Net Tow Rope of Vessel B

(3) Paint attached to the fishing net tow ropes of Vessel B

Red paint attached to the fishing net tow ropes on the starboard and port sides of Vessel B as follows:

- [1] Paint attached on the starboard-side tow rope about 13 m on the ship side and

about 47 m on the net side from the sea level reference point.*⁴

[2] Paint attached to the port side tow rope about 3, 16 and 46 m respectively on the net side from the sea level reference point and the paint attached in the 46 m area was more extensively than in other areas (about 4 m).

2.4 Crew Information

(1) Gender, age and certificate of competence

Master A, Male, 68 years old, Nationality of the Republic of the Philippines

Endorsement attesting the recognition of certificate under STCW regulation I/10,
Master (issued by the Republic of Singapore)

Date of Issue: August 16, 2016

(Date of Expiry: July 21, 2020)

Officer A₁, Male, 24 years old, Nationality of the Republic of the Philippines,

Endorsement attesting the recognition of certificate under STCW regulation I/10,
2/O (issued by the Republic of Singapore)

Date of Issue: November 7, 2018

(Date of Expiry: January 6, 2022)

Pilot A, Male, 70 years old

License for the 1st grade pilot in Osaka Bay Pilot District

Date of Issue: December 21, 2005

Date of Revalidation: November 20, 2018

Date of Expiry: December 20, 2021

Trainee A, Male, 29 years old

License for the 3rd grade pilot in Osaka Bay Pilot District

Date of Issue: September 11, 2014

Date of Revalidation: August 23, 2017

Date of Expiry: September 10, 2022

Skipper B, Male, 44 years old

Second class boat's operator, personal water craft operator with passenger service
license

Date of Issue: November 14, 1990

Date of Revalidation: February 16, 2015

(Date of Expiry: November 13, 2020)

*⁴ "Sea level reference point" refers to a mark attached to the tow rope of Vessel B to indicate the distance of supplying the rope up to sea level.

Crewmember B, Male, 74 years old

First class boat's operator, personal water craft operator with passenger service license

Date of Issue: July 1, 1976

Date of Revalidation: February 22, 2016

(Date of Expiry: December 21, 2021)

(2) Seagoing experience

According to the oral statements from Master A, Officer A₁, Skipper B, Pilot A and Trainee A and the reply to the questionnaire by Company A, it was as follows:

[1] Master A

Master A served as a master from 2011, first boarded Vessel A as a master in 2013 and re-boarded Vessel A from October 2018 this time. He has numerous sailing experiences on the Tomogashima Suido channel.

He was in good health at the time of the accident.

[2] Officer A₁

Officer A₁ first boarded Vessel A in 2013 as an ordinary seaman and re-boarded in October 2018 as an officer.

He was in good health at the time of the accident.

[3] Pilot A

Pilot A was employed by a shipping company in 1968, boarded pure car carriers, container ships, etc. as a master and started serving as a pilot in Osaka Bay in February 2006. He engaged in piloting service about 15 times a month.

He was in good health at the time of the accident.

[4] Trainee A

After graduating from university, Trainee A started 3rd grade pilotage from January 2016 by himself and experienced piloting service on 276 ships.

Trainee A served his internship to advance to the 2nd grade pilot and was in good health at the time of the accident.

[5] Skipper B

Skipper B had served as a crew member of a ship since 1989 before Vessel B was built and boarded Vessel B as a skipper.

He was in good health at the time of the accident.

[6] Crewmember B

Crewmember B had more than 30 years of experience as a fisherman and boarded

the ship as a skipper before Vessel B was built.

He appeared to be in good health at the time of the accident.

(3) Knowledge of Pilot A on small-scale trawl fishery

According to the oral statements from Pilot A, it was as follows:

[1] Pilot A knew that, seeing a fishing vessel pulling the fishing gear backward for small-scale trawl fishery, wires must have been released from the stern for towing and thought that the entire length of fishing gear under the sea might be 150 to 200 meters.

[2] Pilot A noticed after this accident that, when confirming the operation state of the fishing vessel for small-scale trawl fishery, the direction in which that ship was heading was not always the same as the course of the ship.

(4) Post-accident recognition of Pilot A for radar images

According to the oral statements from Pilot A, after the accident, he looked at radar images recorded in VDR at the time of the accident and thought that the space between Vessel C and Vessel D was narrower and the distance between Vessel A and Vessel B was closer than was assumed visually.

2.5 Vessel Information

2.5.1 Particulars of Vessel

(1) Vessel A

IMO Number: 9670054

Port of registry: Singapore, Republic of Singapore

Owner: BRIGHT GATE SHIPPING (PTE.) LTD. (Singapore)

Management company: Company A (Japan)

Classification society: Nippon Kaiji Kyokai (NK)

Gross tonnage: 107,054 tons

L × B × D: 299.99 m × 50.00 m × 25.00 m

Hull material: Steel

Engine: Diesel engine × 1

Output: 16,040 kW

Propulsion: 4-blade fixed pitch propeller × 1

Date of launch: August 30, 2013

(See Photo 2.5-1.)



Photo 2.5-1 Vessel A

(2) Vessel B

Fishing vessel registration number: HG3-37707

Base port: Awaji City, Hyogo Prefecture

Owner: Individual

Gross tonnage: 4.8 tons

L × B × D: 11.93 m × 3.06 m × 0.92 m

Hull material: FRP

Engine: Diesel engine × 1

Output: Horsepower pursuant to the Fishing Boat Act (48)

Propulsion: Fixed pitch propeller × 1

Date of launch: September 19, 1998

(See Photo 2.5-2.)

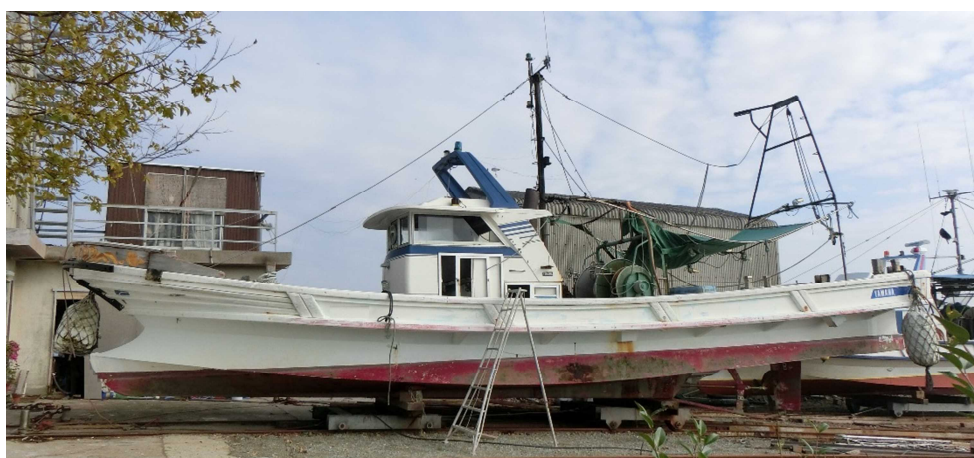


Photo 2.5-2 Vessel B

2.5.2 Loading Conditions

(1) Vessel A

According to the reply to the questionnaire by Company A, Vessel A was loaded with 170,416 tons of iron ore and the draft was about 16.0 m at fore and about 16.0 m at aft.

(2) Vessel B

According to oral statements from Skipper B, Vessel B was loaded with the relevant fishing gear and there was not much catch in the fish hold.

2.5.3 Navigation Equipment

(1) Vessel A

Vessel A was equipped with a gyro-repeater, whistle operation unit and two VHF handsets at the center of the window on the bow side of the bridge, a steering device behind it, No. 2 radar, No. 1 ECDIS and No. 1 radar on the starboard side of the steering device, No. 2 ECDIS and the main engine remote-controller on the port side of the steering device and a chart table at the back of the starboard side of the bridge.

According to oral statements from Pilot A, Pilot A and Trainee A monitored radar Nos. 1 and 2 by alternately changing the range between 6 and 3 M at the time of the accident.

(See Figure 2.5-1.)

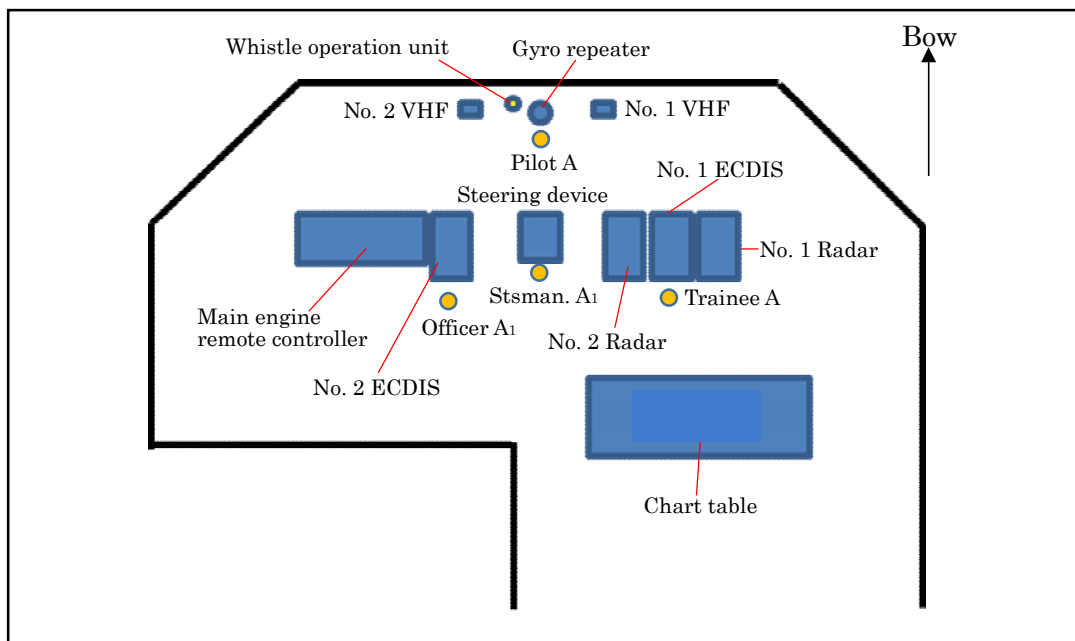


Figure 2.5-1 Bridge of Vessel A (Main Positions of Officer A₁, Steersman A₁, Pilot A and Trainee A at the time of the accident according to their oral statements)

(2) Vessel B

Vessel B was equipped with a fish detector, GPS plotter, microphone for fishery radio equipment, throttle and clutch levers of the main engine in order from the port side on the bow side of the wheelhouse and a steering wheel below the GPS plotter.

