

Chapter 5 Marine accident and incident investigations

1 Marine accidents and incidents to be investigated

<Marine accidents to be investigated>

©Paragraph 5, Article 2 of the Act for Establishment of the Japan Transport Safety Board

(Definition of marine accident)

The term "Marine Accident" as used in this Act shall mean as follows:

- 1 Damage to a ship or facilities other than a ship related to the operations of a ship.
- 2 Death or injury of the people concerned with the construction, equipment or operation of a ship.

<Marine incidents to be investigated>

©Item 2, paragraph 6, Article 2 of the Act for Establishment of the Japan Transport Safety

Board (Definition of marine incident)

A situation, prescribed by Ordinance of Ministry of Land, Infrastructure, Transport and Tourism, where deemed to bear a risk of Marine Accident occurring.

©Article 3 of Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board

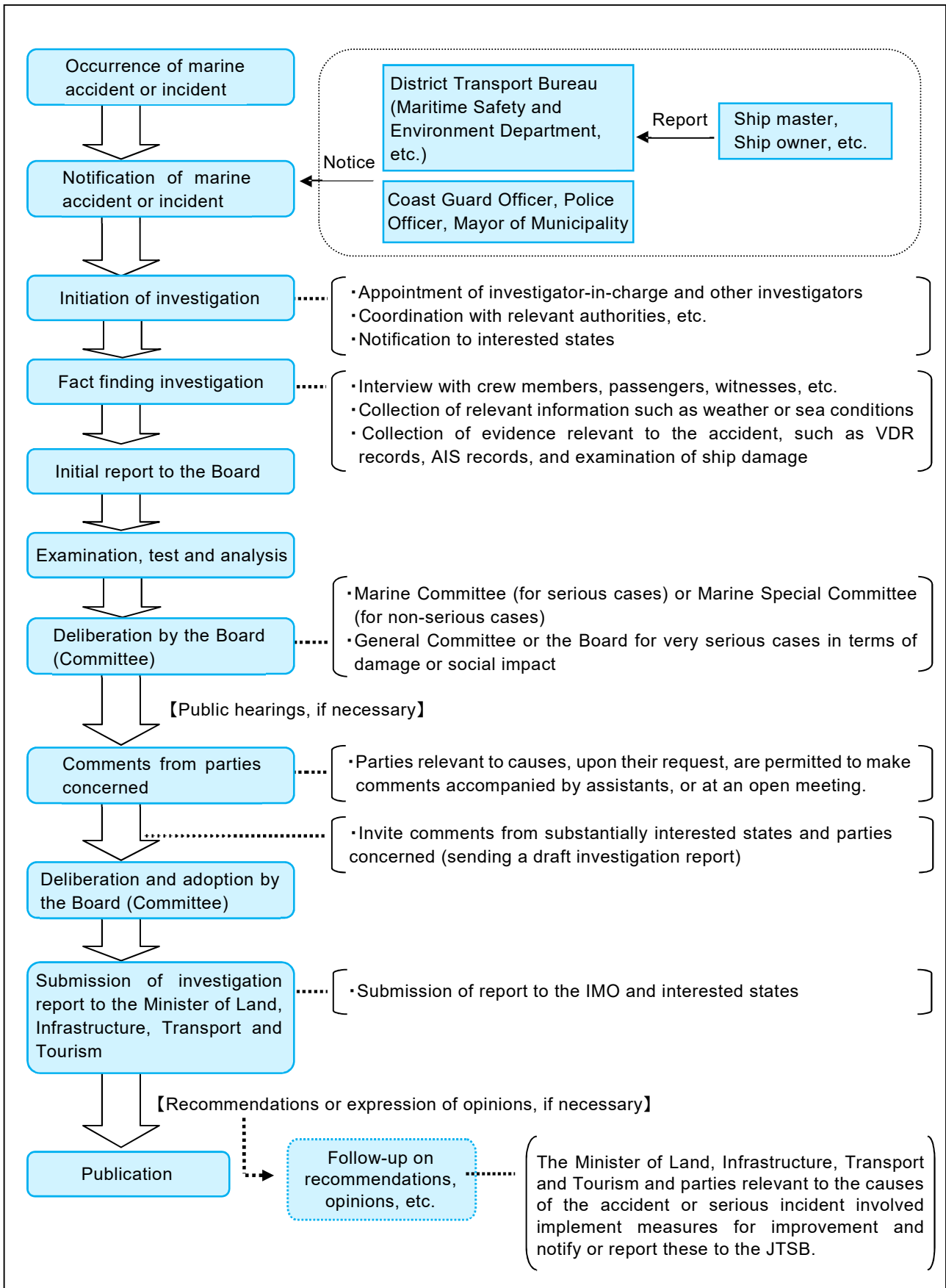
(A situation, prescribed by Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism, stipulated in item 2, paragraph 6, Article 2 of the Act for Establishment of the Japan Transport Safety Board)

- 1 The situation wherein a ship became a loss of control due to any of the following reasons:
 - (a) navigational equipment failure;
 - (b) listing of a ship; or
 - (c) short of fuel or fresh water required for engine operation.
- 2 The situation where a ship grounded without any damage to the hull; and
- 3 In addition to what is provided for in the preceding two items, the situation where safety or navigation of a ship was obstructed.

<Category of marine accident and incident>

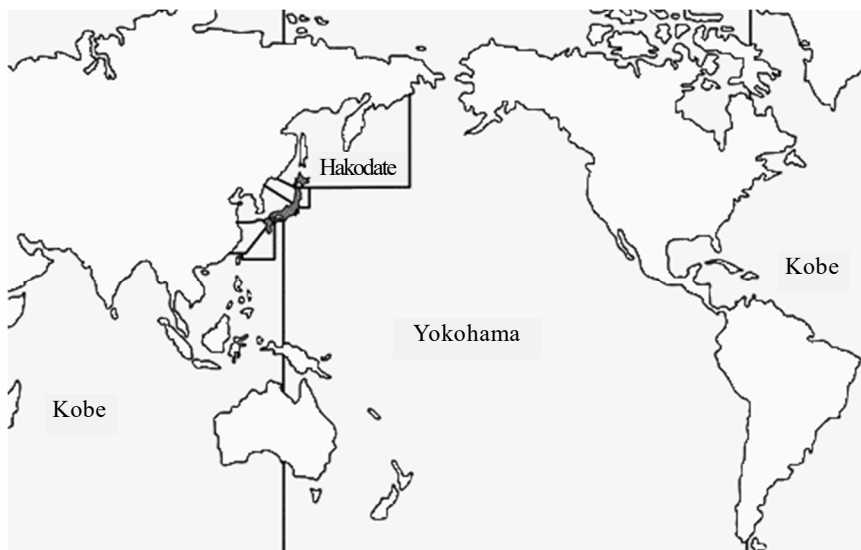
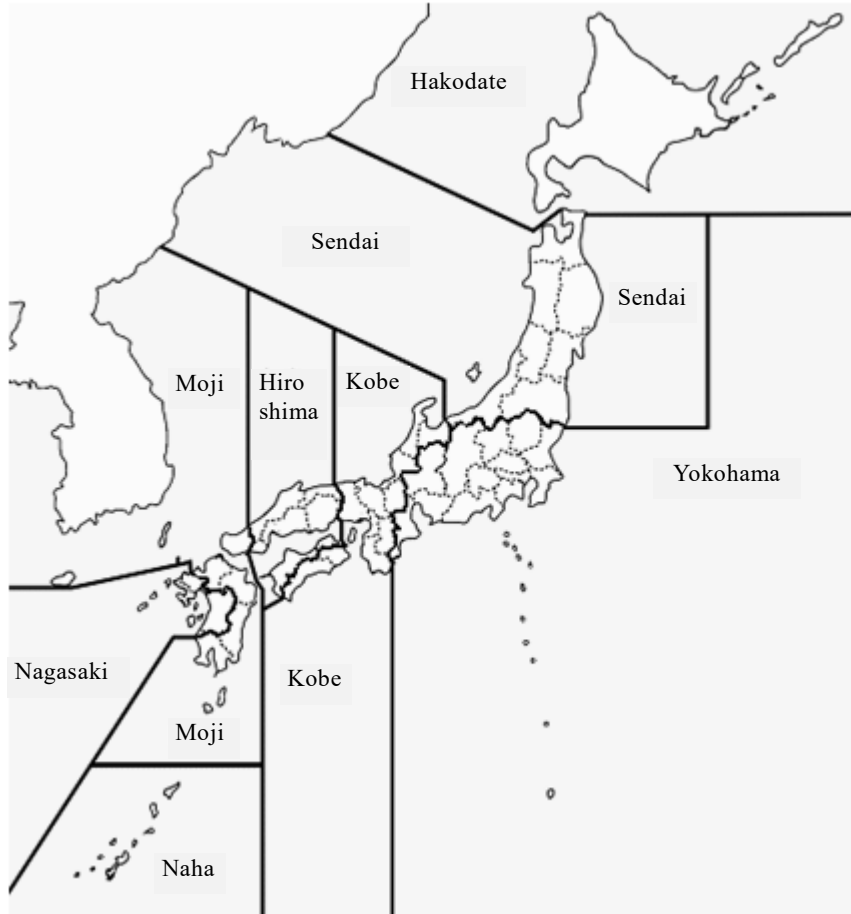
Marine accident and incident to be investigated		Type of marine accident and incident
Marine accident	Damage to ships or other facilities involved in ship operation	Collision, Grounding, Sinking, Flooding, Capsizing, Fire, Explosion, Missing, Damage to facilities
	Casualty related to ship structures, equipment or operations	Fatality, Fatality and injury, Missing person, Injury
Marine incident	Navigational equipment failure	Loss of control (engine failure, propeller failure, rudder failure)
	Listing of ship	Loss of control (extraordinary listing)
	Short of fuel or fresh water required for engine operation	Loss of control (fuel shortage, fresh water shortage)
	Grounding without hull damage	Stranded
	Obstruction of ship safety or navigation	Safety obstruction, Navigation obstruction

2 Procedure of marine accident/incident investigation



3 Jurisdiction of the Offices over marine accidents and incidents

For the investigation of marine accidents and incidents regional investigators are stationed in the regional offices (eight offices). Our jurisdiction covers marine accidents and incidents in the waters around the world, including rivers and lakes in Japan. The regional offices are in charge of investigations in the respective areas shown in the following map. Marine accident investigators in the Tokyo Office (Headquarters) are in charge of serious marine accidents and incidents.



Jurisdiction map

4 Role of the Offices and Committees according to category of accident and incident

Serious marine accidents and incidents are investigated by the marine accident investigators in the Headquarters, and are deliberated in the Marine Committee. However, particularly serious accidents are deliberated in the General Committee, and extremely serious accidents are deliberated in the Board.

Non-serious marine accidents and incidents are investigated by regional investigators stationed in the eight regional offices, and deliberated in the Marine Special Committee.

(For the deliberation items of the Board and each Committee, refer to page 2 of the Appendixes)

<p>Serious marine accidents and incidents</p>	<p>Office in charge of investigation: Marine accident investigators in the Headquarters Committee in charge of deliberation and adoption: Marine Committee</p>
<p>Definition of "serious marine accidents and incidents"</p> <ul style="list-style-type: none"> •Cases where a passenger died or went missing, or two or more passengers were severely injured. •Cases where five or more persons died or went missing. •Cases involved a vessel engaged on international voyages where the vessel was a total loss, or a person on the vessel died or went missing. •Cases of spills of oil or other substances where the environment was severely damaged. •Cases where unprecedented damage occurred following a marine accident or incident. •Cases which made a significant social impact. •Cases where identification of the causes is expected to be significantly difficult. •Cases where essential lessons for the mitigation of damage are expected to be learned. 	
<p>Non-serious marine accidents and incidents</p>	<p>Office in charge of investigation: Regional investigators in the regional offices Committee in charge of deliberation and adoption: Marine Special Committee</p>

5 Statistics of investigations of marine accidents and incidents (As of end of February 2019)

The JTSB carried out investigations of marine accidents and incidents in 2018 as follows:

531 accident investigations had been carried over from 2017, and 828 accident investigations were newly launched in 2018. 757 investigation reports were published in 2018, and thereby 596 accident investigations were carried over to 2019.

91 incident investigations had been carried over from 2017, and 130 incident investigations were newly launched in 2018. 131 investigation reports were published in 2018, and thereby 90 incident investigations were carried over to 2019.

Investigations of marine accidents and incidents in 2018

Category	Carried over from 2017	Launched in 2018	Not applicable	Transferred to Tokyo Office	Total	(Cases)					
						Publication of investigation report	(Recommendations)	(Safety recommendations)	(Opinions)	Carried over to 2019	(Interim report)
Marine accident	531	828	△6	0	1,353	757	(1)	(1)	(2)	596	(1)
Tokyo Office (Serious cases)	13	19	△1	2	33	12	(1)	(1)	(2)	21	(1)
Regional Offices (Non-serious cases)	518	809	△5	△2	1,320	745				575	
Marine incident	91	130	0	0	221	131	(0)	(0)	(0)	90	(0)
Tokyo Office (Serious cases)	1	1	0	1	3	2				1	
Regional Offices (Non-serious cases)	90	129	0	△1	218	129				89	
Total	622	958	△6	0	1,574	888	(1)	(1)	(2)	686	(1)

Note 1. The figures for “Launched in 2018” includes cases which occurred in 2017 or earlier, and which the JTSB was notified of in 2017 as subjects of investigation.

Note 2: The column “Not applicable” shows the number of cases which did not come under the category of accident or incident as defined in Article 2 of the Act for Establishment of the Japan Transport Safety Board.

