



Marine Accident Inquiry Agency

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Collisions with Fishing Boats under Operation

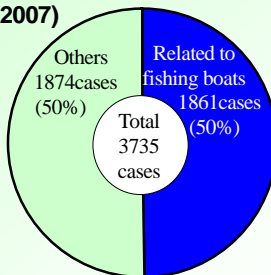
There are a number of collisions between Japanese fishing boats under operation and foreign registered vessels around the coast of Japan every year. In order to prevent similar accident in future, this issue features fishing methods unique to Japan and analysis on actual marine accidents and the lessons learned.

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Collisions with fishing boats under operation around Japan

1,861 marine accidents out of 3,735 (5,447 ships) on which Local Marine Accident Inquiry Agencies passed the judgments from 2003 to 2007 were related to fishing boats, while 132 marine accidents out of 263 involving missing or dead persons were related to fishing boats; in both results, marine accidents involving fishing boats accounted for a half of those accidents.

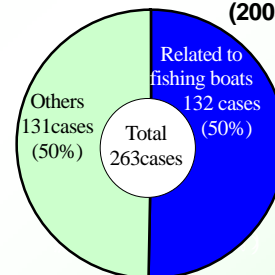
Ratio of marine accidents related to fishing boats (2003-2007)



There are many fishing boat accidents.

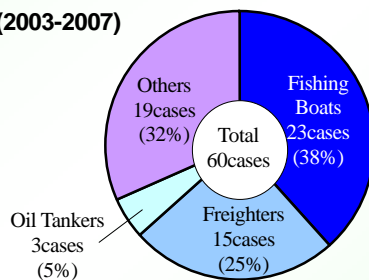


Marine accidents involving missing or dead persons (2003-2007)

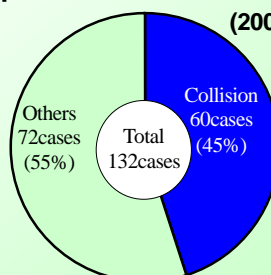


Among 132 marine accidents of fishing boats involving dead or missing persons, 60 were caused by collisions with other vessels within the territorial waters of Japan. Breakdown of vessels type in the other end of collision consisted of fishing boats in 23 accidents, freighters in 15, oil tankers in 3 and others. Regarding the gross tonnage of freighters and oil tankers, there were five ships of less than 500 tons; six ships between 500 and 3,000 tons; six ships between 3,000 and 10,000 tons; and one ship of more than 10,000 tons, **among which ships other than Japanese registry accounted for 11.**

Breakdown of vessels type in other end of collisions (2003-2007)



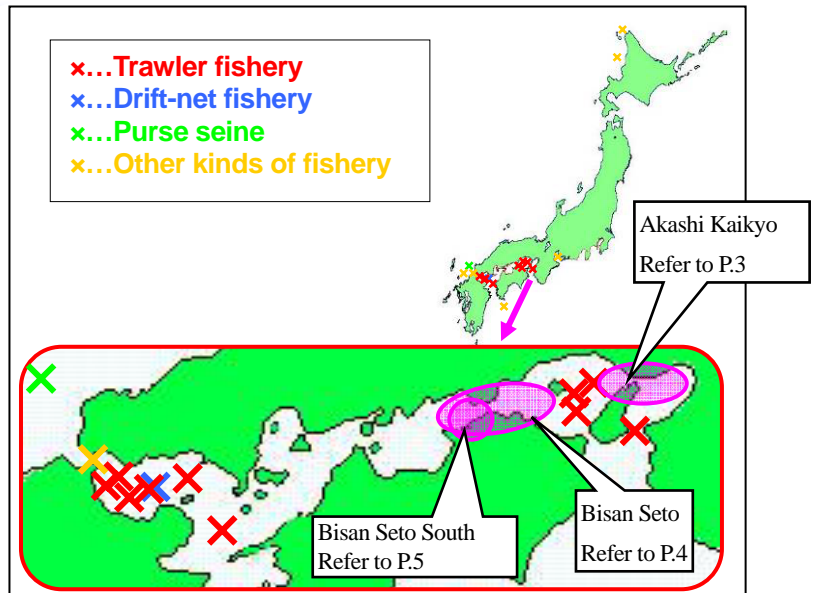
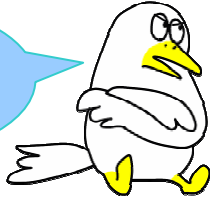
Types of marine accident (2003-2007)



Occurrence Sites

The sites of 18 marine accidents in which fishing boats under operation (including vessels with non-restricted maneuverability) collided with freighters or oil tankers in territorial waters in Japan are shown in the right map. There were no collision accidents in the “traffic route” provided by the Maritime Traffic Safety Law instead collisions frequently occurred in fairways where many ocean going vessels sail frequently.