(See Photo 2.5-3.)

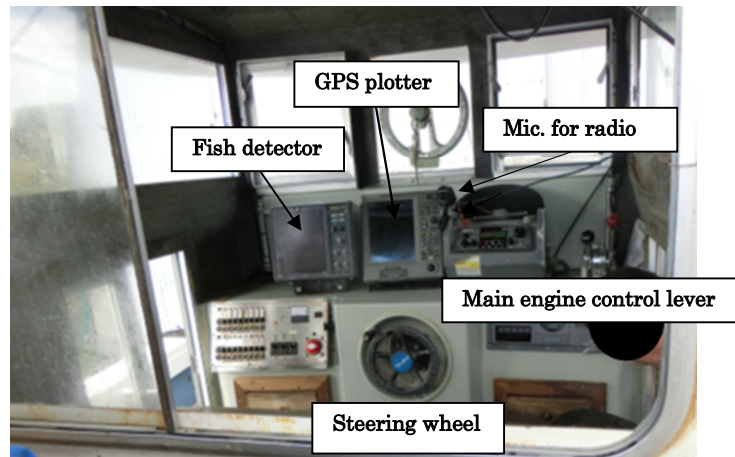


Photo 2.5-3 Wheelhouse of Vessel B

2.5.4 View from Bridge of Vessel A

According to the visibility sketch of Vessel A, the tip of the bow to the sea surface, about 253 m ahead was blind in the draft at the time of the accident.

(See Photo 2.5-4.)

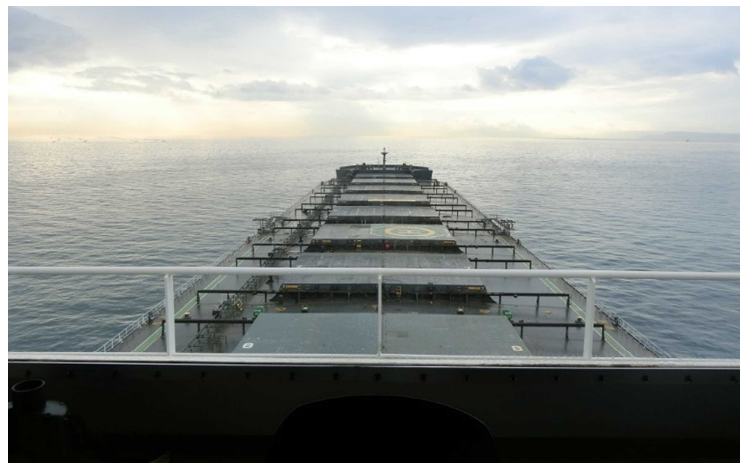


Photo 2.5-4 View from the Bridge of Vessel A

2.5.5 Maneuverability Information

(1) Vessel A

According to the speed performance table of Vessel A, the maneuverability of Vessel

A was as follows:

[1] Main engine rpm and speed

Operation	Main engine revolutions per minute (rpm)	Speed in laden condition (kn)	Speed in ballast condition (kn)
Navigation full ahead	81.9	14.8	16.2
Full ahead	60.0	10.7	12.1
Half ahead	49.0	8.7	9.9
Slow ahead	36.0	6.4	7.3
Dead slow ahead	27.0	4.8	5.5

[2] Time and distance to stop from full astern

State at the time of astern order	Laden condition		Ballast condition	
	Time (seconds)	Distance (M)	Time (seconds)	Distance (M)
Navigation full ahead	1016.4	2.25	732.6	1.7
Half ahead	699.6	0.8	396.0	0.52

[3] Turning characteristics in laden condition

	Main engine revolutions per minute (rpm)	Advance* ⁵ (m)	Transfer* ⁶ (m)	Time (seconds)
Starboard turn	81.9	926.0	388.92	174.0
	36.0	907.48	388.92	391.8
Port turn	81.9	870.44	333.36	264.0
	36.0	851.92	333.36	363.6

[4] Turning characteristics in ballast condition

	Main engine revolutions per minute (rpm)	Advance (m)	Transfer (m)	Time (seconds)
Starboard	96.0	1059.3	1446.4	246

*⁵ "Advance" refers to the forward distance on the original course between the hull center of gravity when the steering was turned and the center of gravity when the vessel turned at 90°.

*⁶ "Transfer" refers to the lateral movement distance on the original course between the hull center of gravity when the steering was turned and the center of gravity when the vessel turned at 90°.

turn	44.0	820.4	1248.2	456
Port turn	96.0	972.3	1224.2	222
	44.0	840.8	1063.0	438

(2) Vessel B

According to the oral statements from Skipper B and the skipper of consort ships of Vessel B, the speed of Vessel B was 9 to 10 kn during normal navigation and 2 to 3 kn in operation, although it depends on the influence of the tidal current.

2.5.6 Information on Fishing Gear of Vessel B in Operation

According to the oral statements from Skipper B, the state of fishing gear, etc. of Vessel B in operation was as follows:

In this case, the fishing gear includes tow ropes, an otter board and fishing net.

- (1) A metal wire called the tow rope was paid out from the left and right drums installed in the center of the hull through the rail on each side of the stern end.
- (2) The tow ropes were released about 10 m from the stern end to the sea surface and about 275 m under the sea surface, with the otter board and fishing net attached to the end of these ropes.
- (3) At the time of operation, the underwater length of the fishing gear comprising tow ropes and fishing net was about 355 m.
- (4) To prevent tow ropes from being entangled in the propeller and disperse the force applied to these ropes, a fiber rope called "Tottari" was extended from each side of the bow and the stern, and hooked to each of the tow ropes.
- (5) During operation, Vessel B exhibited a black shape on the mast indicating that it was a ship engaged in fishery operations.

(See Figures 2.5-2 and 2.5-3.)

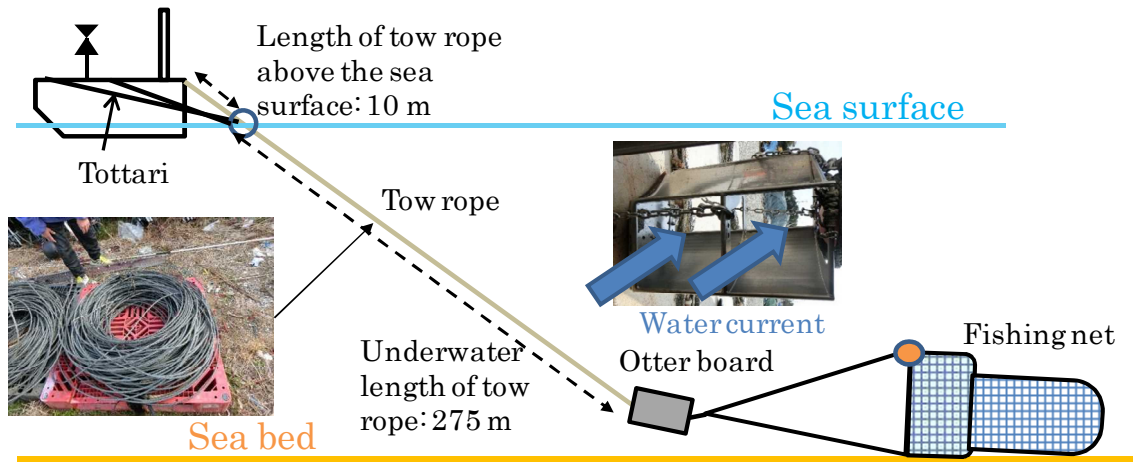


Figure 2.5-2 State of Vessel B in Operation (Image)

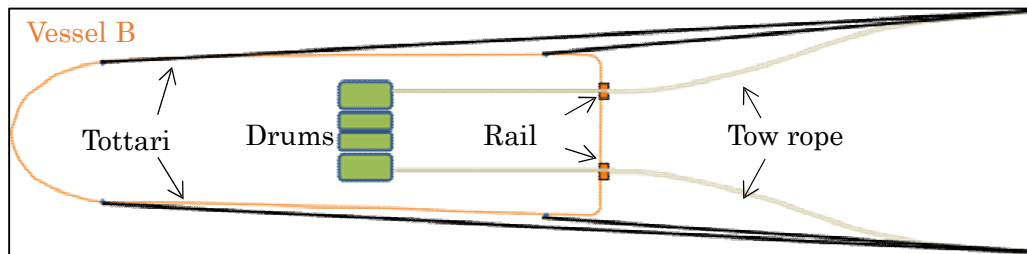


Figure 2.5-3 Tow Ropes and Tottari (Image)

2.5.7 Other Relevant Vessel Information

- (1) According to the oral statements from Skipper B and the reply to the questionnaire by Company A, there were no defects or failures in the hull, engine, equipment, etc. of Vessel A and Vessel B at the time of the accident.
- (2) At the time of the on-site investigation, Vessel B was in a position with the rudder set to hard port.
- (3) According to Vessel A's general arrangement plan, the area in which abrasions occurred on Vessel A's rudder plate's bow side was around 6.3 m forward of Vessel A's stern end.
- (4) According to the general arrangement of Vessel B, the height from sea surface to the bulwark at the stern end of Vessel B was about 1.3 m.