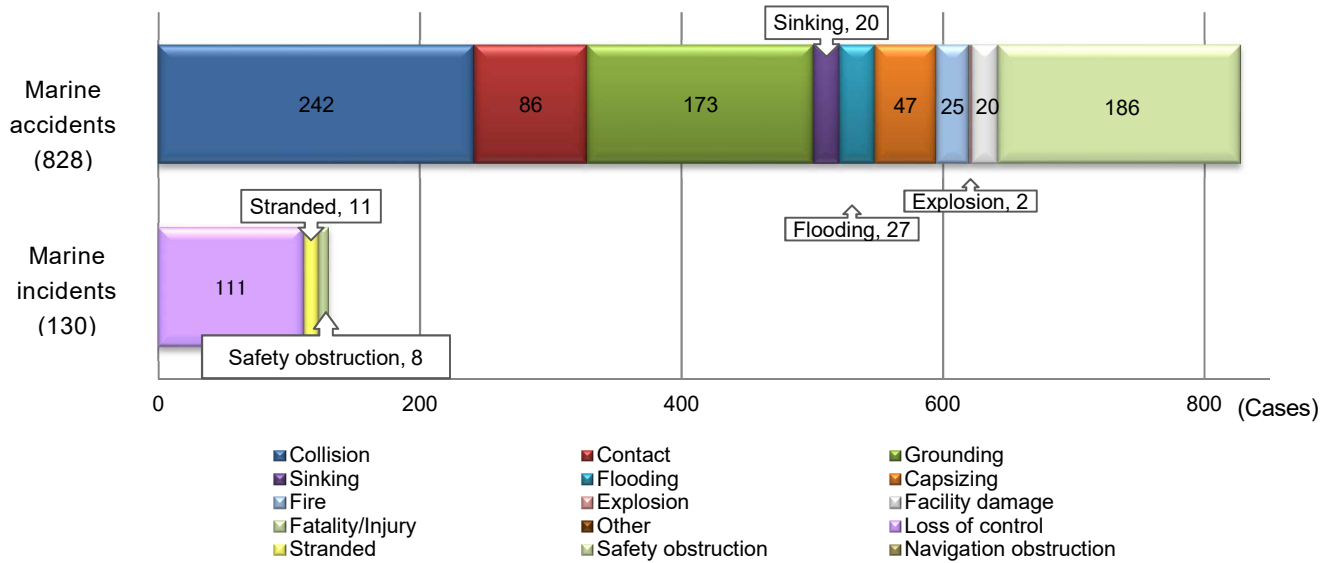
Note 3: The column “Transferred to Tokyo Office” shows the number of cases where the investigation found out that it was serious and the jurisdiction was transferred from the regional office to the Tokyo Office.

6 Statistics of investigations launched in 2018 (As of end of February 2019)

(1) Types of accidents and incidents

The breakdown of the 958 investigations launched in 2018 by type of accidents and incidents is as follows: The marine accidents included 242 cases of collision, 186 cases of fatality/injury (not involved in other types of accidents), 173 cases of grounding, and 86 cases of contact. The marine incidents included 111 cases of loss of control, 8 cases of navigation obstruction, and 11 cases of stranded. The objects of contact were quays in 23 cases, breakwaters in 21 cases, and piers in nine cases.

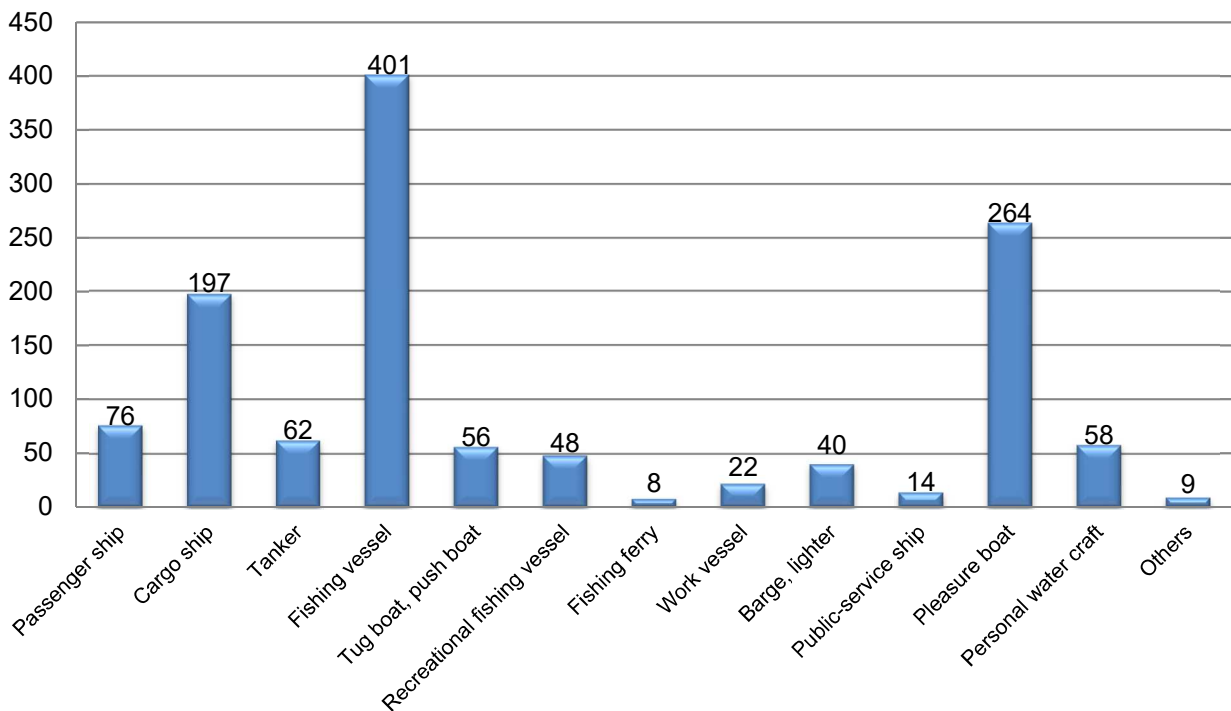
Number of investigated marine accidents and incidents by type in 2018



(2) Types of vessels

The number of vessels involved in marine accidents and incidents was 1,255. By type of vessel, they included 401 fishing vessels, 264 pleasure boats, 197 cargo ships, 76 passenger ships, and 62 tankers.

Number of vessels involved in marine accidents and incidents by type in 2018



The number of foreign-registered vessels involved in marine accidents and incidents was 71, and they were classified by accident type as follows: 47 vessels in collision, nine vessels in contact and six vessels in grounding. As for the flag of vessels, 21 vessels were registered in South Korea, 20

vessels in Panama, seven vessels in Belize, five vessels in Sierra Leone.

Number of foreign-registered vessels by flag

(Vessels)

South Korea	21	Sierra Leone	5	Singapore	2
Panama	20	Hong Kong	4	China	2
Belize	7	Marshall Islands	3	Others	7

(3) Number of casualties

The number of casualties was 451, consisting of 83 deaths, 11 missing persons, and 357 injured persons. By type of vessel, 138 persons in fishing vessels and 108 persons in pleasure boats. By type of accident, 210 persons in fatality/injury, 126 persons in collision, 58 persons in contact, 22 persons in grounding, and 21 persons in capsizing.

With regard to the number of persons dead or missing, 54 persons were involved in fishing vessel accidents, 21 persons in pleasure-boat accidents, indicating dead or missing cases occurred frequently in fishing vessels.

Number of casualties (marine accident)

(Persons)

2018										
Vessel type	Dead			Missing			Injured			Total
	Crew	Passengers	Others	Crew	Passengers	Others	Crew	Passengers	Others	
Passenger ship	0	0	1	0	0	0	6	42	4	53
Cargo ship	2	0	0	0	0	0	8	0	7	17
Tanker	1	0	1	0	0	0	5	0	0	7
Fishing vessel	45	0	0	9	0	0	81	0	3	138
Tug boat, push boat	0	0	0	0	0	0	6	0	0	6
Recreational fishing vessel	0	1	0	0	0	0	6	21	1	29
Fishing ferry	0	0	0	0	0	0	2	16	0	18
Work vessel	2	0	0	0	0	0	1	0	2	5
Barge, lighter	0	0	2	0	0	0	0	0	5	7
Public-service ship	1	0	0	0	0	0	0	0	0	1
Pleasure boat	8	0	11	1	0	1	33	1	53	108
Personal water craft	3	0	4	0	0	0	12	2	37	58
Others	1	0	0	0	0	0	1	0	2	4
Total	63	1	19	10	0	1	161	82	114	451
	83			11			357			

※ The figures above include accidents under investigation and therefore are subject to change depending on the course of investigations and deliberations.

7 Summaries of serious marine accidents and incidents which occurred in 2018

The serious marine accidents which occurred in 2018 are summarized as follows: The summaries are based on information available at the initial stage of the investigations and therefore are subject to change depending on the course of investigations and deliberations.

(Marine accidents)

1	Date and location		Vessel type and name, accident type	
	March 18, 2018 Approximately 6km off Eigashima Port, Akashi City, Hyogo Prefecture (Kantama South Light Buoy)		Passenger Ferry Fukuoka II Contact with a light buoy	
	Summary	The vessel contacted Kantama South Light Buoy at the stern while transporting an emergency patient on board.		
2	Date and location		Vessel type and name, accident type	
	March 24, 2018 Off the south-southwest coast of Ashizuri-misaki Cape, Tosashimizu City, Kochi Prefecture		Cargo vessel GENIUS STAR VIII (Vessel A, Panama) Cargo vessel Tokuhomaru No. 11 (Vessel B) Collision	
	Summary	Vessel A, with the master, officers, and 16 other crew members on board, was drifting off the south-southwest coast of Ashizuri-misaki Cape, Tosashimizu City, Kochi Prefecture. At the same time, Vessel B, with the master and four other crew members on board, was heading east-northeast toward Keihin Port Tokyo District. Then Vessel B collided with Vessel A off the south-southwest coast of Ashizuri-misaki Cape. The collision caused Vessel A cracks and other damage on the vessel-side outer plate in the portside rear. The accident also caused crashing into Vessel B at the bow. There were no casualties on either vessel		
3	Date and location		Vessel type and name, accident type	
	April 2, 2018 Keihin port, Tokyo district 3, No. 10-1 Multi-purpose Terminal M-P		Training ship NIPPONMARU Fatality of a cadet	
	Summary	When the vessel was moored at Keihin port, Tokyo district 3, No. 10-1 Multi-purpose Terminal M-P with the captain, one navigation officer, boatswain, and 49 crew taking 105 cadets onboard, during lay aloft training at the foremast, one of the cadets fell from the foremast to the superstructure deck and died.		
4	Date and location		Vessel type and name, accident type	
	April 5, 2018 Niigata Port West Port District, Niigata Prefecture		Passenger Ferry YUUKARI Injury of a crew member	
	Summary	This vessel, with the master and 31 other crew members on board, was loading vehicles at the south quay of Yamanoshita Warf, Niigata Port West Port District, Niigata City, Niigata Prefecture. The second officer who was supervising the loading operation on the vehicle deck was run over by the rear-right wheel of a trailer moving back (with the head – the vehicle that pulls the chassis – and the chassis connected) on both legs. The officer suffered severe injuries, including below-knee compartment syndrome in both legs.		
5	Date and location		Vessel type and name, accident type	
	April 8, 2018 Off to the southeast of Kunisaki Port, Kunisaki City, Oita Prefecture		Chemical Tanker GOLDEN SUNNY HANA Explosion (Cargo oil tank)	
	Summary	The vessel, with a master and 14 crew members on board, was proceeding southeast off to the southeast of Kunisaki Port, Oita Prefecture, while conducting cleaning work in a cargo oil tank, an explosion occurred in the cargo oil tank. Two of the vessel's ordinary seamen were injured and her cargo oil tanks had holes and other damage.		
6	Date and location		Vessel type and name, accident type	
	May 4, 2018		Container vessel NYK VENUS (Vessel A)	

	Hanshin Port, Kobe Area , South off the coast	Container vessel SITC OSAKA (Vessel B) Collision
	Summary	Vessel A and Vessel B collided with each other off Rokko Island
7	Date and location	Vessel type and name, accident type
	May 8, 2018 Off the west coast of Koshikijima island, Kagoshima Prefecture	Fishing vessel SHOTOKUMARU No. 87 Sinking
	Summary	The vessel, loaded with catches of fish, was navigating off the west coast of Koshikijima island, Kagoshima Prefecture, and navigating toward Mieshikimi Port, Nagasaki Prefecture. When receiving waves from the starboard bow, the hull listed and sank. A consort rescued all crew members who escaped from the vessel in a life raft.
8	Date and location	Vessel type and name, accident type
	June 20, 2018 Approximately 460 nautical miles off the east southeast coast of Kinkazan, Miyagi Prefecture	Fishing vessel KORYOMARU No. 68 Flooding
	Summary	In the waters approximately 460 nautical miles off the east southeast coast of Kinkazan, Miyagi Prefecture, the vessel flooded and the hull listed to the port side. A consort rescued all the 18 crew members on board.
9	Date and location	Vessel type and name, accident type
	July 26, 2018 In the southern waters of Ondo no Seto, Kure City, Hiroshima Prefecture	Ferry ISHITEGAWA (Vessel A) Cargo ship DAIEIMARU No. 10 (Vessel B) Collision
	Summary	Vessel A was navigating toward Matsuyama Port, Matsuyama City, Ehime Prefecture, and Vessel B was navigating toward Kure Port. Both vessels collided with each other in Ondo no Seto
10	Date and location	Vessel type and name, accident type
	July 28, 2018 Sakurajima ferry landing quay in Sakurajima Yokoyamacho, Kagoshima City, Kagoshima Prefecture	Ferry SAKURAJIMA MARU No. 18 Contact with a quay
	Summary	The vessel collided with the Sakurajima ferry landing quay.
11	Date and location	Vessel type and name, accident type
	August 5, 2018 Off the west coast of Hokudan Murotsu Beach, Awaji City, Hyogo Prefecture	Personal watercraft SJK (Vessel A) with a towed floating body Personal watercraft No. 8 (Vessel B) Collision
	Summary	Vessel A, with the driver and another on board, was navigating around, towing a floating body called an 8-seat banana boat with seven passengers on board. At the same time, Vessel B was navigating around, with the driver on board. Vessel B collided with the floating body Vessel A was towing off the west coast of Hokudan Murotsu Beach, Awaji City, Hyogo Prefecture. Of the passengers on board the floating body, one was killed, one was seriously injured, and three were slightly injured. There were scratch marks on the rear-right part of the floating body. The driver of Vessel B was slightly injured. There were cracks on the starboard-rear gunwale.
12	Date and location	Vessel type and name, accident type
	August 17, 2018 The quay of Kasumigaura South Warf No. 26, Yokkaichi Port, Yokkaichi City, Mie Prefecture	Container vessel OOCL NAGOYA Contact with a quay
	Summary	When the vessel, with the master, 23 other crew members, and a harbor pilot on board, was arriving at the quay of Kasumigaura South Warf No. 26, Yokkaichi Port, the bow collided with the quay and a gantry crane there.
13	Date and location	Vessel type and name, accident type
	September 2, 2018 Off the east coast of the Nihonmatsu swimming	Personal watercraft RXT-X260RS Injury of fellow passengers