Pay attention when sailing the Seto Inland Sea as there are many marine accidents!



Obligations of a vessel engaged in fishing for avoiding collisions in accordance with the Japanese domestic law

As COLREG1972, which are international rules for preventing collisions of vessels at sea, stipulate that power-driven vessels underway shall keep out of the way of a vessel engaged in fishing * as shown below. Power-driven vessels are required to pay attention to any vessel engaged in fishing.

* The term “vessel engaged in fishing” means any vessel fishing with nets, lines, trawls or other fishing apparatus which restrict maneuverability, but does not include a vessel fishing with trolling lines or other fishing apparatus which do not restrict maneuverability.

International Regulations for Preventing Collisions at Sea 1972 (COLREGs)

Rule 18

Except where Rules 9, 10 and 13 otherwise require:

- (a) **A power driven vessel underway shall keep out of the way of:**
- () a vessel not under command;
 - () a vessel restricted in her ability to maneuver;
 - () **a vessel engaged in fishing;**

As the Rule 1-(b) of the COLREGs admits that each country may set up special rules about certain sea areas including inland waterways and harbors, the following laws are established in Japan to promote safety of the traffic of vessels.

Obligation of avoiding collisions with vessels with 200 meters or more in length (huge vessels) has been imposed on vessels engaged in fishing in the “traffic route” regulated by the Maritime Traffic Safety Law including Uraga Suido, Nakanose, Irigo Suido, Akashi Kaikyo, Bisan Seto East, Uko East, Uko West, Bisan Seto North, Bisan Seto South, Mizushima, and Kurushima Kaikyo as follows.

Maritime Traffic Safety Law (Japanese domestic law)

Article 3

2. **Any vessel engaged in fishing or other operations**, intending to enter a traffic route from outside of the traffic route, or go outside from the traffic route or cross the traffic route or navigating the traffic route not along the course of such route or **any vessel staying in the traffic route, so as to involve risk of collision with a huge vessel navigating the traffic route along the course of the route, shall keep out of the way of such huge vessel.**

Additionally, fishing is restricted where fishing may hamper traffic of vessels in approximately 500 Japanese ports stipulated by the Enforcement Ordinance of the Port Regulations.

Port Regulations Law (Japanese domestic law)

Article 35

No person may indiscriminately fish at a place within a port where the vessels' traffic is feared to be hampered.

Unique fishing methods around the Japanese coast

-In order to avoid collisions with vessels engaged in fishing as well as fishing apparatus-

Analyzing collision accidents with fishing boats under operation, although there are many instances where “they did not notice those fishing vessels due to lack of keeping proper lookout ahead,” there are also many other causes such as that “they were unable to predict the irregular movement of fishing boats,” or that “they passed over the upper part of fishing apparatus, giving damage to them, as they were unfamiliar with those fishing apparatus and fishing methods.” Therefore there seemed many marine accidents which might have been prevented if they had known fishing operations specific to each sea area. This is why we featured in this issue typical fishing apparatuses and fishing methods for sand lance fishery and others that are operated in Seto Inland Sea, Ise Bay and other areas as well as points to notice in sailing.



To know fishing method = safe sailing!

It is important to know basic fishing apparatuses and fishing methods in each sea area. Moreover, the latest fishery information should be obtained from Marine Traffic Information Service (MARTIS) beforehand, to avoid panic on site. It should be noted that sea area for fishing, fishing time, and the overall length of fishing apparatus are different according to the kind of target fish, a tidal current or a tide, and fish catches.

Boat seine fishery of sand lance near Akashi Kaikyo

This is a fishing method to catch sand lance in the upper layer of the sea by trawling a net with two fishing boats.