2.6 Weather and Sea Conditions

2.6.1 Weather and Tide Observation Data

(1) Weather observation data

The observations at Tomogashima Observatory located about 3.5 M south-southwest of the accident site were as follows and the weather around 08:30 was clear:

Time	Wind direction	Average wind speed (m/s)	Max. momentary wind speed (m/s)	Rainfall (mm)
08:10	Northeast	2.4	5.4	None
08:20	Northeast	2.8	5.1	None
08:30	Northeast	2.6	4.7	None
08:40	North-northeast	3.0	5.1	None

(2) Tidal current

According to the tide table published by the Japan Coast Guard, the current at the time of the accident in the vicinity of 3.6 M southwest of the accident site was about 2.0 kn to the north.

(3) Seawater temperature

According to the Japan Meteorological Agency website, the average seawater temperature near the accident site on December 21 was about 18°C.

2.6.2 Observation by Crew

According to the logbook of Vessel A, the weather at the time of the accident was fine, the wind was southeast and the visibility was over 7 M.

According to the oral statements of Pilot A and Trainee A, the weather at the time of the accident was clear, the wind was 2 to 3 m/s east-northeast and the visibility was about 3 M.

2.7 Characteristics of the Accident Water Area

- (1) According to the Sailing Directions for the Seto Naikai published by the Japan Coast Guard, Yura Seto on the Tomogashima Suido channel is a sea area where fishing vessels and recreational fishing vessels gather as a good fishing ground for steamship trawl fishery operations.
- (2) According to the oral statements from Pilot A and Skipper E, there were always many fishing vessels, including recreational fishing vessels, in the vicinity of the accident water area as well as many ships on the day of the accident.
- (3) According to the radar image of Vessel A, ships displayed on the starboard side of Vessel A were fewer than those observed on the port side at about 08:29 on the day of the accident. (See Attached Figure 3 “(2) At around 08:29:12.”).

- (4) According to the radar image of Vessel A and oral statements from Pilot A, there were 20 to 50 ships southwest of the Buoy at around 08:32 on the day of the accident.

2.8 Safety Management of Vessel A

The safety management manual of Company A stated as follows:

- (1) Hiring of pilot is with purpose of assisting and advising the master, and the presence of pilot on board does not relieve the master from his responsibility for safety of the vessel, cargo and the crew.
- (2) The master is required to report to the company any damages and injuries resulted from pilots errors.
- (3) To prevent accidents were caused by poor and unclear relations between the pilot and master, the master must:
 - [1] be proper in diligent master/ pilot exchanges;
 - [2] keep close monitoring of the pilot's actions;
 - [3] possess a willingness to challenge the pilot when it is obvious dangerous situations are developing.
- (4) If the vessel is expected to navigate in congested waters, the officer of the watch (OOW) must report to the master and the master must command the vessel himself under such circumstances.

2.9 BRM^{*7} of Vessel A

2.9.1 Education and Training

- (1) According to the reply to the questionnaire by Company A, Master A and Officer A₁ received BRM training in September 2014 and June 2018, respectively.
- (2) According to the oral statements from the person in charge of the Osaka wan Pilots' Association (hereinafter referred to as the Pilots' Association), Pilot A received BRM training in July 2015.

2.10 Pilotage Information

2.10.1 Compulsory Pilotage District and Target Ships

According to Article 35 of the Pilotage Act (No. 121 of 1949) and Article 5 of the Order for Enforcement of the Act (Cabinet order No. 354 of 1964), Osaka Bay Pilotage District and Bisan Seto District are designated as compulsory pilotage districts, where the master of a

*7 "BRM" stands for Bridge Resource Management, which involves effective utilizing all resources available on the bridge, including the crew, facilities and information.

ship with a gross tonnage of 10,000 tons or more shall have a pilot on board.

In addition, the place where the pilot of Osaka Bay Pilotage District and the pilot of the Inland sea Pilotage District for Bisan Seto District take over and change their duty is off Cape Wada around 202° true, 4 M from Kobe Lighthouse, Kobe City, Hyogo Prefecture.

2.10.2 Pilot's License

According to paragraph (3), Article 4 of the Pilotage Act and paragraph (2), Article 1 of the Order for Enforcement of the Act, 1st grade pilots can carry out piloting service on all ships and 3rd grade pilots can pilot ships with a gross tonnage of up to 20,000 tons (excluding those loaded with dangerous goods).

2.10.3 Information on the Pilots' Association

(1) According to paragraph (2), Article 48 of the Pilotage Act, the pilots' association aims to undertake administrative affairs for establishment and operation of a joint office, training pilots as well as guiding, making contact with and supervising members so as to maintain the dignity of members and facilitate proper and effective pilotage operations.

(2) According to paragraph (2), Article 55 of the Pilotage Act, the Japan Federation of Pilots' Associations aims to undertake administrative affairs for guiding, making contact with and supervising pilots' associations and their members so as to maintain the dignity of the members of pilots' associations and facilitate proper and effective pilotage operations.

(3) The rules of the Pilots' Association are as follows:

(Training for members)

Article 32 The Association should provide the training courses listed in the following items for new association members as a form of internship for recruits:

(1) Training to ensure safety in ship navigation

(2) Training to ensure the safety of members themselves

(3) Training on business management for pilots

2 – 3 (omitted)

4 When the chairman deems it necessary, the Association should provide the necessary training courses for its members from among those listed in each item of paragraph (1).

(Omitted)

(Supervision of members)

Article 33 (omitted)

2 When finding it necessary to maintain the dignity of the members and facilitate proper and effective pilotage operations, the chairman may instruct or guide members as required.

2.10.4 Collision Accidents Experienced by Members of the Pilots' Association

According to the J-MARISIS (Japan-Marine Accident Risk and Safety Information System)*⁸, three collision accidents had occurred in the past 6 years during pilotage by members of the Pilots' Association.

(See Attached Table 1 Collision Accidents in Past 6 Years during Pilotage by Members of the Pilots' Association)

3 ANALYSIS

3.1 Situations of the Accident Occurrence

3.1.1 Course of the Events

According to 2.1, the following events occurred:

(1) Vessel A

- [1] It is probable that Vessel A left Port Walcott, Australian Commonwealth on December 9, 2018 for Fukuyama Port, Fukuyama City, Hiroshima Prefecture.
- [2] It is highly probable that Vessel A allowed Pilot A and Trainee A on board off the south of Tomogashima at around 07:45 on December 21.
- [3] It is highly probable that, at around 08:21:03, Vessel A sailed approximately 3.75 M south-southwest of the Buoy with a course of 023.3° and at a speed of 13.3 kn.
- [4] It is highly probable that, at around 08:29:09, Vessel A sailed approximately 2.02 M south-southwest of the Buoy with a course of 040.7° and at a speed of 12.7 kn.
- [5] It is highly probable that, at around 08:31:09, Vessel A sailed approximately 1.67 M south of the Buoy with a course of 040.3° and at a speed of 12.7 kn.
- [6] It is highly probable that, at around 08:32, Vessel A made Starboard 10 and then Starboard 20.
- [7] It is probable that, at around 08:34, Vessel A put the rudder midship and made Port

*⁸ J-MARISIS refers to an Internet service provided by the Japan Transport Safety Board to display information on ship accidents and navigation safety on the world map.
URL: <http://jtsb.mlit.go.jp/hazardmap/>

20.

[8] It is highly probable that the rudder of Vessel A collided with the fishing gear of Vessel B.

(2) Vessel B

[1] It is probable that, at around 03:15 on December 21, 2018, Vessel B departed from Shioda Ward, Tsuna Port, Awaji City, Hyogo Prefecture for the purpose of trawl fishery operations.

[2] It is probable that, at around 08:26 to 08:34, Vessel B moved northeast at a speed of 2 to 3 kn while pulling the net.

[3] It is probable that, at around 08:34, Vessel B turned to port.

[4] It is highly probable that the fishing gear of Vessel B collided with the rudder of Vessel A.

3.1.2 Time, Date and Location of the Occurrence of the Accident

According to 2.1, it is probable that time and location were as follows:

(1) Time

According to [1] to [3] below, the accident occurred at around 08:35 on December 21, 2018.

[1] Trainee A confirmed that Vessel B sailed near the stern of Vessel A and at about 08:35:00, reported the passing of Vessel B to Pilot A.