	area, Nagahama City, Shiga Prefecture (northern Lake Biwa)	
	Summary	The vessel was on the way back, with the driver on board and two fellow passengers in the rear seats. The fellow passengers in the rear seats fell off the stern into the water and were exposed to the jet flow discharged from the jet nozzle at the stern. As a result, they were seriously injured in the uncovered region of the lower body, including rectal injury.
14	Date and location	Vessel type and name, accident type
	September 4, 2018 Kansai International Airport Access Bridge in Senshu Port, Osaka Prefecture	Oil tanker HOUNMARU Contact with a bridge
	Summary	A maritime typhoon warning was set off as Typhoon No. 21 was approaching the Seto Inland Sea, including Osaka Bay. While anchored off the southeast coast of Senshu Port, the vessel, with the master and ten other crew members on board, was struck by strong winds, dragging the anchor pushed by powerful water flow. As a result, the vessel collided with Kansai International Airport Access Bridge (hereinafter, "the Bridge"). The collision caused the vessel to collapse on the deck at the starboard bow and the accommodation area. The collision caused the bending, fracture, and abrasion of the members of the Bridge. Furthermore, the accident caused the collapse of overhead wire poles, the distortion of rails, gas pipe fractures, and others. There were no casualties among the crew members.
15	Date and location	Vessel type and name, accident type
	September 18, 2018 Mitsubishi Naoshima wharf, Naoshima Town, Kagawa Prefecture	Cargo ship ERIK Fatality of a crew member
	Summary	While the vessel was moored at the Mitsubishi Naoshima wharf, with the master and 14 crew members on board, 4 crew members were performing the cleaning work of the upper hatch coaming of the cargo holds after unloading cargo, and an able seaman fell from the upper deck to the bottom floor of the cargo hold. The able seaman was pronounced dead after being conveyed from the cargo hold.
16	Date and location	Vessel type and name, accident type
	September 29, 2018 Kanmon Passage	Cargo ship SM3 (Vessel A) Oil tanker KOUTOKUMARU (Vessel B) Collision
	Summary	Vessel A and Vessel B were navigating along the Kanmon Passage and collided with each other.
17	Date and location	Vessel type and name, accident type
	October 1, 2018 Ogishima, Kawasaki City, Kanagawa Prefecture	Cargo ship MARINA Contact with a coast revetment
	Summary	While anchored at an anchorage ground off Daikoku Quay to take shelter from an upcoming typhoon, the vessel dragged its anchor due to strong winds, colliding with a coast revetment in Ogishima.
18	Date and location	Vessel type and name, accident type
	October 4, 2018 Off the north coast of Oshima, Munakata City, Fukuoka Prefecture	Recreational fishing vessel SEIRYOMARU Fatality of a fishing passenger
	Summary	The vessel, with the skipper and four fishing passengers on board, was navigating on the way back to Konominato Fishing Port, Munakata City. One of the fishing passengers fell off the vessel into the water and died.
19	Date and location	Vessel type and name, accident type
	October 22, 2018 Oshima Long Bridge over Obatake Seto between Yanai City and Suo-Oshima Town, Yamaguchi Prefecture	Cargo ship ERNA OLDENDORFF Contact with a bridge

	Summary	The vessel, with the master and 20 other crew members on board, was heading east in Obatake Seto toward a private berth in Etajima City, Hiroshima Prefecture, and collided with Oshima Long Bridge. The collision caused the vessel to collapse on three of the four on-board cranes and bend the mast, but there were no casualties. Oshima Long Bridge had cracks, collapses, and others on the bridge girders. Also, the inspection passage installed on the bridge girders fell off. Furthermore, the water line and others were fractured, resulting in water outage for more than a month in almost the entire area of Suo-Oshima Town, Yamaguchi Prefecture.
20	Date and location	Vessel type and name, accident type
	November 8, 2018 Mizushima West No. 1 Breakwater, Kurashiki City, Okayama Prefecture	Cargo ship JFE VENUS Contact with a breakwater
	Summary	After departing from JFE Takahashi River Product Quay (Mizushima Port), the vessel lost control, colliding with Mizushima West No. 1 Breakwater.
21	Date and location	Vessel type and name, accident type
	December 21, 2018 Approximately 6km off the north coast of Tomogashima, Wakayama City, Wakayama Prefecture	Cargo ship CAPE VERDE (Vessel A) Fishing vessel MUNEYOSHIMARU (Vessel B) Collision
	Summary	Vessel A and Vessel B collided with each other approximately 6km off the north coast of Tomogashima, and Vessel B capsized after the collision. Two crew members onboard Vessel B were rescued (one of the two suffered cardiopulmonary arrest) and were transported to a medical institution.

(Marine incidents)

1	Date and location	Vessel type and name, incident type
	June 30, 2018 Off the north coast of Ainoshima, Shingu Town, Fukuoka Prefecture	Oil tanker TENSOMARU No. 2 Loss of control (no fuel supply)
	Summary	The vessel, with the master and seven other crew members on board, was heading east-northeast off the north coast of Ainoshima, Shingu Town, Fukuoka Prefecture. The vessel's generator motor stopped operating, and the ship lost its power supply. Because of the inability to operate the main engine, the vessel lost control.
2	Date and location	Vessel type and name, incident type
	July 12, 2018 Takamatsu Port, Takamatsu City, Kagawa Prefecture	Passenger Ferry KONPIRA 2 Loss of control (loss of power)
	Summary	The vessel, with the master, 11 other crew members, 46 passengers, and 49 vehicles on board, was heading north in Takamatsu Port, Takamatsu City, Kagawa Prefecture. The air circuit breaker on the main switchboard was deactivated (opened) to cause a blackout. The main engine stopped, which disabled the breaker from being reactivated (closed). As a result, the vessel lost control. There were no casualties among passengers and crew members. The vessel's hull had no damage.

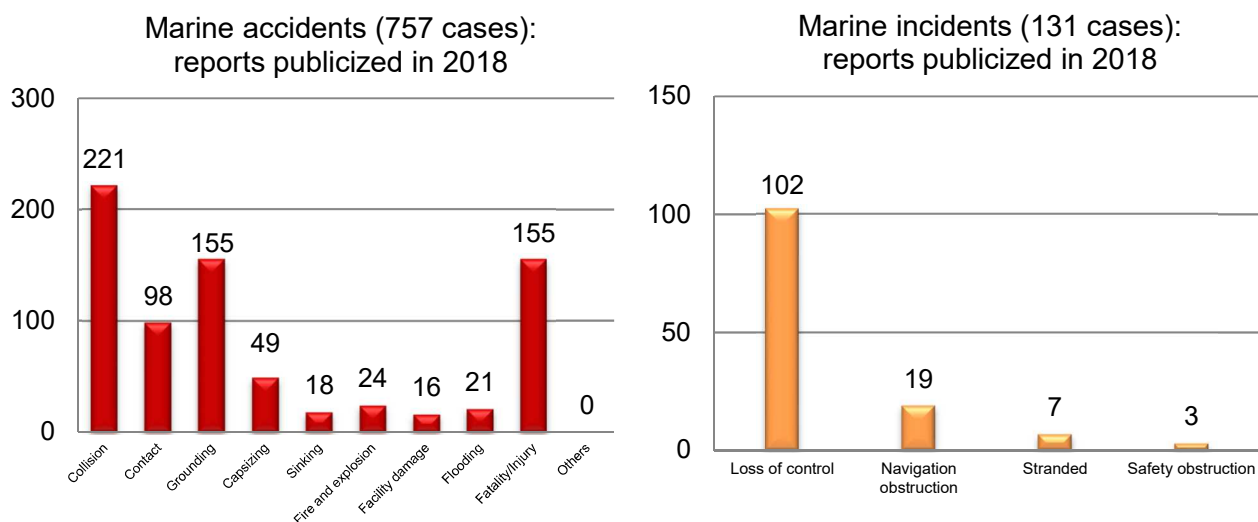
8 Publication of investigation reports

The number of investigation reports of marine accidents and incidents published in 2018 was 888, consisting of 757 marine accidents (among them, 12 were serious) and 131 marine incidents (among them, two were serious).

Breaking them down by type, the marine accidents included 221 cases of collision, 155 cases of grounding, 155 cases of fatality/injury, and 98 cases of contact. The marine incidents included 102 cases of losses of control, (101 cases of navigational equipment failure and one case of listing), 19 cases of

navigation obstruction, seven cases of stranded, and three cases of safety obstruction.

As for the objects of contact, 23 were quays, 21 were breakwaters, and nine were piers.



The number of vessels involved in marine accidents and incidents was 1,025. Breaking them down by type, the marine accidents involved 348 fishing vessels, 226 pleasure boats, 155 cargo ships, 52 passenger ships and 52 tankers. The marine incidents involved 50 fishing vessels, 32 pleasure boats, 19 cargo ships, and 12 passenger ships.

Number of vessels by type involved in marine accidents and incidents for which reports were publicized in 2018

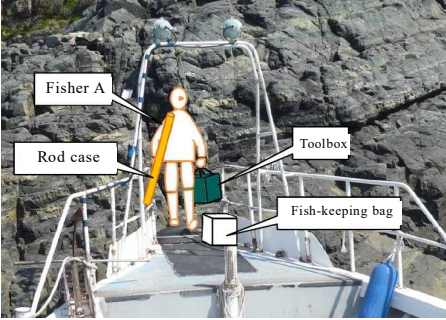
Classification	(Vessel)													Total
	Passenger ship	Cargo ship	Tanker	Fishing vessel	Tug boat, push boat	Recreational fishing vessel	Fishing ferry	Work vessel	Barge, lighter	Public-service ship	Pleasure boat	Personal watercraft	Others	
Marine accident	52	155	52	348	42	39	3	23	31	7	226	43	4	1,025
Marine incident	12	19	8	50	3	1	0	1	2	2	32	0	3	133
Total	64	174	60	398	45	40	3	24	33	9	258	43	7	1,158
%	5.5	15.0	5.2	34.4	3.9	3.4	0.3	2.1	2.8	0.8	22.3	3.7	0.6	100.0

The marine accidents and serious incidents which occurred in 2018 are summarized as follows:

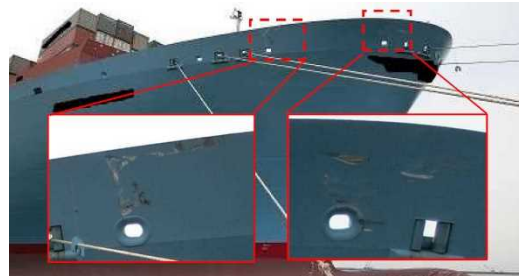
Marine serious accident reports published in 2018

1	Date of Publication	Date and location	Vessel type and name, accident type
	January 25, 2018	August 1, 2016 Off the south coast of Hiroshima, Marugame City, Kagawa Prefecture	Passenger ferry – Ferry KITAKYUSHU II (Vessel A) LPG tanker KASHIMA MARU No. 5 (Vessel B) Collision
	Summary	<p>Vessel A, with the master, 26 other crew members, 566 passengers, and 92 vehicles on board, was heading west along the Bisan Seto North Traffic Route toward Kanmon Port Shinmoji District. At the same time, Vessel B, with the master, six other crew members, and 500t of liquefied propylene on board, was heading west along the same traffic route toward Niihama Port, Niihama City, Ehime Prefecture. Off the south coast of Hiroshima, Marugame City, Kagawa Prefecture, the two vessels collided.</p> <p>Vessel A suffered collapses and abrasions on the outer plate at the portside stern, and Vessel B received collapses and bending at the portside bridge wing and the portside rear. There were no casualties on either vessel.</p>	
	Probable Causes	<p>To prevent a collision with passenger ferry TSUKUSHI navigating ahead along the North Traffic Route off the south coast of Hiroshima at night, Vessel A stopped with its bow facing south near the southern borderline of the North Traffic Route. Vessel A went astern to return to the North Traffic Route and improve its position, but the master and officer did not appropriately watch the following Vessel B. Vessel A kept moving backward toward the course of Vessel B. Additionally, Vessel B's officer did not appropriately watch Vessel A, either, and the officer was late to notice that Vessel A was moving backward to the course of Vessel B. It is probable that the two vessels collided with each other in this way.</p> <p>It is probable that the reasons why the master and the officer of Vessel A did not appropriately watch Vessel B behind it included the following. Vessel A told Vessel B to the effect that Vessel A wanted Vessel B to pass on the starboard side of Vessel A. The officer of Vessel B responded that he/she acknowledged the request. Vessel A assumed that Vessel B would pass on the starboard side of Vessel A.</p> <p>It is probable that the reasons why the officer of Vessel B did not appropriately watch Vessel A included the following. The officer thought Vessel A would resume navigation by the time Vessel B approached Vessel A. Vessel A did not tell this to the officer of Vessel B that it was going astern. There was no whistle signal warning that Vessel A had put the main engine astern.</p> <p>It is somewhat likely that the reasons why Vessel A did not tell Vessel B included the master of Vessel A being preoccupied with returning to the North Traffic Route and improving its position and the officer became upset and disordered.</p> <p>It is probable that the reason why Vessel A stopped near the southern borderline of the North Traffic Route with its bow facing south was that Vessel A did not keep a sufficient amount of distance between passenger ferry TSUKUSHI that was navigating ahead of Vessel A.</p>	
	Report	<p>http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-1-1_2016tk0010.pdf</p>	
2	Date of Publication	Date and location	Vessel type and name, accident type
	February 22, 2018	December 29, 2016 Near the northwest coast of Futaoijima island, Shimonoseki City, Yamaguchi Prefecture	Fishing ferry KASUGAMARU Fatality of a fishing passenger