Main sea areas for fishing: Osaka Bay and Harima Nada near Akashi Kaikyo

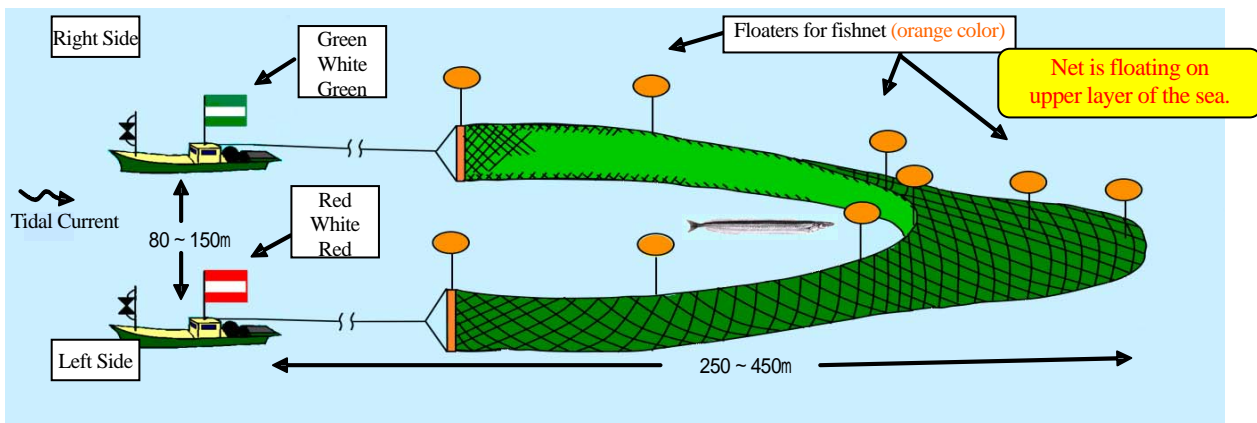
Fishing duration: 1 to 1.5 hours from casting until hauling net

High fishing season: From the end of February until the end of March

The overall length of fishing apparatus: 250 – 450 meters

Operational time: From the sunrise until early-afternoon (finishing by one o'clock in the afternoon)

Movement: Dragging a net in a log speed between 1-2 knots



Identification method

- Two boats drag a net and another boat finds fish, transport the catch and keeps guard.
- A net-fishing boat on the starboard side hoists a flag of green, white and green colors and a flag of red, white and red colors on the port side, respectively.
- Orange floaters indicate the location of the net in the sea.



Points to note in sailing

- As they often engage in fishing in a group, make a big turn around them.
- Use binoculars to find out a type of fishing at the early stage to know whether a dragging net is coming out of the stern of a fishing boat or whether there is any floater in the direction of the stern.
- Identify which net-fishing boats operate in pairs according to the color of flags so as not to enter between those two boats. Locate the floaters which indicate the location of the net, and keep sufficient distance from them at the time of sailing, as some fishing apparatuses are as long as 450m at the maximum.

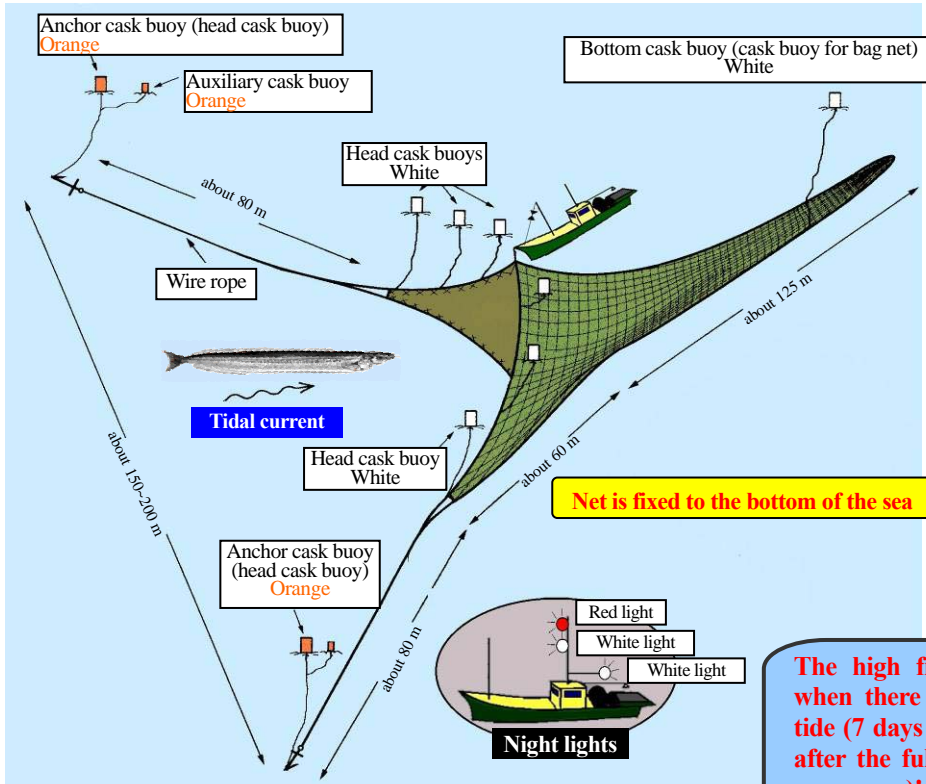
Stow-net fishery of sand lance at Bisan Seto

This is a fishing method, in which fishermen spread a net against a tidal current, wait and collect the sand lance which tides its way in the sea and are guided towards the bottom of the net.