[2] Skipper B felt that the stern of Vessel B was being pulled toward Vessel A approximately 20 to 30 seconds after passing the port stern of Vessel A.

[3] Skipper E witnessed that the splashes appeared from the stern of Vessel B after Vessel A had passed close to Vessel B, and then Vessel B moved as if pulled toward Vessel A.

(2) Location

The location of the accident was around 156° 1.2 M from the Buoy where Vessel A was located at about 08:35.

3.1.3 Injuries or Deaths

According to 2.2, it is highly probable that the situation was as follows:

(1) There were no casualties on Vessel A.

(2) On Vessel B, Crewmember B was drowned while Skipper B was uninjured.

3.1.4 Damage to Vessels

According to 2.3, it is probable that the situation was as follows:

- (1) Vessel A had scratches about 3 to 12 mm wide and about 6 cm long on the bow side of the rudder at a water depth of about 15.7 m.
- (2) On Vessel B, the fishing net tow rope on the starboard side broke and the main engine and other parts were damaged by sea water.

3.1.5 Situation of Collision

According to 2.1, 3.1.1, 3.1.2 and 3.1.4, it is probable that, at around 08:35, the rudder of Vessel A collided with the fishing gear of Vessel B while Vessel A was turning to starboard and Vessel B was proceeding west after turning to port.

3.1.6 Situation of Capsizing of Vessel B

According to 2.1.4 and 3.1.5, it is probable that Vessel B was pulled by Vessel A toward the stern after its fishing net tow rope collided with the rudder of Vessel A, and the gunwale at the stern of Vessel B went underwater, causing sea water to flow in and Vessel B to capsize on the starboard side.

3.2 Causal Factors of the Accident

3.2.1 Crew

According to 2.4, it was as follows:

(1) Master A and Officer A₁

Both had a legally valid endorsement attesting the recognition of certificate under the STCW regulation I/10.

It is probable that they were in good health at the time of the accident.

(2) Pilot A

Pilot A had a legally valid certificate of competence as a pilot.

It is probable that Pilot A was in good health at the time of the accident.

(3) Skipper B

Skipper B had a legally valid certificate of boat operator.

It is probable that Skipper B was in good health at the time of the accident.

(4) Crewmember B

Crewmember B had a legally valid certificate of boat operator.

It is somewhat likely that Crewmember B was in good health at the time of the accident.

3.2.2 Ship Condition

According to 2.5.7, it is probable that there were no defects or failures in the hulls, main engine and equipment, etc. of both Vessel A and Vessel B at the time of the accident.

3.2.3 Weather and Sea Condition

According to 2.6, it is probable that, at the time of the accident, the weather was clear, the wind was northeast with wind force 2 and the visibility was about 3 M.

It is probable that the tidal current was flowing northward at about 2.0 kn and the seawater temperature was about 18°C.

3.2.4 Analysis of Navigation State of Vessel B, etc.

According to 2.1, it was as follows:

(1) Vessel B

[1] According to the AIS data of Vessel A and the oral statements from Pilot A, Trainee A, Skipper B and Skipper E, it is somewhat likely that Vessel B adopted the positions shown in Attached Figure 2-1 Navigation tracks (Close-up) from 08:34:12 up to around 08:35.

[2] According to the radar image of Vessel A, it is probable that the distance between Vessel A and Vessel B at around 08:32 was approximately 830 m.

(2) Vessel C

It is probable that Vessel C moved little after 08:29.

(3) Vessel D

It is probable that Vessel D continued to proceed northeast after 08:29.

3.2.5 Analysis of Communication on Bridge of Vessel A

According to 2.1, 2.4 and 2.10, it was as follows:

(1) It is probable that, at around 08:26, Master A left the bridge for having breakfast.

(2) It is probable that Officer A₁ did not understand the content of the conversation in Japanese between Pilot A and Trainee A.

(3) It is probable that Trainee A was on board for training to advance to second-grade pilot, lacked the qualifications for piloting Vessel A and was not in a position to give advice to Pilot A regarding ship maneuvering.

(4) According to (1) to (3) above, it is probable that communication for ship maneuvering on the bridge of Vessel A was unsatisfactory at the time of the accident.

3.2.6 Lookout and Ship Maneuvering

According to 2.1, 2.5, 2.7, 3.1.1, 3.2.4 and 3.2.5, it was as follows:

(1) Vessel A

- [1] It is probable that Pilot A confirmed the presence of a fleet of fishing vessels in the area southwest of the Buoy by radar and visual observation while navigating in Yura Seto on the Tomogashima Suido channel.
- [2] It is probable that Pilot A, after passing Yura Seto, continued to navigate toward the east side of the Buoy with a course of about 035°.
- [3] It is probable that Pilot A, after first identifying Vessel B with radar, visually observed Vessel B and recognized that Vessel B was pulling the net.
- [4] It is probable that, after Master A left the bridge for having breakfast at around 08:26, Pilot A alone made decisions on ship maneuvering.
- [5] It is probable that, at around 08:29, Pilot A confirmed Vessel B on the starboard bow, Vessel C on the port bow and Vessel D on the bow by radar and visual observation, thought that Vessel A could pass between Vessel C and Vessel D after overtaking Vessel B from the port side of Vessel B, and continued to navigate straight ahead.
- [6] It is probable that Officer A₁ visually confirmed Vessel B, Vessel C and Vessel D, but as Pilot A and Trainee A had a conversation in Japanese and there was no particular instruction to Officer A₁, did not report the situation of these vessels to Pilot A while being unaware of the intention of Pilot A for ship maneuvering.
- [7] It is probable that, at around 08:32, when Pilot A reconfirmed Vessel C with the intention of ordering a port turn to take a course closer to a position off Cape Wada, he ordered Steersman A₁ to make Starboard 20 following Starboard 10, because he thought that Vessel C seemed to go astern and the space between Vessel C and Vessel D became narrower from now on, and thought that the visually measured distance from Vessel B was about 1 M, which would suffice, even when turning to starboard, Vessel A might pass above the fishing gear and not collide with Vessel B.
- [8] It is probable that when seeing the hull of Vessel B once going behind the bow of Vessel A and reappearing, Pilot A recognized that the heading of Vessel B had changed from northeast to northwest.
- [9] It is probable that Pilot A confirmed that Vessel B had passed Vessel A port to port near the center of the hull of Vessel A and ordered Port 20 to return the course of Vessel A.
- [10] It is probable that Trainee A, after confirming at the end of port wing that Vessel B had passed Vessel A port to port around 40 m from the port side of Vessel A and

reached near the port stern of Vessel A at around 08:34, reported this to Pilot A at around 08:35.

[11] It is probable that Pilot A continued to navigate northeast until he heard about the capsizing of Vessel B from the VHF at around 08:47.

(2) Vessel B

[1] It is probable that Skipper B finished the third operation near the Buoy and sighted Vessel A passing Yura Seto while proceeding south-southeast toward the next operation site.

[2] It is probable that Vessel B started the fourth operation by throwing fishing gear around 1.5 M south-southeast of the Buoy at around 08:26.

[3] It is probable that Skipper B, when looking at the stern of Vessel B several minutes after starting operation, noticed that Vessel A was approaching the stern of Vessel B, felt that it was quite close and steered to port, but Vessel B did not turn easily, so Crewmember B extended the Tottari to turn Vessel B to port.

[4] It is probable that Skipper B visually confirmed that Vessel B was passing Vessel A around 20m from the port side of Vessel A and about 20 to 30 seconds after Vessel B passed the port stern of Vessel A, felt that the stern of Vessel B was being pulled toward Vessel A.

3.2.7 Analysis up to the collision between Vessel A and Vessel B's fishing equipment

The configuration of Vessel B's underwater fishing equipment changes depending on the equilibrium between the frictional force of the portion of the fishing net, etc., contacting the seabed and the tension of the towline, between weight and buoyancy, etc. However, according to 2.1, 2.5, 3.1.4, 3.1.5, 3.2.4, and 3.2.6, the sequence of events leading up to the collision between Vessel A and Vessel B's fishing equipment was as follows:

(1) Analysis of the positional relationship between Vessel A and Vessel B's fishing equipment before the accident

[1] It is somewhat likely that Vessel A began a starboard turn at around 08:32 and achieved a heading of 085° at around 08:34:12, at which time Vessel A's bow keel was situated around 50 m behind Vessel B and Vessel A was navigating above the towline of Vessel B's fishing equipment at this moment.

[2] It is probable that Vessel A continued turning to starboard while moving forward and approached Vessel B, which was navigating on her port side, and, at around 08:34:43, Vessel A's port midship bottom (bilge keel) passed around 40 m behind Vessel B.

It is somewhat likely that Vessel A was navigating above the towline of Vessel B's fishing equipment even at this time.

[3] It is probable that Vessel A continued turning farther to starboard, her stern swayed to port and approached Vessel B, and the area of her port stern came closest

to Vessel B just before around 08:35.

It is probable that, at that time, the distance between Vessel A's stern and Vessel B's stern was approximately 30 m and that the towline of Vessel B's fishing equipment had entered the space between Vessel A's propeller and rudder plate.

It is possible that the water flow generated by the propeller had an effect when the towline entered the space between Vessel A's propeller and rudder plate, but it was not possible to determine that effect.

(See Attached Figure 2-2 "Diagram of the Positional Relationship between Vessel A and Vessel B's Fishing Equipment [Conceptual Diagram]")

(2) It is somewhat likely that, according to facts [1] to [5] below, the location of Vessel B at the time of the collision of the rudder of Vessel A and fishing net tow rope of Vessel B was about 47 m from the port stern of Vessel A. (See Figure 3.2.)