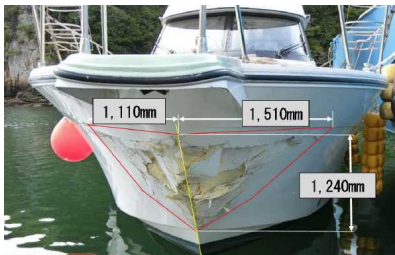
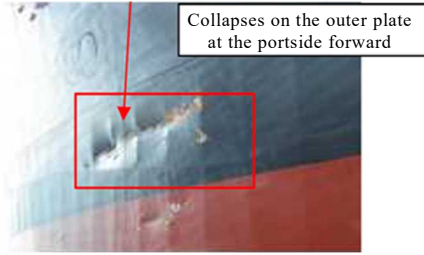
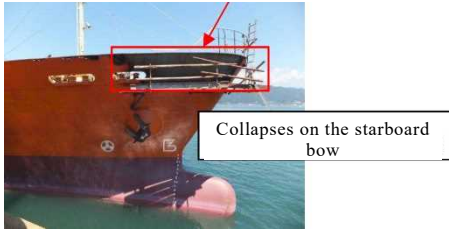
Summary	<p>The vessel, with the skipper on board, was accommodating fishing passengers (fishers) on rocky ground near the northwest coast of Futaoijima island, Shimonoseki City, Yamaguchi Prefecture (called San no Hana). A fisher tried to transfer from the rocky ground to the vessel's bow, but fell into the water and died.</p>		
Probable Causes	<p>It is somewhat likely that this accident occurred as follows. Near the northwest coast of Futaoijima island, the vessel was accommodating a fisher by pressing the vessel's bowhead against San no Hana. The fisher tried to transfer from San no Hana to the vessel and stepped on the tire mounted to the bowhead. At that moment, the vessel received a wave with a height over about 3m from the port side, which moved the hull to the starboard side. The fisher lost his balance and slipped from the position where he started his transfer down to a dip and then fell into the water.</p> <p>It is somewhat likely that the reasons why the vessel received that high wave from the port side were as follows. The skipper was late to notice that wind speeds and wave heights in the vicinity of San no Hana exceeded the vessel return standards, and the skipper was accommodating the fisher under conditions exceeding the standards.</p> <p>It is probable that the reason why the skipper was late to notice that wind speeds and wave heights in the vicinity of San no Hana exceeded the vessel return standards was that he neither stood by in the Futaoijima island fishing port nor patrol around the rocky ground.</p> <p>Regarding the fact that the fisher ended up losing his balance, slipping from the position where he started his transfer down to a dip, and falling into the water, it probably had something to do with the fisher transferring from San no Hana to KASUGAMARU, with his luggage in both hands.</p> <p>It is somewhat likely that the inability of the vessel to rescue the fisher in the water had something to do with the following.</p> <ol style="list-style-type: none"> (1) The vessel, usually only with the skipper on board, had no one else who could help rescue the fisher. (2) Because the vessel was in shallow water near San no Hana and there were higher-than-3m waves, the skipper had to rescue the fisher who fell in the water while maneuvering the vessel to prevent it from running ashore. (3) Because the fisher had his luggage in both hands even after falling into the water, he could not hold the lifebuoy the skipper threw to him tightly. (4) Because the vessel was not equipped with a ladder, the skipper could not rescue the fisher on board using a ladder. <p>It is somewhat likely that the death of the fisher was attributable to the following.</p> <ol style="list-style-type: none"> (1) When falling in the water at an air temperature of about 7°C and a water temperature of about 16°C, the fisher left the lifebuoy several times, resulting in exhaustion and a decrease in body temperature. (2) It is probable that because the floating vest the fisher wore had sufficient buoyancy, he was floating in a backward inclining position with his face above the seawater after falling in the water. However, because he was drifting against higher-than-3m waves and rough return waves in the shallow water, he was prone to taking in seawater. 		
Report	http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-2-1_2017tk0001.pdf		
3	Date of Publication	Date and location	Vessel type and name, accident type
	February 22, 2018	June 7, 2016 Kobe Chuo Passage, Kobe Section, Hanshin Port	Container Ship ESTELLE MAERSK (Vessel A, Denmark) Container Ship JJ SKY (Vessel B, Hong Kong) Collision
	Summary	While the Vessel A, 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	





		<p>under escort by the pilot, and the Vessel B, with the Master and 21 crew members on board, was proceeding west-northwest toward the South Entrance of Kobe Chuo Passage, the two vessels collided near the South Entrance of Kobe Chuo Passage.</p> <p>The Vessel A sustained abrasion damage on the shell plating of her starboard bow, while the Vessel B sustained a pressure collapse on part of her bridge port-side wing. However, there were no casualties or fatalities on either vessel.</p>	
	Probable Causes	<p>It is probable that this accident occurred because, while the Vessel A was proceeding north and the Vessel B west-northwest toward the Passage in the Kobe Section of Hanshin Port in a state whereby they would both enter the Passage at about the same time, Pilot of Vessel A thought that Vessel A would be given priority when entering the Passage and thus continued to proceed north toward the South Entrance of the Passage, while Master of the Vessel B, thinking that Vessel A would navigate astern of Vessel B, increased speed in an attitude of cutting diagonally across the Passage toward the scheduled docking quay to the west of the Passage, as a result of which the two vessels collided.</p> <p>It is probable that Pilot thought that Vessel A would be given priority when entering the Passage and continued to proceed north toward the South Entrance of the Passage because (1) Vessel A was a large vessel in the 400m class and he thought that it would be given priority to enter the Passage by passage control, (2) he had made a request for the order of Passage entry, via Port Radio, to the effect that he wished to enter ahead of the vessel navigating from the Osaka (hereinafter referred to as “Vessel D”), Vessel D had accepted this and set an attitude of entering the Passage after Vessel A, and (3) Vessel A was navigating in accordance with the scheduled Passage entry time notified to Port Radio.</p> <p>It is probable that Master of Vessel B thought that Vessel A would navigate astern of Vessel B and increased speed in an attitude of cutting diagonally across the Passage toward the scheduled docking quay to the west of the Passage because (1) he had heard the communication “Follow Vessel B” between other vessels on VHF, (2) the distance to Vessel C which was navigating ahead of Vessel B was about 0.3M, and he therefore thought that it would be dangerous for Vessel A to pass between Vessel B and Vessel C, and (3) he confirmed the presence of Vessel A by radar and thought that Vessel A would be in an attitude of navigating astern of Vessel B as long as Vessel A did not change course.</p> <p>It is probable that the fact that Vessel A and Vessel B were not communicating by VHF when they were in a state of entering the Passage at about the same time contributed to the occurrence of this accident.</p>	
	Report	<p>http://www.mlit.go.jp/jtsb/eng-mar_report/2018/2016tk0008e.pdf See Page 49 of “Feature 2: Summaries of Major Marine Accident Investigation Reports (case studies)”</p>	
4	Date of Publication	Date and location	Vessel type and name, accident type
	February 22, 2018	August 7, 2016 Off to the Southeast of Higashi-Ogishima Island, Kawasaki City, Kanagawa Prefecture	Chemical Tanker EASTERN PHOENIX (Vessel A, Panama) Oil Tanker KEIHIN MARU No. 8 (Vessel B) Collision



Summary	<p>The Vessel A was proceeding south-southwest toward Uruga Channel after leaving the Kawasaki Passage of the Kawasaki Section of Keihin Port with a master and 14 crew members onboard and the Vessel B was proceeding west-southwest toward the Yokohama Section of Keihin Port with a master and two crew members onboard when the two vessels collided off to the southeast of Higashi-Ogishima Island in Kawasaki City, Kanagawa Prefecture.</p> <p>The Vessel A had a dent and other damage to her bow's shell plating and the Vessel B had a hole and other damage on her port bow that resulted in a spill of light oil she was carrying as cargo onto the ocean's surface.</p> <p>There were no fatalities or injuries on either vessel.</p>		
Probable Causes	<p>It is probable that the accident occurred when, as the Vessel A was proceeding south-southwest and the Vessel B was proceeding west-southwest off to the southeast of Higashi-Ogishima Island, both vessels collided because, despite turning and other maneuvers to avoid a collision by both vessels, Vessel A's Master was not properly conducting lookout of the surroundings and Vessel B was late in taking action to avoid a collision.</p> <p>It is probable that Vessel A's Master was not properly conducting lookout of the surroundings because he was giving continuous instruction concerning position reports and other matters to Vessel A's Navigation Officer and Able Seaman.</p> <p>It is probable that Vessel B was late in taking action to avoid a collision because, although Vessel B's Master judged that there was a risk of collision with Vessel A and ordered Vessel B's Navigation Officer, who was steering, to take avoiding action, Vessel B's Navigation Officer preferred his own judgment and continued navigating by maintaining course and speed.</p> <p>It is somewhat likely that Vessel B's Navigation Officer preferred his own judgment in part because it appeared to him that Vessel A's bearing was moving toward Vessel B's stern and because he normally had a weak awareness of his hierarchal relationship with Vessel B's Master.</p>		
Report	http://www.mlit.go.jp/jtsb/eng-mar_report/2018/2016tk0011e.pdf		
5	Date of Publication	Date and location	Vessel type and name, accident type
	July 26, 2018	May 14, 2017 Kuroshima Fishing Port, Sasebo City, Nagasaki Prefecture	Water taxi SAKURA Contact with a breakwater
	Summary	<p>The vessel, with the skipper and 11 passengers on board, was departing from a pier at Kuroshima Fishing Port, Sasebo City, for Ainoura Port in the same city of Nagasaki Prefecture. The vessel collided with the offshore breakwater in Kuroshima Fishing Port. Two passengers on board the vessel were severely injured, and five suffered minor injuries. The collision caused the outer plate at the bow to collapse and fracture.</p>	



	<p>Probable Causes</p>	<p>This accident occurred when the vessel was departing from Kuroshima Fishing Port at night. The vessel turned left at a point about 10m east of the simple beacon red light on the head of the outer breakwater to pass the offshore breakwater, with the simple beacon light at the west end of the outer breakwater seen on the starboard side. At that time, the skipper was watching only visually without monitoring the screens of the radar and GPS plotter. As a result, the skipper could not confirm the location of the offshore breakwater. The skipper also believed one of the fishing lights seen off the starboard bow to be the simple beacon light on the west end of the offshore breakwater. It is probable that the skipper misidentified the ship position and continued navigation believing the vessel was keeping a course passing west of the offshore breakwater. As a result, the vessel collided with the offshore breakwater. It is probable that the reason why the skipper was watching only visually was that he thought watching only visually without monitoring the screens of the radar and GPS plotter would be better in promptly responding to other vessel movements in a narrow path such as in a port.</p>	
	<p>Report</p>	<p>http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-7-1_2017tk0008.pdf</p>	
<p>6</p>	<p>Date of Publication</p>	<p>Date and location</p>	<p>Vessel type and name, accident type</p>
	<p>August 30, 2018</p>	<p>August 7, 2017 Outside of Takuma Port, Mitoyo City, Kagawa Prefecture (the area outside of the port boundary)</p>	<p>Cargo ship ASIAN BEAUTY (Vessel A, Panama) Liquefied gas bulk carrier ZEUS (Vessel B) Collision</p>
	<p>Summary</p>	<p>While anchored with a single anchor, the Vessel A, which had a master and 20 crewmembers on board, dragged anchor. Although the anchor was heaved up and let go again, the Vessel A could not be helped from becoming un-maneuverable. the Vessel A drifted in the current, and suffered a dent, etc. to her front port, and the Vessel B suffered a dent, etc. on her starboardside bow.</p> <p>There were no injuries or fatalities for either ship.</p>	
	<p>Probable Causes</p>	<p>It is probable that, when the storm warning was issued in SETO NAI KAI, including off the north coast of Shikoku, due to incoming Typhoon 5, the Vessel A dragged anchor while it was anchored with a single anchor, waiting at Takuma Port for its cargo. Master of the Vessel A, instead of evacuating to a safe area, heaved up the anchor and returned to the anchoring area at 275° of and about 1,500m from the Mitamaiwa light beacon, which was directed by an agency of the Vessel A, to reset the anchor, but that didn't work. While the anchor was lifted, the Vessel A became un-maneuverable and drifted; as a result, it collided with the the Vessel B.</p> <p>It was probable that Master of the Vessel A returned to the position 275° of and about 1,500m from the Mitamaiwa light beacon, which was directed by an agency of the Vessel A, to retry anchoring instead of evacuating to a safe area because he didn't understand anchoring, by itself, would not provide a sufficient escape from the adverse weather.</p> <p>It was probable that the Vessel A dragged anchor because, even though Master of the Vessel A received information about the predicted stormy weather due to incoming Typhoon 5, he didn't know the required length of anchor chain extension nor measures against strong wind and continued to be anchored with single anchor.</p> <p>In the area crowded with many other anchored ships, Master of the Vessel A had retried to anchor the Vessel A, but he was unsuccessful. So, he used the engine from dead slow ahead to slow ahead, in a low load operation. It is probable that as a result, the Vessel A lost control of its attitude and became un-maneuverable.</p>	
			

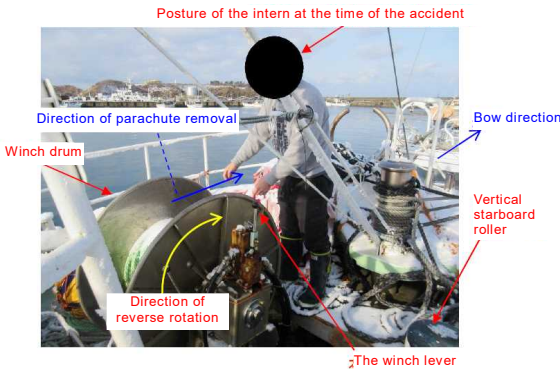
	Report	http://www.mlit.go.jp/jtsb/eng-mar_report/2018/2018tk0006e.pdf	
7	Date of Publication	Date and location	Vessel type and name, accident type
	September 27, 2018	July 31, 2015 Off the south coast of Tomakomai Port, Tomakomai City, Hokkaido	Passenger ferry SUN FLOWER DAISETSU Fire
	Summary	<p>The vessel, with the master and 22 other crew members, 71 passengers, and 160 vehicles on board, departed Oarai Port, Oarai Town, Ibaraki Prefecture, for Tomakomai Port, Tomakomai City, Hokkaido. When heading north off the south coast of Tomakomai Port, the vessel had a fire break out on the second deck.</p> <p>On the vessel, despite the effort of crew members in extinguishing the fire, it spread to the extent that the master had to order to abandon ship. Other passenger ferries that came to the rescue of the vessel rescued all the passengers and crew members except the second officer. The second officer was missing. But he was found on the second deck on August 3, confirmed dead.</p> <p>The vessel was then towed to Hakodate Port, Hakodate City, Hokkaido, where carbon dioxide was injected into the vessel to extinguish the fire. Full fire extinguishment was confirmed on August 10.</p> <p>The fire burned out the vessel's decks and hull structures such as the outer plate on the second through fourth decks at the center of the starboard side, as well as the vehicles and other goods loaded on the second and third decks.</p>	
	Probable Causes	<p>When the vessel was heading north for Tomakomai Port off the south coast, this marine accident occurred due to a fire that broke out from the in-vehicle refrigerator unit of a truck loaded at the center of the starboard side on the second deck. It is somewhat likely that this accident occurred because the crew members did not conduct fire extinguishment and prevention of fire spreading appropriately.</p> <p>Concerning the fire from an in-vehicle refrigerator unit, it is somewhat likely that an electric fault occurred at a point where wire connection was made by a method not permitted by the maker's service manual. Still, the cause of the fire was not identified.</p> <p>When finding the fire, the crew members could not appropriately extinguish the fire using fire extinguishers. It is somewhat likely that because the fire source was inside the cover of the in-vehicle refrigerator unit, they could not discharge extinguishing agents effectively at the fire source.</p> <p>It is somewhat likely that the reasons why the crew members were unable to extinguish the fire and prevent fire spreading by discharging water from fire-fighting hoses included the following. (1) They did not conduct a systematic fire-fighting operation by wearing firefighting outfits. (2) The crew members did not know how to use the stationary pressure water-spraying unit well, and they sprayed water into five sections, which was beyond the capability of the pump. (3) Furthermore, they did not secure the additional space needed for a safe and appropriate fire-fighting operations.</p> <p>It is somewhat likely that the reason why the crew members could not appropriately extinguish the fire and prevent fire spreading was the lack of practical education and training by MOL Ferry Co., Ltd. for its crew members.</p> <p>The second officer died due to this fire accident. It is probable that he walked into the downwind side and inhaled carbon monoxide while fulfilling his responsibilities at the dangerous fire site, such as looking for missing deckhands.</p> <p>It is somewhat likely that if MOL Ferry Co., Ltd. had provided education on the danger of toxic gases in the event of a fire, the second officer could have understood the dangerous situation better.</p> <div data-bbox="778 869 1410 1254" style="display: flex; flex-wrap: wrap;">     </div>	