Sand lance(IKANAGO)
Ammodytes personatus



The name of IKANAGO is derived from the old word meaning, "threadlike fish". It usually gets buried in the sand for aestivation when the temperature of the sea goes up.



Season for fishing:

February to September

Daytime: fishing season;
mid-April – early May

Sand lance and blowfish (within the fairway east of Ogishima)

Nighttime: fishing season;
May – August

Squid and silver pomfret (within the fairway west of Ogishima)

Fishing duration: about 5 hours from casting until hauling net

Movement: Fishing boats are unable to sail while waiting

The high fishing season is when there is a fast spring tide (7 days each before and after the full moon and the new moon)!

Fishing methods

[Casting net]: Casting net is started in about 30 minutes after a current change (standstill of tide) and the tide begins to flow. **The net is fixed by putting large anchors to both ends of the fishnet.**

[Standby]: In order to enlarge the mouth of net, the rope at the center of the mouth of net is pulled out of the water and is locked to the prow of the fishing boat and the boat stands by. **The fishing boat cannot sail during standby hours.**

[Hauling net]: Hauling net is started about 30 minutes before a next turn of tide.

Current Change

About 30 minutes

Casting net

About 5 hours

Hauling net

About 30 minutes

Current Change

Identification method

- Fishing boats are located almost on a straight line in the passage. **In the vicinity of middle point of two neighboring fishing boats, there is an orange cask buoy which shows the location of an anchor at the end point of fishing apparatus.**
- At night, red all-round lights and white all-round lights are displayed in cooperation with each other, and white all-round lights are displayed at the stern of a boat which stretches a net.

Points to note in sailing

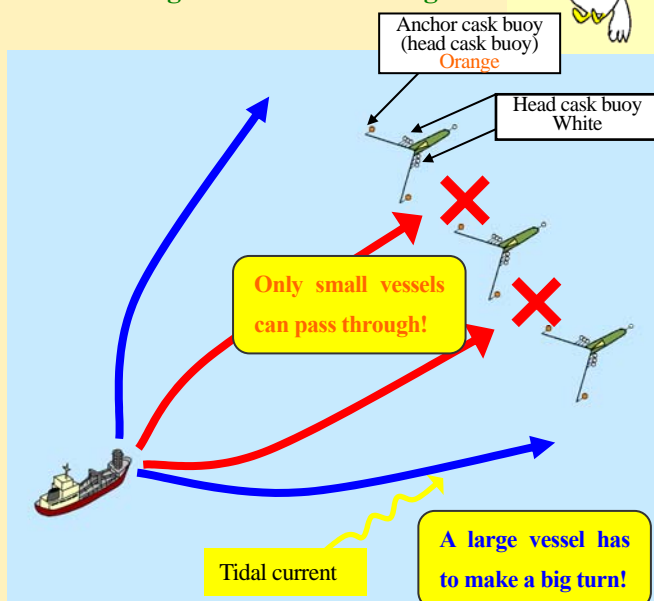
A net is recast at every current change but the location of casting net according to the tidal current is almost unchanged, even though the casting sites at the time of easterly tidal current or westerly tidal current are different. Therefore, the fishing site is predictable based on the past operational data.

Obtain information on stow-net fishery from the Bisan MARTIS (Maritime Traffic Information Service, radio broadcasting, 2,019KHz)

Fishing boats move irregularly about 30 minutes before and after the current change in order to cast or haul net, or change fishing sites (and fishing boats cannot sail after casting net).

The wire rope between orange anchor cask buoy and white head cask buoys is sunk at the bottom of the sea.

On encountering with stow-net fishing boats



Drift net fishing of Spanish mackerels at Bisan Seto South

A fishing method in which a net is spread at right angles to a tidal current (in the direction of south-north) to collect Spanish mackerels that are stuck to the mesh of the net

Season for fishing: April - July (High fishing season is early May - end June)

Fishing boats are not engaged in fishing for Spanish mackerels in autumn for conservation of natural resources.