[1] The scratches on the rudder of Vessel A were present about 15.7 m under water.

[2] Paint was attached extensively to the fishing net tow rope on the port side of Vessel B about 46 m from the sea level reference point.

[3] The length of the tow rope from the stern end of Vessel B was about 10 m above sea level.

[4] The rudder of Vessel A was installed at about 6.3 m from the stern end of Vessel A.

[5] The height from the sea level to the bulwark at the stern end of Vessel B was about 1.3 m.

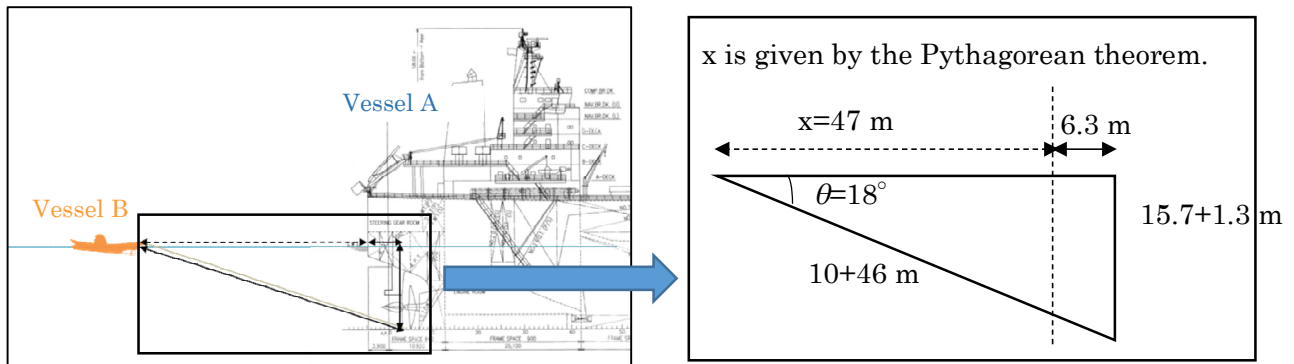


Figure 3.2 Analysis of Positional Relationship between Two Vessels at the Time of the Collision (Image)

3.2.8 Analysis of the Process from Collision to Breakage of Fishing Gear

According to 2.1, 2.5, 3.1.4, 3.1.5, 3.1.6, 3.2.6 and 3.2.7, it was as follows:

(1) It is probable that while Vessel B was proceeding westward, its fishing net tow rope collided with the rudder of Vessel A and then Vessel B was pulled by Vessel A toward the stern with the rope in question caught by the rudder of Vessel A and the gunwale at the stern of Vessel B went underwater, causing sea water to flow in and Vessel B to

capsize on the starboard side.

- (2) It is somewhat likely that after Vessel B capsized, the starboard fishing net tow rope broke and was released from the rudder of Vessel A.

3.2.9 Analysis of Perception of Pilot A

According to 2.1, 2.4, 2.5, 2.7, 2.10, 3.2.4 and 3.2.6, it was as follows:

- (1) Analysis of the perception of Pilot A and radar image

- [1] It is probable that Pilot A thought that Vessel C was proceeding north-northwest at around 08:29, but the radar image showed that the ship moved little after 08:29.

- [2] It is probable that Pilot A thought that Vessel D had stopped at around 08:29, but the radar image showed that the ship generally continued to proceed northeast after 08:29.

- [3] It is probable that Pilot A thought that the Vessel B was about 1 M from Vessel A at around 08:32, but the radar image showed it was about 830 m.

- [4] It is probable that, according to 3.2.6 and [1] to [3] above, Pilot A confirmed ahead of Vessel A by radar at around 08:29, but did not maintain a proper lookout using the radar thereafter.

- (2) Analysis of perception of Pilot A regarding the distance between Vessel C and Vessel D

It is somewhat likely that Pilot A confirmed Vessel C on the port bow and Vessel D on the bow by radar and visual observation at around 08:29 and thought that Vessel C was proceeding north-northwest and Vessel D stopping and that the distance between Vessel C and Vessel D would presumably be widening.

- (3) Analysis of judgment of Pilot A in maneuvering

According to (1) and (2) above, it was as follows:

- [1] It is somewhat likely that, at around 08:29, Pilot A decided to traverse the space between Vessel C and Vessel D, where the distance to off Cape Wada was short and while visually monitoring, continued straight ahead, believing it was possible to traverse the space between Vessel C and Vessel D after overtaking Vessel B from the port side of Vessel B.

- [2] It is probable that, at around 08:32, Pilot A noticed that it would be difficult to pass through the space between Vessel C and Vessel D because it would become narrower from now on and ordered a starboard turn according to the surrounding situation.

3.2.10 Analysis of Knowledge of Pilot A of Small-Scale Trawl Fishery operations

(1) According to 2.4 and 2.5.6, it is probable that the situation was as follows:

[1] The undersurface length of the fishing gear of Vessel B was about 355 m and the total length of the fishing gear pulled by a fishing vessel for small-scale trawl fishery operations, recognized by Pilot A, was 150 to 200 m. Therefore, the Pilot A's perception of the length of the fishing gear of Vessel B differed from the actual length.

[2] Pilot A noticed after the accident that the heading and course of the fishing vessel for small-scale trawl fishery operations might differ during operation.

(2) It is somewhat likely that, according to 2.4, 2.5.6, 3.2.9 and (1) above, Pilot A had general knowledge that the fishing vessel engaged in small-scale trawl fishery operations pulls the fishing gear at the back, but did not fully understand about the underwater conditions of the fishing gear and potentially unmatched heading and course of a fishing vessel during operation.

(3) The fact that the heading and course of the fishing vessel do not always coincide during operation, probably due to the effect of tidal currents or resistance of the fishing gear, etc., but the factors affecting the perception of Pilot A for Vessel C and Vessel D at the time of the accident could not be clarified.

3.2.11 Analysis of Characteristics of the Area

It is probable that, according to 2.7, the area was congested with many ships at the time of the accident, but at around 08:29, there were fewer ships on the starboard side of Vessel A compared to the port side.

3.2.12 Analysis of the Safety Management System

According to 2.1, 2.7 and 2.8, Company A has provided a safety management manual stipulating that the master must command the vessel himself when navigating in the congested waters, that the pilot is to assist the master and responsibility for safety of the vessel, etc. lies with the master and that the master must keep close monitoring the pilot's actions. However, on the day of the accident, Master A left the bridge, leaving Pilot A alone to make decisions about ship maneuvering under circumstances where traffic was heavy with fishing vessels. Therefore, it is probable that the safety education for Master A in the presence of the pilot was insufficient.

3.2.13 Analysis of Occurrence of Accident

According to 3.1.1, 3.1.5, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.9 and 3.2.11, it was as follows:

(1) It is probable that Skipper B sighted Vessel A passing Yura Seto while proceeding south-southeast to get to the place for the fourth operation.

- (2) It is probable that Pilot A, after passing Yura Seto, continued to navigate toward the east side of the Buoy at a course of about 035°.
- (3) It is probable that Master A left the bridge at around 08:26 and Pilot A decided alone about ship maneuvering.
- (4) It is probable that Vessel B dropped the fishing gear around 1.5 M south-southeast of the Buoy and started the fourth operation at around 08:26.
- (5) It is probable that, at around 08:29, Pilot A, after confirming Vessel B, Vessel C and Vessel D by radar and visual observation, decided to pass Vessel A, not on the starboard side where ships were fewer than on the opposite side, but in the space between Vessel C and Vessel D to shorten the distance to a position off Cape Wada.
- (6) It is somewhat likely that Pilot A, while visually monitoring, continued straight ahead after 08:29, believing it was possible to overtake Vessel B from the port side of Vessel B and traverse the space between Vessel C and Vessel D.
- (7) It is probable that Pilot A noticed that it was difficult to carry out the originally planned idea of passing between Vessel C and Vessel D at around 08:32.
- (8) It is probable that Pilot A believed it would be safe to pass over the fishing gear of Vessel B because the visually measured distance from Vessel B was about 1 M and ordered to make a starboard turn according to the surrounding situation.
- (9) It is probable that Vessel A navigated while turning to starboard close to the stern of Vessel B at around 08:34.
- (10) It is probable that Skipper B proceeded northeast while pulling the fishing gear, noticed that Vessel A was approaching the stern of Vessel B and turned to port. Crewmember B extended the Tottari to turn Vessel B to port.
- (11) It is somewhat likely that Vessel A was sailing over the fishing net tow rope of Vessel B when passing about 40 m from the port side of Vessel B port to port.
- (12) It is probable that Vessel A approached to her closest distance to Vessel B, which was navigating off of Vessel A's port stern, just before around 08:35, the towline of Vessel B's fishing equipment entered the space between Vessel A's propeller and rudder plate, and Vessel A's rudder plate collided with the towline of Vessel B's fishing equipment. (See Attached Table 2 Accident Progress Table.)

4 CONCLUSIONS

4.1 Probable Causes

It is probable that the accident occurred when, while Vessel A was proceeding northeast under pilotage by Pilot A and Vessel B was proceeding northeast while pulling the fishing net off the east of Sumoto Port under circumstances of heavy traffic and many ships, Vessel A collided with the fishing gear of Vessel B because Vessel A turned to starboard close to the stern of Vessel B.