	Report	http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-9-1_2015tk0005.pdf http://www.mlit.go.jp/jtsb/ship/p-pdf/MA2018-9-1-p.pdf (presentation material) See Page 48 of “Feature 2: Summaries of Major Marine Accident Investigation Reports (case studies)”	
8	Date of Publication	Date and location	Vessel type and name, accident type
	October 25, 2018	April 24, 2017 Berth No. 16, Hakozaki Wharf, Hakata Port, Fukuoka City, Fukuoka Prefecture	Cargo Ship TAI YUAN (Belize) Fire
	Summary	The Vessel, with a master and ten other crew members aboard, was waiting to begin loading of waste metal and other miscellaneous scrap at the No. 16 Berth of Hakozaki Wharf, Hakata Port, Fukuoka City, Fukuoka Prefecture, a fire broke out in the aft cargo hold. On the following day, April 25, the ship foundered during firefighting and became a total loss. An oil spill occurred, but there were no fatalities or injuries.	
	Probable Causes	It is probable that the accident occurred when, as the Vessel was moored for the purpose of cargo-handling at Hakata Port, a fire that broke out within the scrap loaded into the aft cargo hold spread because firefighting by water-spraying was ineffective and appropriate firefighting methods using the Vessel’s carbon dioxide gas firefighting equipment were not employed. It is probable that effective firefighting methods using the carbon dioxide gas firefighting equipment were not employed because the Master did not think of using the carbon dioxide gas firefighting equipment. It is probable that the Master did not think of using the carbon dioxide gas firefighting equipment because he did not have experience with fire drills for a fire in the Vessel’s cargo holds and because the Vessel and Company A did not share information on effective firefighting methods for times of fire. It is somewhat likely that firefighting by water-spraying was not effective because the sprayed water was blocked by the scrap’s surface layer and did not reach the fire’s origin. Regarding the fire that broke out inside the scrap, it is somewhat likely that a spark created by contact between metal objects, a battery, etc., was the source of the fire, and that the source ignited combustible material. However, it was not possible to determine the circumstances leading up to the fire.	
	Report	http://www.mlit.go.jp/jtsb/eng-mar_report/2018/2017tk0007e.pdf See Page 51 of “Feature 2: Summaries of Major Marine Accident Investigation Reports (case studies)”	
9	Date of Publication	Date and location	Vessel type and name, accident type
	October 25, 2018	February 11, 2017 On the southwest coast of the Suwanosejima Island, Toshima-mura, Kagoshima Prefecture	Oil Tanker SAGAN (Panama) Grounding
	Summary	The Vessel, with 18 crews, including the master, became unable to start and drifted due to failures in the main engine while heading northeast off the western coast of the Noma Peninsula, Satsuma-shi, Kagoshima Prefecture. She grounded on the southwest coast of the Suwanosejima Island, Toshima-mura, Kagoshima Prefecture. The Vessel was completely destroyed with cracks, etc. on the bottom shell, but there were no casualties.	



	Probable Causes	<p>It is probable that in the accident, while heading northeast in the East China Sea, the Vessel became unable to operate because the main engine could not be started due to the impossibility of repairing failures and that the Vessel continued drifting and was pushed to flow toward east-southeast by strong wind and waves and grounded.</p> <p>It is probable that the main engine could not be started to start because it became impossible to keep the piston and the cylinder liner airtight due to excessive abrasion and breakage of the piston rings that were in use.</p> <p>It is probable that the Vessel continued drifting because she was not rescued due to heavy weather though the master called Company A and the agency for a rescue when the Vessel approached the site of occurrence of the accident.</p>	
	Report	http://www.mlit.go.jp/jtsb/eng-mar_report/2018/2017tk0006e.pdf	
10	Date of Publication	Date and location	Vessel type and name, accident type
	December 20, 2018	July 26, 2017 Hanshin Port Kobe District 6 Kobe Airport east approach light beacon	Passenger ship SORA Contact with an approach light beacon
	Summary	<p>The vessel, with the master, the chief engineer, and 29 passengers on board, departed from the Kaijo Access Terminal of Senshu Port, heading north for a pier at the Kobe Airport Kaijo Access Terminal in Hanshin Port Kobe District 5. Then the vessel collided with the Kobe Airport east approach light beacon in Hanshin Port Kobe District 6.</p> <p>On the vessel, four passengers were severely injured, and 21 passengers and two crew members suffered minor injuries. The hull suffered collapses and other damage to the portside bow area. The Kobe Airport east approach light beacon suffered abrasions to the support legs.</p>	
	Probable Causes	<p>It is probable that this accident occurred in the following situation. At night, the beacon of the Kobe Airport east approach light beacon E2 was difficult to see due to the illuminating lights at Port Island's container terminal in the background. The vessel was heading north in Hanshin Port Kobe District for a pier at Kobe Airport Kaijo Access Terminal in Hanshin Port Kobe District 5. The master was watching only visually without monitoring the radar installed on the port side of the steering stand and the GPS plotter with overlaid radar images. The master did not notice that the vessel was heading for the Kobe Airport east approach light beacon, then the ship collided with the beacon.</p> <p>It is probable that the reasons why the master was watching only visually without monitoring the radar installed on the port side of the steering stand and the GPS plotter with overlaid radar images were as follows. (1) The master was chatting with the chief engineer. (2) He had been able to see in the past the light of the Kobe Airport east approach light beacon E2 when approaching the lighthouse.</p> <p>By leaving ship steering to the chief engineer, the master was handling his smartphone. The master kept chatting with the chief engineer, and he was watching only visually without monitoring the radar installed on the port side of the steering stand and the GPS plotter with overlaid radar images. Paying less attention to return the vessel into the reference route, the master navigated the ship on the west side of the reference route without displaying it on the GPS plotter with overlaid radar images. Furthermore, the chief engineer transferred ship steering to the master without sharing information about the light beacon E2, and he was checking records in the engine logbook without watching the bow direction. It is probable that such behavior shows a lack of discipline in the vessel's wheelhouse, which was attributable to the occurrence of this accident.</p> <p>One of the reasons why the discipline in the wheelhouse was not maintained was that OM Kobe Co., Ltd. had not defined and disseminated the specific details of the standard arrangement of mariners on watch duty that the Safety Management Rule requires to be stipulated. At the same time, there was not enough safety education and training to learn the</p>	




		<p>importance of ship navigation. Those include watching with the help of the radar installed on the port side of the steering stand and the GPS plotter with overlaid radar images, sharing the same information among crew members, and navigating along reference routes as much as possible. Based on this information, it is probable that the safety management of OM Kobe Co., Ltd. was not working effectively, which was attributable to the occurrence of this accident.</p> <p>There were many injuries, including those who suffered severe injuries. It is probable that many passengers did not wear seat belts.</p> <p>The collision caused the passengers to be thrown in the bow direction, hitting themselves against the front chairs. It is somewhat likely that the chairs that came off the floor contributed to this magnitude of human damage.</p>	
	Report	<p>http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-12-1_2017tk0010.pdf http://www.mlit.go.jp/jtsb/ship/p-pdf/MA2018-12-1-p.pdf (presentation material) See Page 52 of “Feature 2: Summaries of Major Marine Accident Investigation Reports (case studies)”</p>	
11	Date of Publication	Date and location	Vessel type and name, accident type
	December 20, 2018	July 31, 2017 Off the east-northeast coast of Rebun Island, Rebun Town, Hokkaido	Fishing vessel EIFUKUMARU Injury of a crew member
	Summary	<p>The vessel, with the skipper, deckhands, and a technical intern on board, was fishing for squid off the east-northeast coast of Rebun Island, Rebun Town, Hokkaido. The technical intern was caught in a winch drum and was severely injured.</p> 	
	Probable Causes	<p>This accident occurred when the vessel was lifting a parachute sea anchor at night off the east-northeast coast of Rebun Island. It is probable that the technical intern had his right hand caught between the winch drum and the parachute.</p> <p>It is somewhat likely that the reason why the technical intern had his right hand caught between the winch drum and the parachute was that he rotated the winch drum rapidly in the winding direction while gripping the parachute with the right hand.</p> <p>The technical intern had been on board the vessel for about ten days before this accident in which he rotated the winch drum rapidly in the winding direction. The technical intern was unable to communicate well with other people in Japanese, and the skipper was instructing and coaching him in Japanese with gestures. The technical intern was not proficient in the operation to remove the wound parachute from the winch drum. As such, it is somewhat likely that the technical intern was not fully aware of the danger of the operation.</p> <p>Not knowing the provisions in Article 28 of the Rules for Seafarers Labour Safety and Health, the skipper had the technical intern conduct the operation to remove the wound parachute from the winch drum. It is probable that this situation was attributable to the occurrence of this accident.</p>	
	Report	<p>http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-12-2_2018tk0011.pdf</p>	
12	Date of Publication	Date and location	Vessel type and name, accident type
	December 20, 2018	October 23, 2017 Fushiki-Toyama Port, Toyama Prefecture	Cargo Ship REAL (Togo) Grounding

Summary	<p>While moored at Public Berth No. 1, Toyama Section, Fushiki-Toyama Port, the Vessel received the effects of wind and waves occurring with the approach of Typhoon No. 21. Her mooring rope broke and she drifted within the port. Subsequently she attempted to proceed toward the port's exterior using her engine, however ship maneuvering became difficult and, she ran aground on tetrapods on the east side of the Toyama West Breakwater on the opposite bank of the berth.</p> <p>The Vessel's engine room and other areas flooded and she became a total loss. However, there were no fatalities or injuries among her crew.</p>
Probable Causes	<p>It is probable that, while the Vessel was moored at Public Berth No. 1, near the port's entrance of Toyama Section, Fushiki-Toyama Port at night, under conditions in which Typhoon No. 21 was approaching, she drifted within the port because her mooring ropes broke and subsequently, although she attempted to head outside of the port using her engine, she came under the effects of the wind and waves, ship maneuvering became difficult, and she drifted and ran aground on tetrapods.</p> <p>It is probable that the Vessel's mooring ropes broke because she received the effects of the wind and waves that expedited the hull's motion for the reason that she was using mooring ropes with reduced strength that resulted from fatigue degradation and age degradation, and consequently load that exceeded the strength of the mooring ropes being used was applied to them.</p> <p>It is somewhat likely that, although he added additional mooring ropes, the Master's use of multiple mooring ropes of different diameters together and mooring of the Vessel with ropes made slack contributed to the breaking of the mooring ropes.</p>
Report	<p>http://www.mlit.go.jp/jtsb/ship/rep-acci/2018/MA2018-12-3_2017tk0013.pdf</p>



Marine serious incident reports published in 2018

1	Date of Publication	Date and location	Vessel type and name, incident type
	January 25, 2018	January 11, 2017 Off the north of Oshima Island, Munakata City, Fukuoka Prefecture	Cargo ship TONG DA (flag state: unknown) Loss of control (hull list)
	Summary	<p>While the Vessel was proceeding east-northeast in Genkai-nada, with a master and 13 other crew members onboard, her hull listed to port and she was intentionally run aground.</p> <p>The Vessel had seawater damage to her engine, cargo, etc.</p>	
	Probable Causes	<p>It is probable that the incident occurred because, as the Vessel was proceeding east-northeast while being subjected to wind and waves from her port side in Genkai-nada while in a state in which she was listing by approximately 3° after cargo in her No. 2 cargo hold shifted to the port side due to her hull's rolling, seawater that was washing up flooded the No. 2 cargo hold because the weathertightness of the upper deck was not being properly maintained and as a result the Vessel listed approximately 10° to port.</p>	
	Report	<p>http://www.mlit.go.jp/jtsb/eng-mar_report/2018/2017tk0002e.pdf</p>	
2	Date of Publication	Date and location	Vessel type and name, incident type
	May 31, 2018	February 9, 2017 Off the northwest coast of Tatsushima,	Liquefied gas bulk carrier ZUIYOMARU Loss of control (broken intermediate shaft)

	Suo-Oshima Town, Yamaguchi Prefecture	
Summary	The vessel, with the master and eight other crew members on board, was heading west-southwest for Tokuyama Kudamatsu Port, Yamaguchi Prefecture. Off the east coast of Okikamurojima, Yamaguchi Prefecture, the vessel found the oil box of the controllable pitch propeller swinging and oil leaking from the same place. As an emergency measure, the vessel stopped its main engine and cast anchor in Agenosho Bay, Yashirojima, Yamaguchi Prefecture. The vessel had the intermediate shaft broken. The ship also had one of the four mounting bolts for the oil box of the controllable pitch propeller broken, and the other three bolts were loosened.	
Probable Causes	<p>It is probable that the incident occurred in the following situation. The vessel was heading west-southwest at night off the east coast of Okikamurojima for Tokuyama Kudamatsu Port. The vessel had the intermediate shaft broken, and the box of the controllable pitch propeller was swinging, and hydraulic oil was leaking from the box. In Agenosho Bay, where the vessel cast anchor, the vessel lost control as the controllable pitch propeller became uncontrollable.</p> <p>It is probable that the intermediate shaft broke for the following reason. A crack propagated due to vibration, aging, and other reasons from a place that is difficult to check from the outside. The swinging box of the controllable pitch propeller was attributable mainly to the broken intermediate shaft that was swinging. It is somewhat likely that the insufficient strength of mounting bolts and nuts also contributed to this accident.</p>	
Report	http://www.mlit.go.jp/jtsb/ship/rep-inci/2018/MI2018-5-1_2018tk0001.pdf	

9 Actions taken in response to recommendations and opinions in 2018

Actions taken in response to recommendations were reported with regard to accidents and marine serious incident in 2018. Summaries of these reports are as follows.

(1) Contact of passenger ship BEETLE with marine creature

(Recommendations on July 27, 2017)

The Japan Transport Safety Board investigated an accident in which a passenger ship, BEETLE, collided with a marine creature off the northwest coast of Kamijima, Tsushima City, Nagasaki Prefecture, on January 8, 2016. On July 27, 2017, the JTSB released a report on the investigation and made recommendations to JR Kyushu Jet Ferry Inc. The Board received a report (completion report) on what measures the company had taken, as follows, based on the recommendations.

● Summary of accident

Passenger ship BEETLE, with the master, the first officer and five other crew members, and 184 passengers on board, lifting its hull above the sea level with the help of lift force generated by the hydrofoil wings, was navigating at a ground speed of about 40 knots off the northwest coast of Kamijima, Tsushima City, Nagasaki Prefecture, from Busan Port, South Korea, for Hakata Port, Fukuoka City, Fukuoka Prefecture. Around 09:54 on January 8, 2016, the vessel collided with a marine creature.

On BEETLE, three passengers suffered severe injuries such as lumbar compression fractures, and four passengers were slightly injured. At the same time, two cabin attendants suffered minor injuries. Because the shock absorber unit at the bow was stretched out, the vessel returned to Busan Port in hullborne mode.

- Probable causes

This accident occurred in the waters that JR Kyushu Jet Ferry Inc. set off the northwest coast of Kamijima on January 4, 2016, to instruct the implementation of decelerated navigation as part of the safety measures against collisions with whales and other marine creatures. It is probable that when navigating at its cruising speed (40 knots), BEETLE found a marine creature at an extremely close range and collided with it, even though its course was changed to avoid a collision.

While navigating at cruising speed, BEETLE found the marine creature only at an extremely close range. The master of BEETLE should have instructed cetacean-cautious maneuver or stepped up the level of watching, including decelerated navigation at a speed of 36 to 38 knots, stepped-up watching over marine creatures by four persons of the master, chief engineer, chief officer and first engineer, suspension of wagon sales, seating of cabin attendants, and a cabin announcement asking passengers to wear seat belts. It is somewhat likely that failure to conduct all of these contributed to the occurrence of this accident.

The master of BEETLE did not provide instructions on cetacean-cautious maneuver for the following reasons. (1) JR Kyushu Jet Ferry Inc. did not define and disseminate guidelines for cetacean-cautious maneuver in the Rules for Safety Management. (2) The ferry company told the master the tolerable length of delay time due to the implementation of decelerated navigation. (3) The company did not monitor the status of cetacean-cautious maneuver, either. It is probable that all of these contributed to the occurrence of this accident.

- Recommendations for JR Kyushu Jet Ferry Inc.

BEETLE collided with a marine creature when navigating at its cruising speed in the waters that you set on January 4, 2016, to instruct the implementation of decelerated navigation as part of the safety measures against collisions with whales and other marine creatures. In this accident, it is probable that the passengers who did not wear seat belts appropriately, the passengers who wore seat belts but set up foldable tables, and the cabin attendants who were selling goods on wagons suffered injuries.

It is probable that the following contributed to the occurrence of this accident. (1) You did not define and disseminate in the Rules for Safety Management guidelines for cetacean-cautious maneuver such as decelerated navigation, stepped-up watching over marine creatures, the suspension of wagon sales, and the need for passengers to wear seat belts. (2) You told the master the tolerable length of delay time due to the implementation of decelerated navigation. (3) You did not monitor the status of cetacean-cautious maneuver, either.

To ensure the safety of passenger transportation based on the results of this marine accident investigation, the Japan Transport Safety Board (JTSB) makes the following recommendations to you in accordance with the provisions in Article 27 (1) of the Act for Establishment of the Japan Transport

Safety Board.

At the same time, under Article 27 (2) of this Act and based on these recommendations, the JTSB demands reports from you on the measures you have taken.

Notes

You must take the following measures to ensure the safety of passenger transportation.

- (1) You must stipulate the implementation of cetacean-cautious maneuver in the Rules for Safety Management.
- (2) You must make sure that your vessels implement cetacean-cautious maneuver in the waters that you set for decelerated navigation.
- (3) You must construct a management framework that enables the monitoring of how well your vessels are implementing cetacean-cautious maneuver.
- (4) You must improve the conditions in the passenger cabin by applying cushioning material and encouraging the retraction of foldable tables during cetacean-cautious maneuver.

● The measures JR Kyushu Jet Ferry Inc. has taken based on these recommendations (completion report)

Recommendation (1): You must stipulate the implementation of cetacean-cautious maneuver in the Rules for Safety Management.

Completion report:

We added new items to the Rules for Safety Management, including the issuance of the specification for the waters of decelerated navigation and the implementation and watching of cetacean-cautious maneuver. We also added an item concerning cetacean-cautious maneuver to the operational standards and others stipulated in the Rules for Safety Management. We submitted these changes to the Kyushu District Transport Bureau on September 21, 2017. The bureau accepted them.

Change Notification of the Rules for Safety Management (Appendix 1)

Recommendation (2): You must make sure that your vessels implement cetacean-cautious maneuver in the waters that you set for decelerated navigation.

Completion report:

- We will continue to disseminate Whale-Watching Information via e-mail distribution using information sharing terminals. Also, we have decided to distribute the Specification for the Waters of Decelerated Navigation that describes the waters of decelerated navigation, the subject period, and other information to make what each vessel should do more precise.
- According to the Safety Management Manual stipulated in Article 12 (2) of the Enforcement Regulation of the Ship Safety Act, we decided to disseminate the implementation of cetacean-cautious maneuver in the Safety Management Committee, which is held at least twice a year.

Participants in the Safety Management Committee:

Executive Officer (President), Committee Chairperson (Safety Manager), Vice Chairperson (Deputy Safety Manager), Regular Committee Members (Masters, Chief Engineers, and

Maintenance Center Chief), and Special Committee Members (Managing Director and Directors)

Accomplishments:

October 17, 2017

37th Safety Management Committee: Dissemination of Revisions to the Rules for Safety Management associated with the JTSB recommendations

April 5, 2018

38th Safety Management Committee: Dissemination of the thorough implementation of cetacean-cautious maneuver

- When cetacean-cautious maneuver does not seem to be adequately implemented, the navigation manager or the deputy will call or visit the vessel to provide necessary instruction.

Recommendation (3): You must construct a management framework that enables the monitoring of how well your vessels are implementing cetacean-cautious maneuver.

Completion report:

- The operation manager or operation management staff will check the status of each vessel's decelerated navigation based on the information obtained from the Automatic Identification System (AIS) on PC monitors in the office. (Appendix 2)
- In November 2017, we revised the format of the specification for the waters of decelerated navigation (Appendix 3), adding new check columns for the following action items. The master must fill the columns after checking the implementation of each vessel's decelerated navigation. The operation manager or the deputy will check the status of decelerated navigation as needed. 1) Decelerated navigation, 2) stepped-up watching, 3) suspension of wagon sales, and 4) seat belt wearing and the retraction of foldable tables.

Recommendation (4): You must improve the conditions in the passenger cabin by applying cushioning material and encouraging the retraction of foldable tables during cetacean-cautious maneuver.

Completion report:

- In May 2018, we replaced the material of all the upper armrests of the green seats with cushioning material. (Appendix 4)
- Ten minutes before starting decelerated navigation, we ask our passengers to retract foldable tables through a cabin announcement. Additionally, when patrolling the passenger cabin, the first officer or cabin attendants will directly advise the passengers who are using tables to retract them. To encourage our passengers to retract foldable tables, we installed a drink holder in each seat. (Appendix 5)

*The details in our completion reports, including Appendixes in the attachment, are posted on the website of this Board.

http://www.mlit.go.jp/jtsb/shiphoukoku/ship-kankoku17re-2_20180626.pdf

(2) Opinions concerning the rescue of fishing passengers of recreational fishing vessels and fishing ferries who fall into the sea

(Opinions made on February 22, 2018)

Please refer to “2. Opinions, Chapter I Summary of Recommendations and Opinions Made in 2018” ((4) in Page 81)

(3) Opinions concerning the prevention of collision accidents involving recreational fishing vessels

(Opinions made on July 24, 2018)

Please refer to “2. Opinions, Chapter I Summary of Recommendations and Opinions Made in 2018” ((5) in Page 86)

10 Provision of factual information in 2018 (marine accidents and incidents)

The JTSB provided factual information on four cases (marine accidents) to relevant administrative organs in 2018. The details are as follows.

(1) Information provided on contact accidents of pleasure boats at night

(Information provided on March 6, 2018)

Based on the marine accident investigation reports the JTSB published, the number of marine accidents involving pleasure boats that occurred between 2012 and 2016 was 956 (excluding personal watercraft as well as mini boats, rubber boats, and the like not subject to vessel inspection).

Of the 956 accidents, the number of the accidents of pleasure boats contacting with structures like rafts and breakwaters (hereinafter, “contact accidents”) was 83 over the five years. While this type of accident accounted for 31 cases, or 4.1%, of 749 accidents in the daytime, it accounted for 52 cases, or 25.1%, of 207 accidents at night. This means contact accidents occurred more often at night than in the day by a factor of about 6.1. Therefore, we provided the following information about the status of contact accidents at night to the Ministry of Land, Infrastructure, Transport and Tourism.

1. There were 52 cases of pleasure boat contact accidents at night.
Those accidents are broken down to 11 cases in 2012, 11 in 2013, ten in 2014, eight in 2015, and 12 in 2016.

2. These accidents occurred most frequently in July and August with 14 cases, followed by six cases in October, five in November, and four in September. Such accidents occurred more often in the summer, but did occur throughout the year.

Concerning the time window of the day, these accidents occurred most often during 20:00–21:00 in 11 cases, followed by 21:00–22:00 in ten cases, and 22:00–23:00 in nine cases.

There were 30 cases between 20:00 and 23:00, accounting for more than half the total.

3. The structures against which these pleasure boats collided were oyster and farming rafts in 18 cases, breakwaters, tide embankments, and detached breakwaters in 16 cases, piers and seawalls in five cases, and light buoys and beacon lights in three cases.
4. Many people were killed or injured in 28 accident cases of the 52. Two were killed and 87 suffered injuries. Of those who were injured, 29 suffered severe injuries.

The two died of cardiac rupture, multiple rib fractures, and wound shock.

5. Of the 27 pleasure boats whose purpose of navigation was known, 15 boats went to view fireworks, and 12 for fishing.
6. Of the 32 pleasure boats whose destination was known, 24 boats were on the way back to a port, and eight were departing from a port. The number of boats on the way back to a port after viewing fireworks was 12.
7. Of the 32 boats whose speed at the time of the accident was known, 18 boats were navigating at a speed of 10 knots to less than 20 knots, ten boats less than 10 knots, and four at 20 knots or more.
8. Of the 47 boats whose number of passengers on board was known, 11 boats had three passengers, ten boats had two passengers, six boats had four passengers, and so on. Four boats had ten or more passengers on board.

The boats whose purpose of navigation was viewing fireworks had about 6.7 passengers per ship on board.

9. Of the 29 skippers whose age was known, 13 were in their 50s, six in their 40s, four each in their 30s and 60s, and two in their 70s.

10. Of the 29 skippers whose service year from the license registration to the time of the accident was known, nine skippers served for five years to less than ten years, five skippers for less than five years, four skippers each for ten to less than 15 years, 15 years to less than 20 years, and 30 years or more, and three skippers for 20 years to less than 30 years.

Of the five skippers who served for less than five years, three had served for one to two months after their license registration.

The number of skippers who navigated their boat drunk was two.

The number of skippers who navigated their boat with the license expired was two.

11. The leading factors that led to accidents were as follows.

(1) Beacon lights

- 1) Misreading a beacon light
- 2) Unable to understand the characteristics of a lighthouse

- 3) The beacon light of a lighthouse overlapping with a beacon light
- 4) Unable to check the beacon lights of oyster rafts due to the lights of a town and moonlight reflecting on the sea surface.

(2) GPS plotters

- 1) Not knowing how to adjust the brightness of the screen
- 2) Turning OFF the power because the screen was too bright.
- 3) Not magnifying the screen.
- 4) Believing that navigating along a route recorded in the past would work.
- 5) Handling the boat while inputting the route on the way back.
- 6) The breakwater not being displayed on the screen because the data was not updated.
- 7) Watching visually without using the GPS plotter.

(3) Others

- 1) It was the first navigation at night.
- 2) There were no navigation lights on the vessel.

12. The following are leading measures for preventing a recurrence of these problems described in the investigation reports.

(1) Check the boat position not only by watching visually but also utilizing a GPS plotter.

If you do not understand the port conditions, stop the boat to check everything is alright.

(2) Even if you are navigating in waters you are familiar with, use a GPS plotter and other devices.

(3) When using a GPS plotter, make sure to update the data, master how to use it, and change the scale of the display as needed.

(4) When navigating near an obstacle, look for the scheduled navigation route (barriers and beacon lights) and specify reliable head marks and clearing lines in advance.

*Publication of this information is detailed on the website of this Board.

http://www.mlit.go.jp/jtsb/iken-teikyo/s-teikyo11_20180306.pdf

(2) Information provided on accidents of small fishing vessels

(Information provided on March 6, 2018)

Based on the marine accident investigation reports JTSB published, JTSB analyzed the status of the accidents of small fishing vessels that occurred between 2012 and 2016 as follows. JTSB provided the information to the Japan Fishing Vessel Insurance Association.

1. Accidents in which the fisher fell in the water off a single-handed fishing vessel with a gross tonnage of less than 5 tons

(1) There were 96 cases involving 96 vessels during the period. Those accidents are broken

down to 15 cases in 2012, 26 cases in 2013, 23 cases in 2014, 21 cases in 2015, and 11 cases in 2016.