It is probable that Vessel A turned to starboard close to the stern of Vessel B because Pilot A noticed that it was difficult to carry out the originally planned idea of passing between Vessel C and Vessel D on the port bow and believed that, considering the visually measured distance of about 1 M from Vessel B, it would be safe to pass over the fishing gear of Vessel B.

It is somewhat likely that the situation that Master A left the bridge, leaving Pilot A alone to make decisions about ship maneuvering contributed to the occurrence of this accident.

4.2 Other Identified Safety Issues

It is probable that communication on ship maneuvering between the crew members of Vessel A and Pilot A was insufficient on the bridge of Vessel A.

It is somewhat likely that Pilot A had general knowledge of small-scale trawl fishery operations, but did not fully understand about potentially unmatched heading and course of a fishing vessel during operation and underwater conditions of the fishing gear.

5 SAFETY ACTIONS

It is probable that the accident occurred when Vessel A, which was proceeding northeast to an area of Cape Wada, turned to starboard close to Vessel B, which was proceeding northeast while pulling the fishing net, and collided with it off the east of Sumoto Port under circumstances of heavy traffic and many ships because Pilot A noticed that it was difficult to pass between Vessel C and Vessel D on the port bow and believe that it would be safe to pass over the fishing gear of Vessel B considering the visually measured distance.

It is somewhat likely that the situation that Master A left the bridge, leaving Pilot A alone to make decisions about ship maneuvering, contributed to the occurrence of this accident.

- (1) When navigating a congested sea area, the pilot should appropriately take actions in ample time to avoid collision by monitoring and judging at an early stage the movement

of other ships; not only visually but using navigation equipment such as radar, etc. in order to change course with an ample distance from other ships and prevent collisions.

- (2) The master should endeavor to ensure the safety of navigation on the bridge, even when the pilot is on board, when navigating a congested sea area.
- (3) The pilot should endeavor to share information with the bridge team members in a common language regarding ship maneuvering and the movement of other ships.
- (4) The pilot should strive to acquire knowledge on fishing methods taken by fishing vessels through training held by the relevant pilots' association and improve techniques for maneuvering ships in a congested sea area.

5.1 Safety Actions Taken

5.1.1 Safety Actions Taken by Company A

Together with a summary of the accident, Company A informed the managing vessels of measures to prevent any recurrence of such accidents, including: Sharing detailed information with the pilot, including information on fishing vessels; challenging the doubtful intention of the pilot in order to change the maneuvering method, etc.; entrusting navigation to the pilot taking the traffic density, etc. into consideration and giving due consideration in the number of bridge team members during pilotage by a pilot.

In addition, it conducted internal audits and on-board education and training on voyage, ship maneuvering and risk analysis for the crew of Vessel A.

5.1.2 Safety Actions Taken by the Pilots' Association

The Pilots' Association took the following measures after the accident:

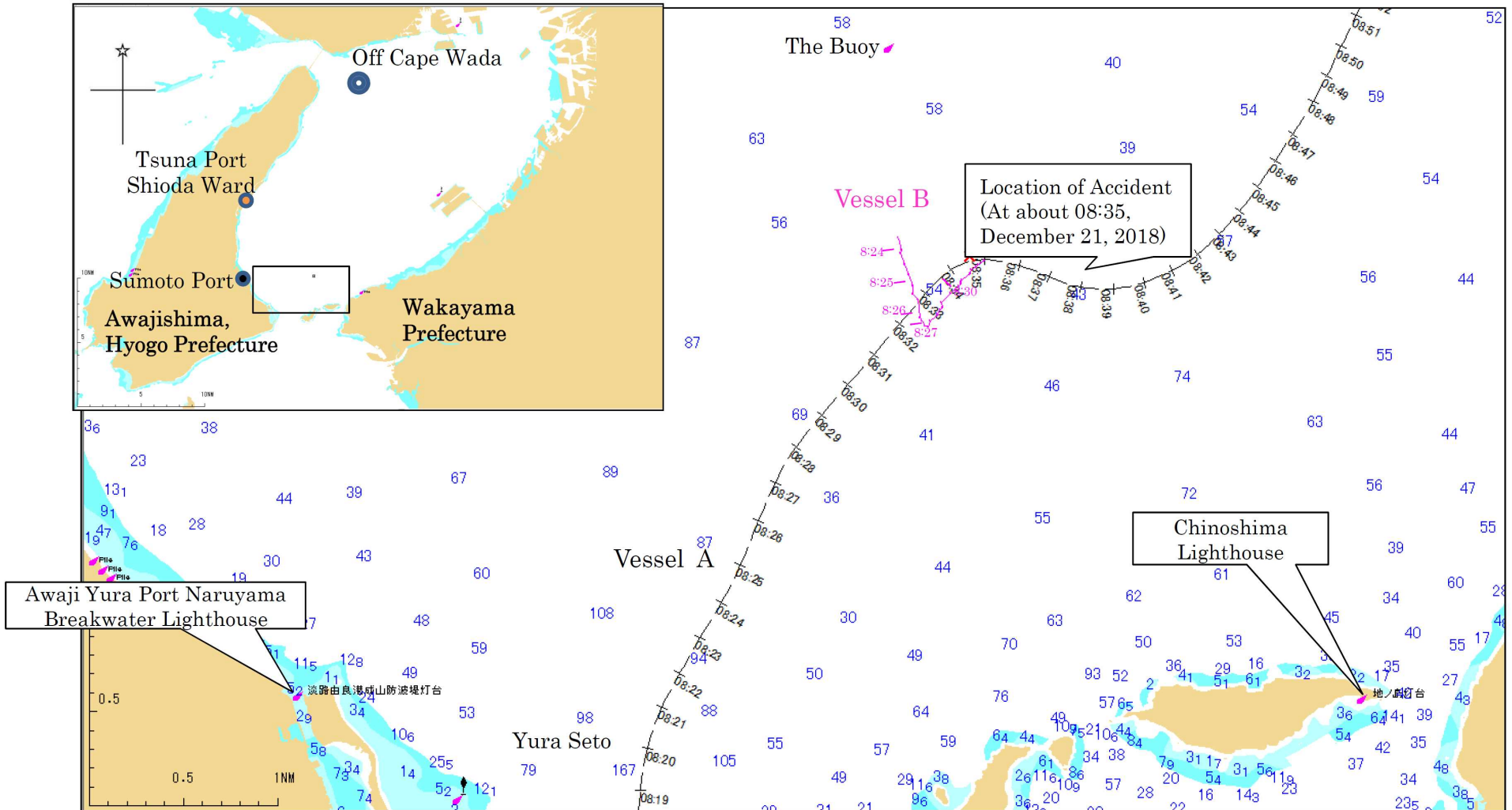
- (1) A Marine Accident Response Headquarters was established and inform members of the occurrence and summary of the accident.
- (2) Study meetings for members were held regarding the operation state of fishing vessels in Osaka Bay by inviting fishery-related persons.

5.2 Safety Actions Required

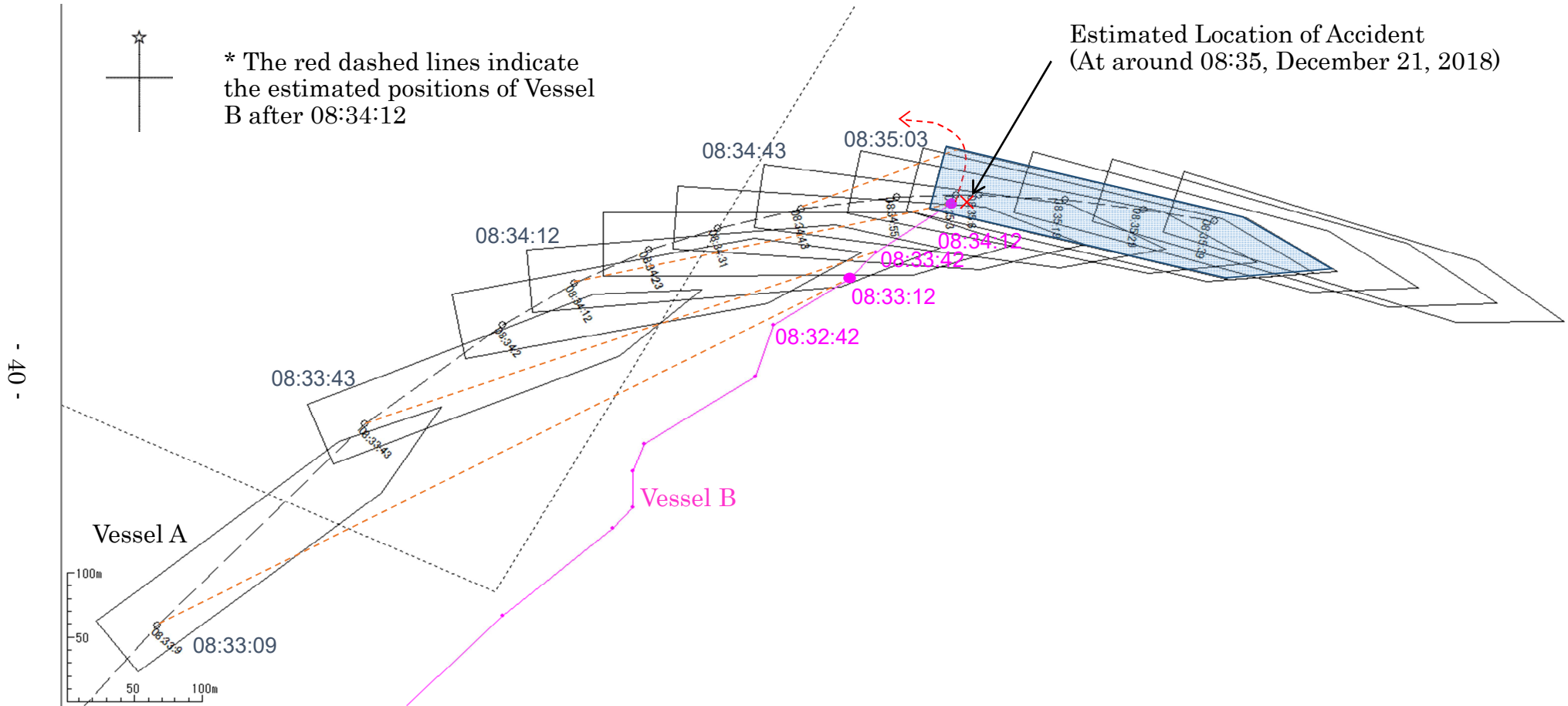
The Pilots' Association should distribute this report to all member pilots and guide them to take appropriate actions in ample time to avoid collisions, such as early judgment in order to change course with an ample distance from other ships using navigation equipment including radar, etc. in a congested sea area while sufficient time remains and striving to share information on ship maneuvering and the movement of other ships with the bridge team members.