- (2) These accidents occurred most frequently in February at 15 cases, followed by 12 cases in January, and ten cases each in April, October, and December.
 - (3) A total of 76 fishers were killed in 96 cases. The death of five was acknowledged after they were missing, and 15 were still missing. Of the 76 casualties, 68 died of drowning, two of suffocation, one of hemorrhaging of the brain, one of cervical spine fracture and head bruising, and four died of unknown reasons.
 - (4) The following are the vessel operators whose status was known.
 - 1) Of the 96 vessel operators, 40 operators are in their 70s, 30 in their 60s, 17 in their 80s, seven in their 50s, and so on. There were 70 elderly adults (aged 65 or older).
 - 2) One vessel operator was navigating a small vessel, with his license expired.
 - 3) One vessel operator was unqualified.
 - 4) Of the 95 skippers whose service year from the license registration to the time of the accident was known, 70 skippers served for 30 years to less than 40 years, ten for 20 years to less than 30 years, and eight for 40 years or more, and so on.
 - (5) Of the 78 vessel operators whose status of wearing a life jacket was known when found, 21 wore a jacket, and 57 did not.
 - (6) The following are the leading measures for preventing the recurrence of accidents in which fishers fell in the water off the vessel, and which the investigation reports described.
 - 1) Wear a life jacket correctly.
 - 2) Always carry a waterproof mobile phone (or a mobile phone in a waterproof pack) as a communication means for when you fall in the water.
 - 3) If your vessel's performance is not high enough to navigate safely on the day, put off going fishing.
 - 4) Install a portable emergency communication device to your vessel.
 - 5) Install an emergency engine stop device or the like to your vessel.
2. Accidents in which a vessel operator drowsily navigated a fishing vessel with a gross tonnage of less than 20 tons
- (1) There were 137 cases involving 137 vessels during the period. Those accidents are broken down to 24 cases in 2012, 32 cases in 2013, 25 cases in 2014, 36 cases in 2015, and 20 cases in 2016.
 - (2) Of the 137 accidents, 65 cases were stranding, 39 were collisions between vessels, 28 were collisions against seawalls, and five were accidents that damaged facilities.
 - (3) These accidents occurred most frequently in May at 19 cases, followed by 15 cases in June, 14 cases in December, and 13 cases in September, and so on.
 - (4) Concerning the time window of the day, these accidents occurred most often at 04:00–05:00 at 15 cases, followed by 05:00–06:00 and 06:00–07:00 each at 14 cases, and

03:00–04:00 at 13 cases.

- (5) Of the accidents whose status of navigation was known, 68 accidents occurred when the vessels were on the way back to the port, and 20 accidents happened when the ships were departing from the port.
- (6) Of the vessels whose status of navigation was known, 115 vessels were on autopilot, and 15 vessels were on manual steering.
- (7) Of the accidents in which an operator drowsily navigated a vessel, 63 cases occurred when returning to the port on autopilot.
- (8) The following are the vessel operators whose status was known.
 - 1) Of the 129 vessels whose status was known, all vessel operators were on watch duty alone.
 - 2) Of the 129 vessel operators, 18 operators were in their 50s, 16 in their 30s, 16 in their 60s, 11 in their 40s, and so on.
 - 3) One hundred twenty operators were navigating their vessels sitting on a chair or the like. Six operators were lying on the floor and the like. Four were standing, and two were leaning against a wall or chair.
 - 4) One vessel operator was navigating the vessel, with his license expired.
 - 5) Seven vessel operators were unqualified.
- (9) The following are significant factors that led to accidents in which an operator drowsily navigated the vessel.
 - 1) Due to continuous operations, the operator felt tired and had a lack of sleep.
 - 2) The operator was working in the same posture, such as sitting on a chair.
 - 3) Because there were no vessels around, the operator felt relaxed.
 - 4) When the vessel approached its destination, the operator felt relaxed.
 - 5) When the vessel came close to the port, the operator thought he would be able to fight off the urge to sleep.
 - 6) The operator was not in good health and was taking medicine.
- (10) The following are the leading measures for preventing the recurrence of accidents in which an operator drowsily navigates the vessel, and which the investigation reports described.
 - 1) Stand away from the chair and always move your body.
 - 2) Breathe in fresh air.
 - 3) Get some rest.
 - 4) Drink coffee and chew a stick of gum.
 - 5) Use a proximity warning device such as radar.
 - 6) Install a bridge navigational watch alarm system.
 - 7) If there are multiple crew members on board, more than one should be on watch duty or change the task in turn.

*Publication of this information is detailed on the website of this Board.

http://www.mlit.go.jp/jtsb/iken-teikyo/s-teikyo12_20180306.pdf

(3) Information provided on anchor dragging accidents and incidents

(Information provided on August 28, 2018)

The above information was distributed to the following entities.

Distribution list

Safety Policy Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism

Navigation Safety Division, Maritime Traffic Department, Japan Coast Guard

Japanese Shipowners' Association

Japan Passengerboat Association

Japan Long Course Ferry Service Association

Japan Federation of Coastal Shipping Associations

Japan Federation of Pilots' Associations

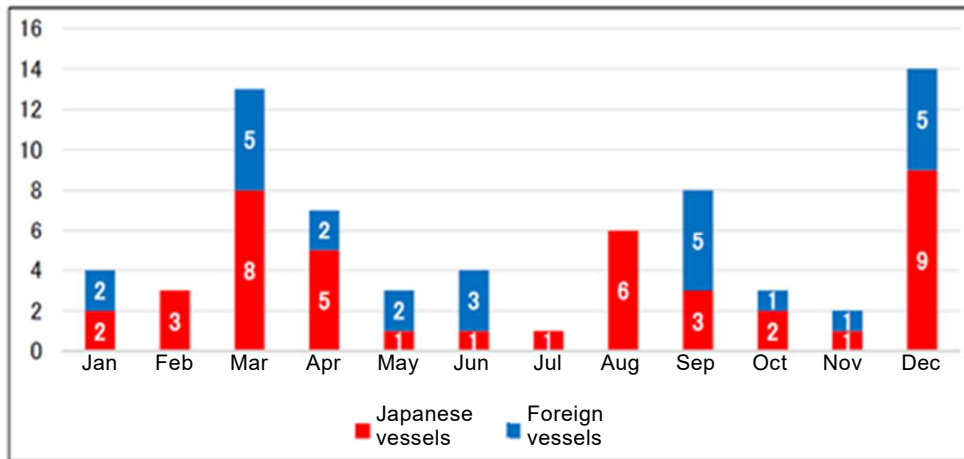
Japan Foreign Steamship Association

Japan Association of Foreign-trade Ship Agencies

Based on the investigation reports that JTSB published from October 2008 to July 2018, the status of the 68 vessels (42 Japanese and 26 foreign) with a gross tonnage of 100 tons or more (excluding pontoons and barges) that experienced anchor dragging accidents and incidents was analyzed as follows.

1. Occurrence of anchor dragging accidents and incidents

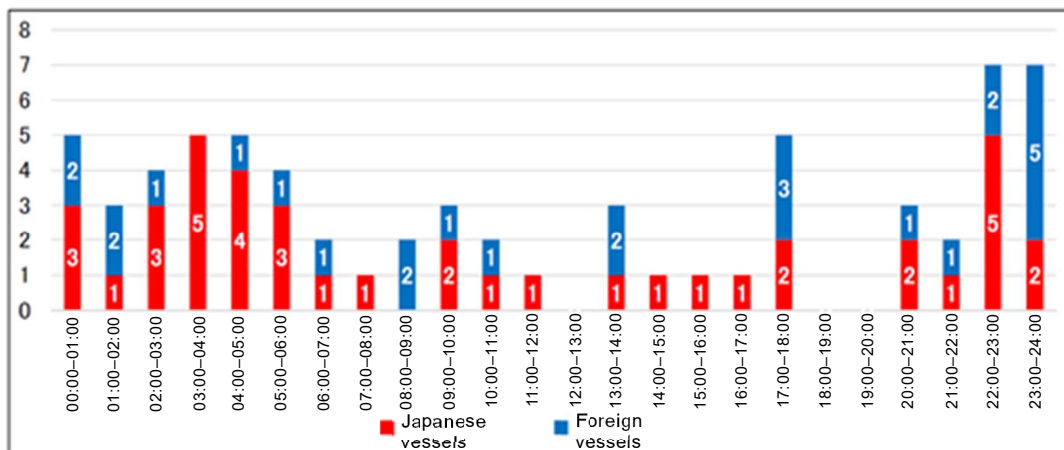
- (1) These accidents and incidents occurred often in March at 13 cases, in August and September each at 15 cases, and in December at 14 cases. In many cases, typhoons caused the accidents and incidents in August and September, and the passage of low-pressure systems explained the accidents and incidents in March and December.



(2) Concerning the time window of the day, these accidents and incidents often occurred during the night and early in the morning from 22:00–23:00 to 05:00–06:00. Of the 19 Japanese vessels whose accidents and incidents occurred from 00:00–01:00 to 05:00–06:00, 15 vessels did not set anchor watch.

The status of the setting of anchor watch was known in about 52 vessels of the 68. Of the 30 Japanese vessels, seven set anchor watch and 23 did not. All the 22 foreign ships set anchor watch.

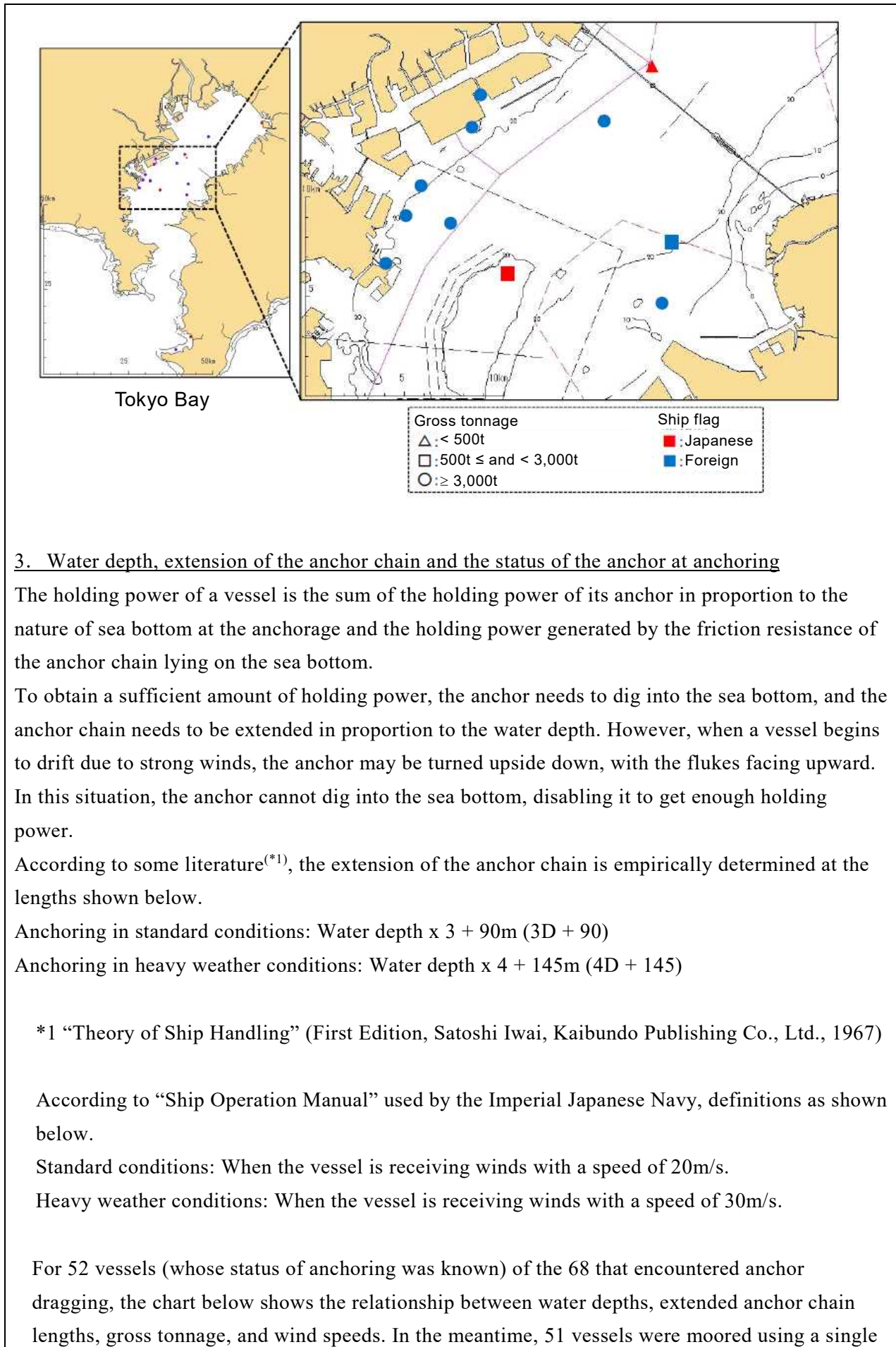
When not setting an anchor watch, the vessel was unable to check its conditions at an early stage. The ship could not get the latest weather and sea conditions, missing the timing of taking measures to prevent anchor dragging and the accident or incident occurred.



2. Location of anchor dragging accidents and incidents

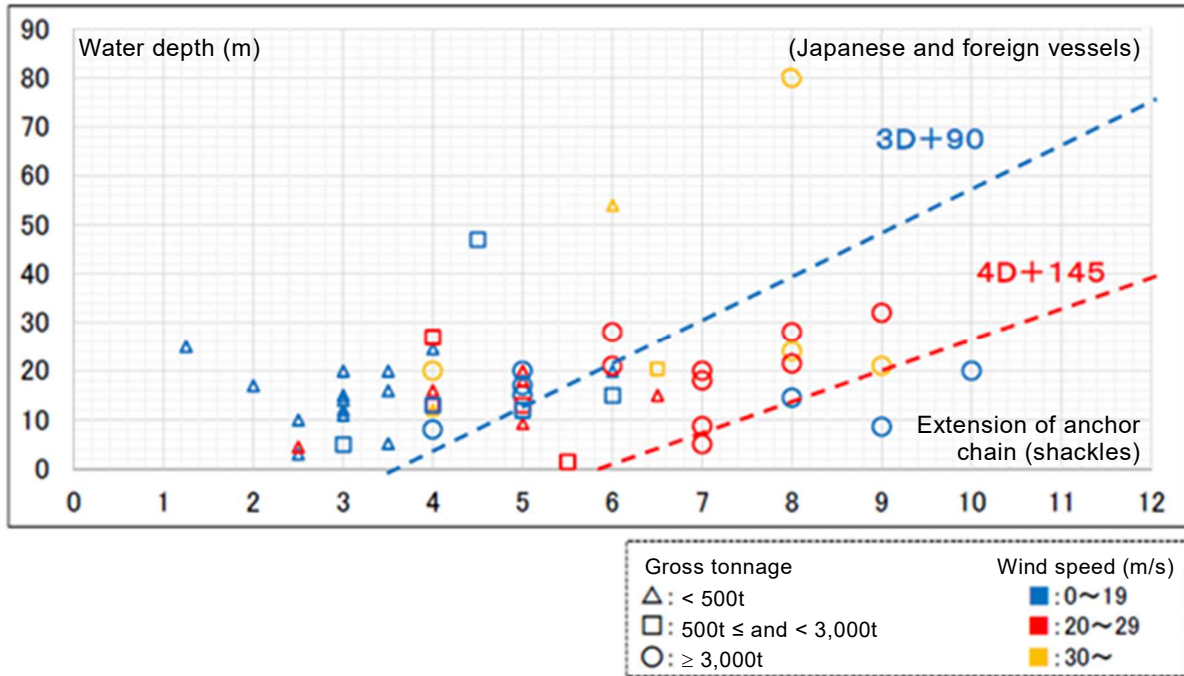
Of the 68 vessels, 15 vessels experienced anchor dragging in Tokyo Bay, three in Beppu Bay, and three in Muroran Port.