Based on the result of this accident investigation, the Japan Transport Safety Board will ask Japan Federation of Pilots' Associations for their cooperation to disseminate this investigation report to their member companies for the purpose of preventing the occurrence of similar accidents.

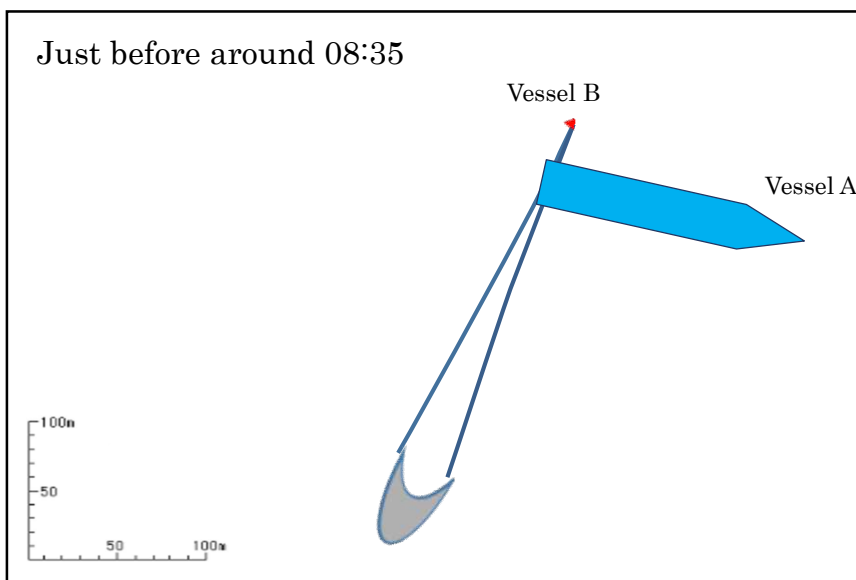
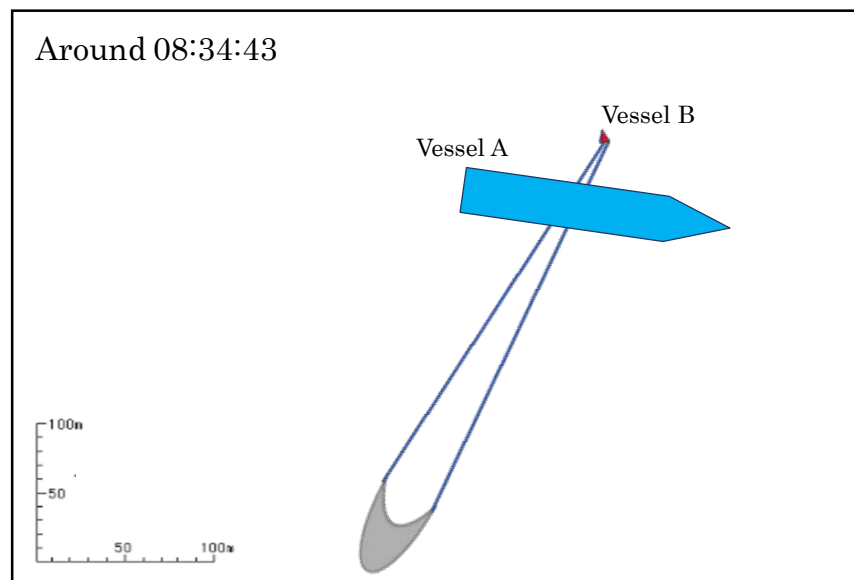
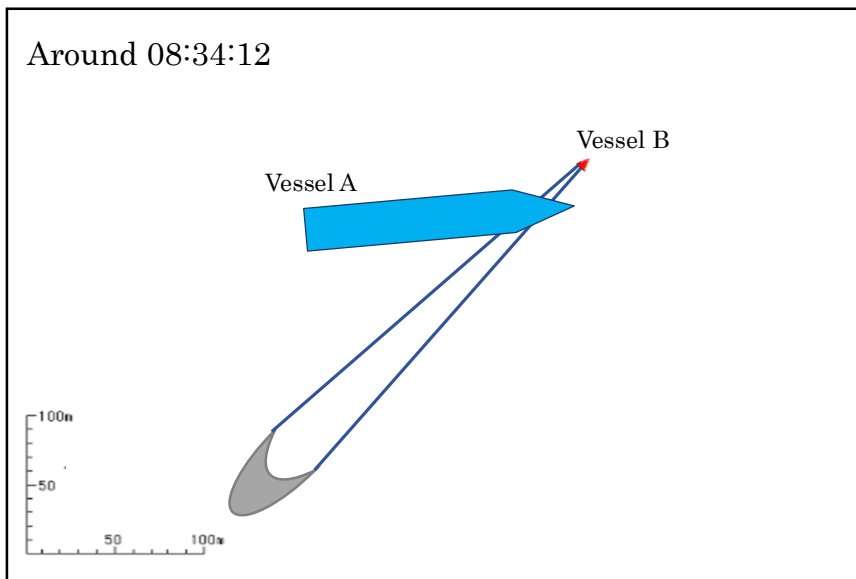
Attached Figure 1 Navigation tracks



Attached Figure 2-1 Navigation tracks (Close-up)

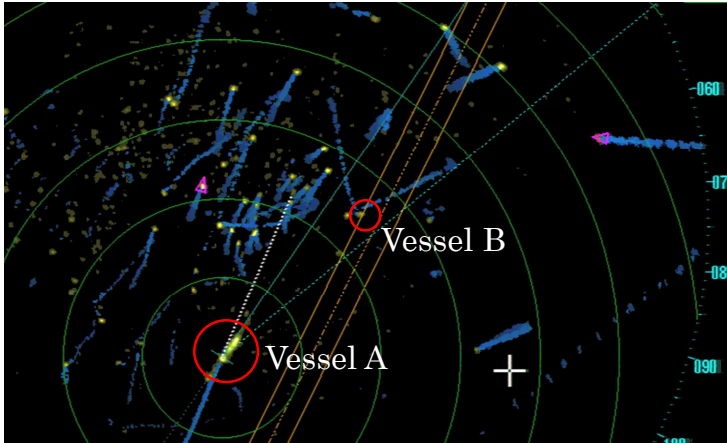


Attached Figure 2-2 Diagram of the Positional Relationship between Vessel A and Vessel B's Fishing Equipment
(Conceptual Diagram)

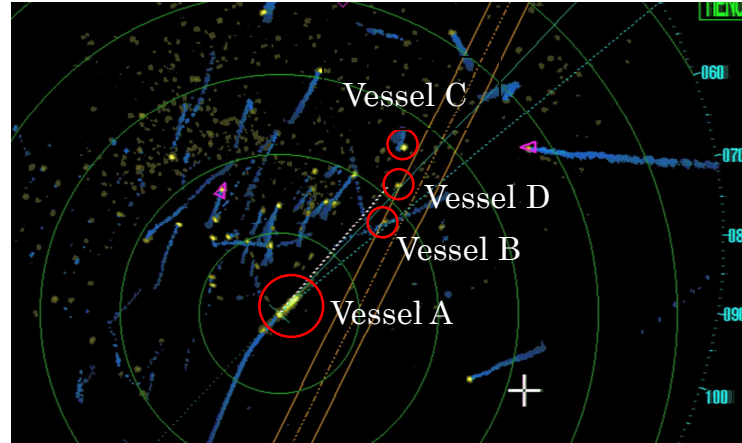


* This figure is a conceptual diagram of the positional relationship between Vessel A and Vessel B that is based on the positions of Vessel A and Vessel B at each time indicated. However, it is possible that Vessel B's position, heading, and condition of fishing equipment differ from reality.

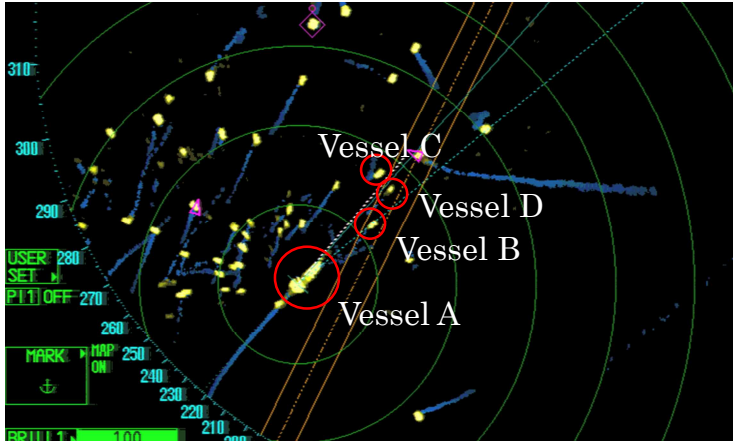
Attached Figure 3 Radar Images (Excerpts)



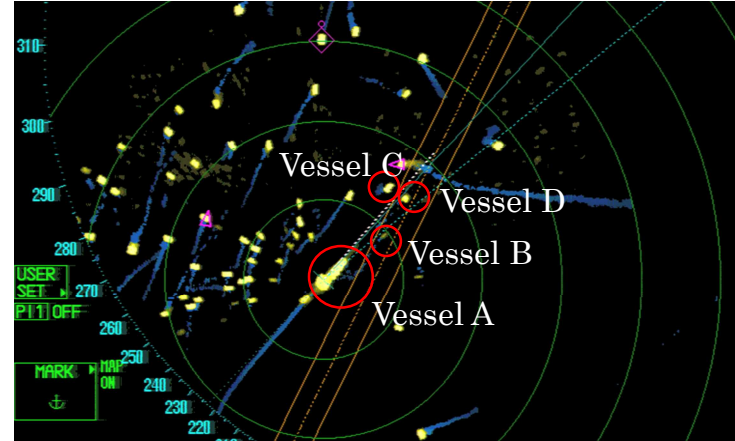
(1) At around 08:26:57



(2) At around 08:29:12



(3) At around 08:31:27



(4) At around 08:32:12

Attached Table 1 Collision Accidents in Past 6 Years during Pilotage of Members of the Pilots' Association

No.	Time	Ship type	Pilot	Accident summary	Preventive measures
1	Around 05:59 February 25, 2013	Container ship	Stay on bridge	<p>The container ship WAN HAI 162, with a master and twenty other crews onboard, sailing northeast toward the Osaka section of Hanshin Port under the pilotage of a pilot, and the fishing vessels SEINAN MARU No.7 and SEINAN MARU No.8, both with a skipper and one other crew onboard, tied together by wire ropes at bow and middle of the hull, starboard side of SEINAN MARU No.7 alongside of the port side of SEINAN MARU No.8, sailing north toward fishing grounds, collided each other at about 05:59 on February 25, 2013, off the coast to the west of Kansai International Airport.</p> <p>The skipper of SEINAN MARU No.7 was killed and the vessel had a hole in the stern part of the vessel.</p> <p>Crew of SEINAN MARU No.8 was killed and the stern part of the vessel was torn apart.</p>	<p>(1) When navigating areas congested with fishing vessels or other vessels, and a collision with those vessels is possible, conning officers should at an early stage with plenty of time to spare, make appropriate judgments about the movements of other vessels to avoid collision, and speed reduction.</p> <p>(2) When there is a risk of collision with other vessel, conning officers should be aware of the fact that conning officers of the other vessels may not be aware of their vessel's presence, and should with absolute certainty alert other conning officers to their vessel's presence by for example sounding a whistle at an early juncture.</p> <p>(3) Pilots and shipmasters should implement BRM, share information about the movements of other vessels, and endeavor to navigate their vessel safely by</p>
		Fishing vessel			
		Fishing vessel			

				<p>The WAN HAI 162 suffered scratches on the fore part of the vessel, but no one was injured.</p>	<p>cooperating with each other.</p> <p>(4) The skippers of fishing vessels that are tied together should be aware of the fact that when the engine rpm of each vessel is matched and the rudders of each vessel are pointing in opposing directions, the handling of the vessels will be impaired, and in addition to carrying out an appropriate level of watchkeeping, they must also establish a means of communication in addition to radio communications such as direct communication between crew members that are not engaged in vessel navigation.</p>
2	<p>Around 07:08:54 June 7, 2016</p>	<p>Container ship</p>	<p>Stay on bridge</p>	<p>While the container ship ESTELLE MAERSK, with the Master, 27 crew members and a pilot on board, was proceeding north toward the South Entrance of Kobe Chuo Passage in the Kobe Section of Hanshin Port under escort by the pilot, and the container ship JJ SKY, with the Master and 21 crew members on board, was proceeding west-northwest toward the South</p>	<p>(1) Pilots and Masters should communicate with vessels when there is a risk of colliding by using VHF, escort boats or other means, confirm their maneuvering intentions to each other, and cooperate in efforts to avoid collisions.</p> <p>(2) Masters should understand regulations and others pertaining to the waters to be navigated, and should observe them</p>
		<p>Container ship</p>			

				<p>Entrance of Kobe Chuo Passage, the two vessels collided near the South Entrance of Kobe Chuo Passage at around 07:08:54 on June 7, 2016.</p> <p>ESTELLE MAERSK sustained abrasion damage on the shell plating of her starboard bow, while JJ SKY sustained a pressure collapse on part of her bridge port-side wing. However, there were no casualties or fatalities on either vessel.</p>	<p>correctly.</p> <p>(3) Port administration authorities should make efforts to ensure that vessels entering and leaving ports understand the purpose of Port Entry Manuals.</p>
3	Around 07:02:49 May 4, 2018	Container ship	Stay on bridge	<p>While container vessel NYK VENUS, the Master ,26 other crew, 3 other persons and a pilot were on board, was turning toward the south entrance of Rokko Island East Coast of Kobe Area of Hanshin Port from the north-eastward under escort by the Pilot, while container vessel SITC OSAKA, the Master and 17 other crew were on board, was proceeding toward in the direction of north west for the south entrance of Kobe Chuo Passage, both vessels collided at around 07:02:49 on May 4,2018 in the vicinity of</p>	<p>(1) A pilot should always adequately keep a lookout by using navigation equipment, such as radar and ECDIS, in addition to sight observation.</p> <p>(2) When there is a risk of approaching another vessel at a close distance, even if the relative orientation of the other vessel may seem to be changing, a pilot of a large vessel should ask for cooperation of the other vessel by using VHF because of the risk of collision.</p> <p>(3) A pilot should communicate (including</p>
		Container ship			

			<p>Kobe Rokko Island East Waterway Central Floating Lighted Buoy.</p> <p>NYK VENUS caused damage at the starboard side bow, and SITC OSAKA caused damage at the accommodation spaces on the port side stern, but there were no casualties in both vessels.</p>	<p>verbal communication) maneuvering and the other vessel's movement with crew in the bridge. Also, if local language was used to transmit information, the contents should be conveyed to the Master. They should share information.</p> <p>(4) A master should communicate (including verbal communication) maneuvering of the vessel and movement of the other vessel with crew and a pilot in the bridge.</p> <p>(5) Crew, including a master, should be aware that the master is responsible for navigation, even when a pilot is on board, and thus they should continue to keep a lookout.</p> <p>(6) A master or a pilot should know that CPA, which the position of the GPS is used as a reference point, does not take into account the length and the width of a vessel. Thus they should keep enough distance between other vessels in order to navigate safely.</p>
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					(7) A master should have the crew understand VDR operation, in order to keep objective data of the time of an accident.
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Attached Table 2 Accident Progress Table

Time	Vessel A	Vessel B
Around 03:15		Vessel B departed from Shioda Ward, Tsuna Port.
Around 04:20		The first operation started.
Around 07:45	Pilot A and Trainee A got on board and started piloting.	
Around 08:00	The duty was changed. Officer A ₂ → Officer A ₁ , Steersman A ₂ → Steersman A ₁ Master A confirmed Pilot A whether he could get off the bridge.	Vessel B started moving to the fishing ground for the fourth operation after the third operation.
Around 08:15 -	The ship passed Yura Seto. Pilot A instructed a course of 035°.	Skipper B confirmed Vessel A passing Yura Seto.
Around 08:25 -	Pilot A confirmed Vessel B by radar and visual observation. Master A left the bridge.	Vessel B started the fourth operation.
Around 08:29	Pilot A confirmed Vessels B, C and D by radar and visual observation.	
Around 08:32	Pilot A felt that Vessel C was moving astern and ordered Starboard 10 then Starboard 20, thinking the distance to Vessel B was about 1 M. Trainee A moved to the port wing to confirm Vessel B.	Skipper B confirmed Vessel A on the stern and set the helm to port.
Around 08:34	Pilot A ordered Port 20 after ordering Midships. Trainee A confirmed that Vessel B had passed in parallel approximately 40 m from the port side of Vessel A.	Crewmember B extended the Tottari to turn Vessel B to port.
Around 08:35	Trainee A confirmed that Vessel B had passed close to the stern of Vessel A and reported it to Pilot A.	Vessel B passed the stern of Vessel A and 20 to 30 seconds later, was pulled backward. Vessel B capsized.
Around 08:47	Pilot A heard the news from VHF that Vessel B had capsized and instructed to call Master A.	