Of the 15 vessels that had accidents in Tokyo Bay, 11 experienced anchor dragging near Nakanose, nine of which were foreign ships.



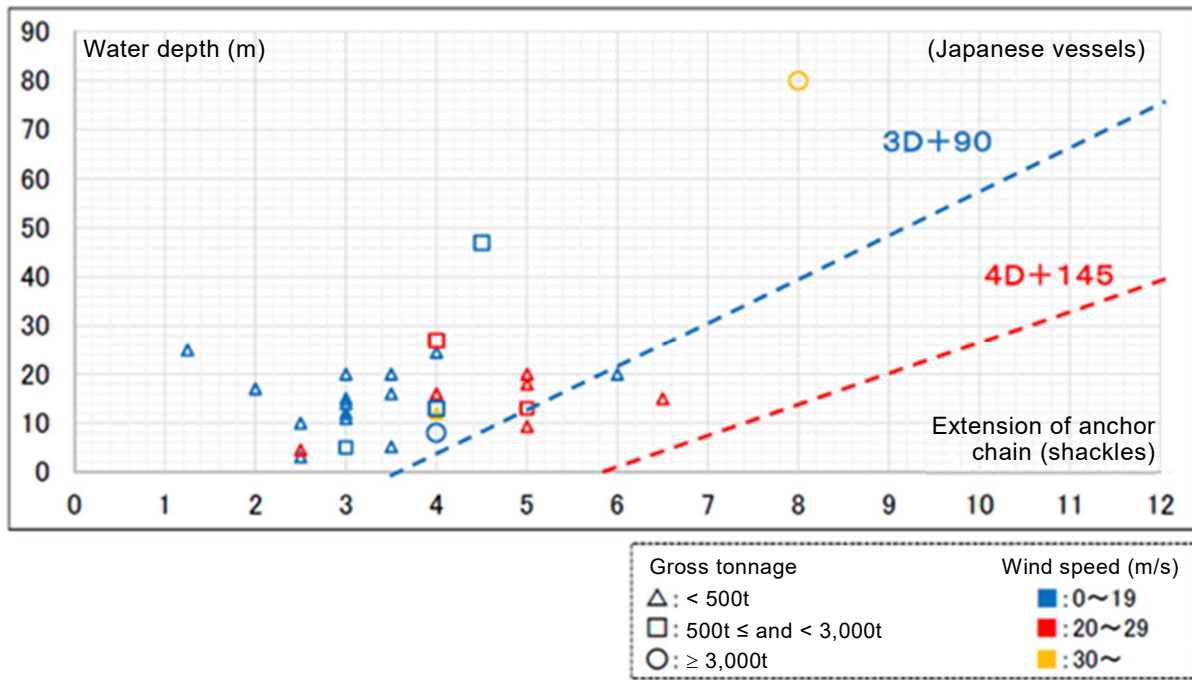
anchor.

In the chart, many of the vessels that dragged anchor are plotted on the left side of the lines representing “3D +90” and “4D + 145,” meaning the extension of anchor chain was too short. The shackle length of anchor chain was set at 25m.



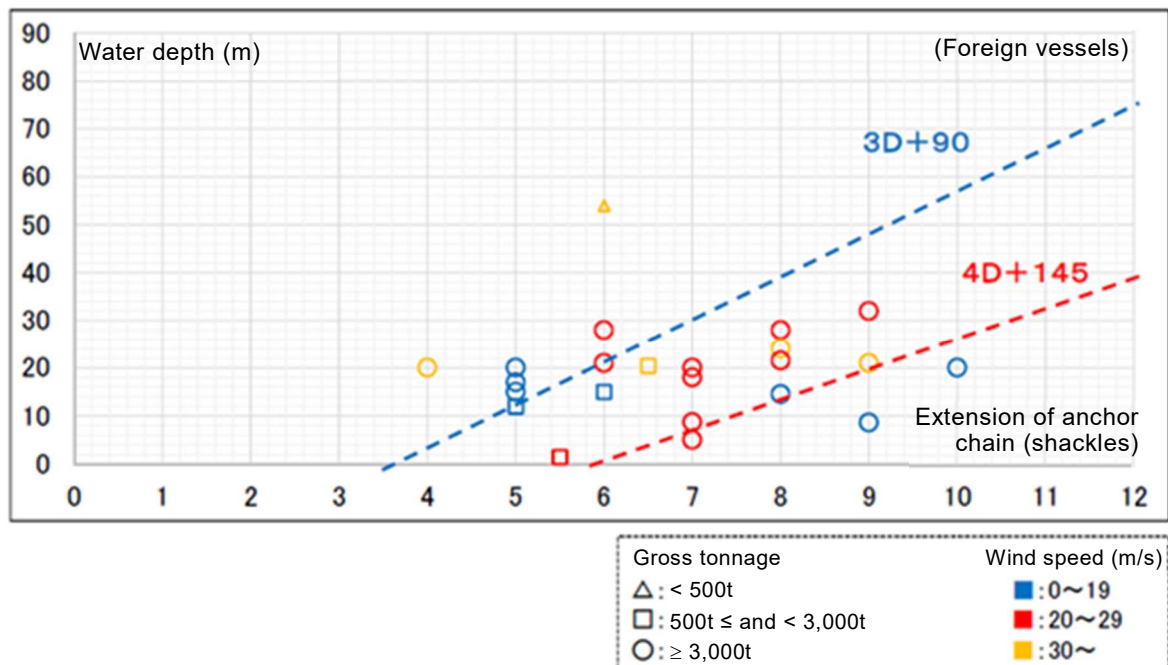
Looking at the 29 Japanese vessels whose situation was found, the largest number of vessels had a gross tonnage under 500 tons and received winds with a speed of 19m/s or less. 25 vessels of the 29 are plotted on the left side of the line representing “3D + 90,” which means their extension of anchor chain was too short.

In the meantime, 28 Japanese vessels were moored using a single anchor.



Looking at the 23 foreign vessels whose situation was found, the largest number of vessels had a gross tonnage of 3,000 tons or more and received winds with a speed of 20m/s or more. 20 vessels of the 23 are plotted on the left side of the line representing “4D + 145,” which means their extension of anchor chain was too short.

In the meantime, all the 23 foreign vessels were moored using a single anchor.



4. Measures for preventing the recurrence of anchor dragging accidents and incidents

The following measures to prevent anchor dragging and other accidents and incidents are recommended.

- (1) Obtain adequate information on weather and sea conditions to conduct the following checks

depending on the expected conditions of weather and sea, the sea area, and the nature of the sea bottom.

- 1) Consider a sufficient amount of anchor chain extension, the use of an anchor for swinging protection, and double-anchor mooring.
- 2) Set an anchor watch
- (2) In the waters congested with many anchoring ships, there may be cases where you are unable to anchor depending on the expected weather and sea conditions, the sea area, and the nature of the sea bottom. In this case, consider changing the anchorage or mooring.
- (3) In a coastal sea area, vessels that may cause anchor dragging should consider installing AIS that allows you to check the ship conditions expeditiously.
- (4) If special instructions for anchor dragging are not fully described in your safety management manuals and procedures for mooring watch, add specific measures against anchor dragging.
- (5) For foreign vessels, the concerned parties such as ship agents should proactively provide weather and sea conditions and other information relating to the anchorage.

*Publication of this information is detailed on the website of this Board.

http://www.mlit.go.jp/jtsb/iken-teikyo/s-teikyo13_20180828.pdf

(4) Provision of information “Measures for preventing anchor dragging accidents in the event of a very strong typhoon (interim report)”

(Information provided on December 20, 2018)

On September 4, 2018, very strong typhoon No. 21 passed through Osaka Bay, and an oil tanker anchored in the bay dragged anchor and ended up colliding against the Kansai International Airport Access Bridge. Furthermore, on October 1, 2018, when strong typhoon No. 24 passed the Kanto region, a foreign cargo vessel anchored in Tokyo Bay dragged its anchor, and it ended up colliding against a quay at Ogishima Keihin Port Kawasaki District. Two major anchor dragging accidents occurred one after another.

On the other hand, JTSB confirmed that despite the trouble these two vessels faced, many ships were anchored safely in Osaka Bay and Tokyo Bay. JTSB conducted a questionnaire survey in what conditions those vessels were and what action they took when the typhoons were approaching and passed, **summarizing the results as reference data, including best job practices**. JTSB would like shipping companies to disseminate this data in their safety training programs etc. to prevent the recurrence of similar accidents.

In its past publications, JTSB introduced the matters identified in the process of accident/incident investigations as well as the analysis results of already published investigation reports. This publication is **JTSB’s “first” attempt to issue the data, including best job practices, based on the information obtained from the vessels and operators that obviated accidents and incidents.**

JTSB will provide this information to the following administrative agencies and interested organizations. JTSB will also post the same information on the website of this Board.

Notes

Administrative agencies: Safety Policy Division, Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism; Navigation Safety Division, Maritime Traffic Department, Japan Coast Guard

Interested organizations: Japanese Shipowners' Association; Japan Passengerboat Association; Japan Long Course Ferry Service Association; Japan Federation of Coastal Shipping Associations; Japan Federation of Pilots' Associations; Japan Foreign Steamship Association; Japan Association of Foreign-trade Ship Agencies

Points of preventing anchor dragging accidents in the event of a very strong typhoon!

Take the following measures to prevent anchor dragging accidents in the event of a very strong typhoon.

1. To prevent anchor dragging, you should adopt a **double-anchoring method in principle**. Take the best possible measures, such as **extending the anchor chain as long as possible and ensuring sufficient amounts of holding and mooring power using the anchor and anchor chain**.

Each vessel should determine the method of anchoring and the extension of the anchor chain depending on the vessel's environment, such as traffic congestion and the nature of the sea bottom.

2. Even if you choose the best anchoring method and anchor chain extension, there may still be a risk of anchor dragging in strong wind if you rely only on the holding and mooring power available from the anchor and anchor chain.

Stand by the engine and use its power depending on the quickly changing wind directions and speeds to prevent anchor dragging. Precisely control the output of the engine depending on the changes in the environment.

3. Even if you take all the measures described in 1. and 2. above, still consider the risk of anchor dragging. **Select an anchorage where there are no critical facilities in the downwind direction, and there is enough distance between other vessels**.

4. When a typhoon is passing, wind directions and speeds will change quickly. You need to **obtain the latest information on weather and sea conditions (of the typhoon)** and accurate forecasts. **It is crucial to consider the exact timing in implementing each measure**.

*The publication of this information (full text) is posted on the website of this Board.

http://www.mlit.go.jp/jtsb/iken-teikyo/s-teikyo14_20181220.pdf

*“The status of vessels in Osaka Bay according to AIS data (excluding vessels staying in Osaka Port, from 11:30–14:30 on September 4, 2018)” is posted on the website of this Board.

<http://www.mlit.go.jp/jtsb/video/ship/2017tk0010-movie.wmv>

Column

Provision of information concerning the prevention of anchor dragging accidents and incidents to relevant administrative agencies and interested organizations

Marine Accident Investigator

“Anchor dragging.” “Is an anchor running?” This term may be unfamiliar to many people other than those involved in the shipping industry. This word reads as “sobyō,” meaning that the anchor is dragged when the external force applied to a vessel exceeds the holding power of the anchor and anchor chain. More simply put, this term means that “a ship mooring with its anchor placed on the sea bottom drifts when affected by winds and other factors.” 2018 marked the year when “anchor dragging” gained prominent attention most.

On August 28, JTSB provided reference data named “Measures to prevent anchor dragging accidents and incidents” to two administrative agencies and seven interested organizations. This reference data is a summary of the essential parts of the investigation reports concerning anchor dragging (for 68 vessels) that JTSB had published in the past.

Just a week later, on September 4, when very strong typhoon No. 21 passed Osaka Bay, an oil tanker was anchored off the southeast coast of the Kansai International Airport. The tanker dragged anchor and collided with the airport access bridge. The damage to the road and railway significantly affected access to the airport. Using the data from the Automatic Identification System (AIS), JTSB confirmed that 54 vessels were anchored in Osaka Bay in the strong winds caused by this typhoon (excluding vessels in ports). For this reason, JTSB decided to survey what measures the vessels that obviated accidents took when the typhoon was approaching and passed. JTSB started with a questionnaire survey, and it analyzed the replies from 28 vessels and AIS data. (JTSB did this practice for the first time, and had to ask additional questions two or three times, causing the vessels and operators inconvenience.) Furthermore, strong typhoon No. 24 passed the Kanto region from September 30 to October 1. A foreign cargo vessel anchored off Daikoku Wharf at Keihin Port Yokohama District dragged anchor and collided with the quay at Ogishima. According to AIS data, JTSB confirmed the presence of 420 vessels in Tokyo Bay (excluding those moored at quays). JTSB decided to conduct additional analysis based on a questionnaire survey for 65 vessels. Thanks to the cooperation of 93 vessels (84 Japanese and nine foreign) and the operators that participated in the questionnaire survey, JTSB published reference data named “Measures for preventing anchor dragging accidents in the event of a very strong typhoon (interim report)” on December 20. The Board provided the data to two administrative agencies and seven interested organizations. When this publication was reported during TV news at 10:00 AM on that day, the Board members and investigators erupted into applause. As a responsible investigator, I actively want this information to spread among those who are navigating vessels in order to prevent accidents. At the same time, I felt a sense of relief. In April 2019, JTSB published the “final report” that contained the case studies of the vessels that obviated accidents in Tokyo Bay.

It was the first time that JTSB surveyed “the vessels that obviated accidents” and prepared/published a safety promotion material. JTSB utilized the concepts and techniques of accident investigation and analysis that it developed in the past. I feel that this publication of information is unique to JTSB that intends to contribute to the prevention of accidents and reduced damage. JTSB will continue to publish useful and timely information from its perspective so that it can contribute to the improved safety of vessel navigation.

Osaka Bay AIS data
(Sep. 4, 2018 13:40-13:45)