Operational time: Only at night

Fishing duration: About 4 hours from casting until hauling net

(four hours before and after high water and low water)

Overall length of fishing apparatus: About 620 meters (1/3 mile)

Movement: Either end of a net (mainly the north end) is moored to a painter.

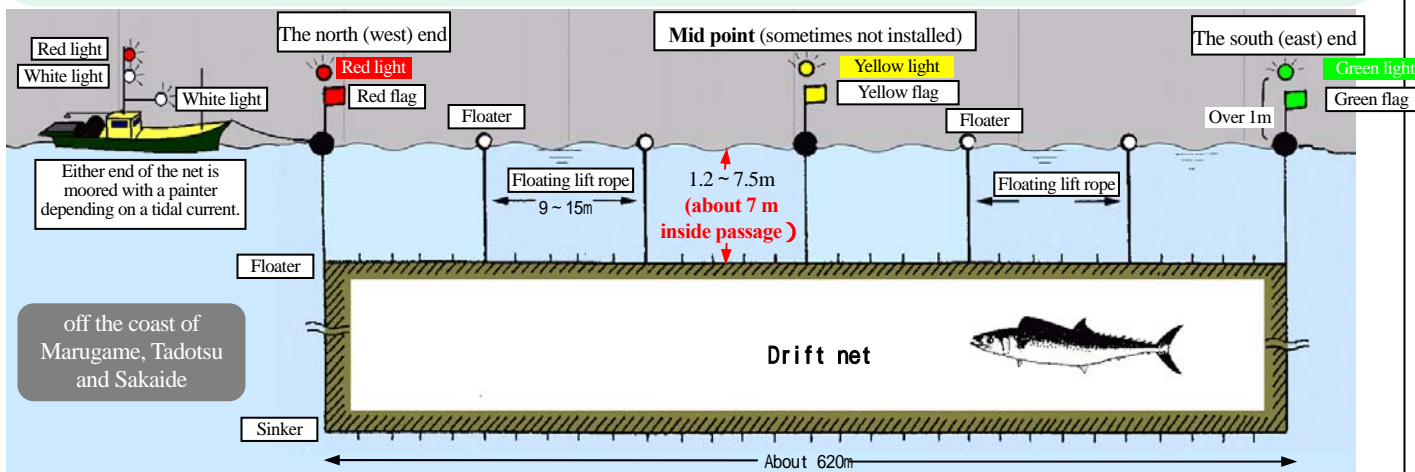
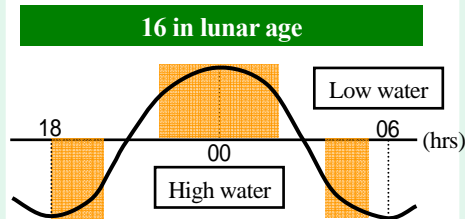
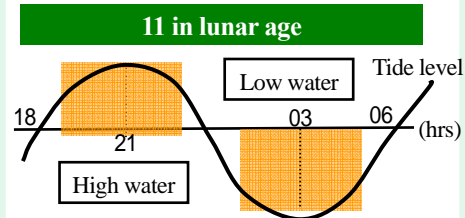
Fishing methods

[Casting net]: Casting net starts around 6 p.m. at once by leaving the intervals of 200m ~ 250m in the direction of east and west in between the neighboring fishing boats. Usually a net is cast at a low speed from north to south and it takes approximately 20 minutes to finish casting, but the net doesn't sink enough until about 20 minutes after casting net.

[Standby]: Either end of the net is moored to a painter and the engine is stopped, then the net is drifted by movement of the tide for about three hours. The north end of the net is moored in the areas off the coast of Marugame and Tadotsu, but there is no rule off the coast of Sakaide. Moreover, the net is moored on the leeward when the wind is strong. The length of floating lift net (the distance between the sea surface and the top of the net) is 7.5 meters in the sea area off the coast of Sakaide and inside the passage of the Bisan Seto South but it is about 1.2 meters in the sea area outside the passage of the Bisan Seto South such as off the coast of Marugame and Tadotsu, because the sea is shallow there.

[Hauling net]: Hauling net usually starts from the leeward side, but the net is hauled from the stern (stem) when there is a net hauler there. It usually takes 30 ~ 40 minutes to haul the net.

【Example of fishing】  Operational time



Identification method

- A yellow revolving light is lit at the time of casting and hauling net.
- At the time of mooring, bright red all-round lights and white all-round lights are concurrently displayed, and white all-round lights are displayed at the stem of a boat which stretches a net (but in fact, only a white all-round light is lit).
- A red light is displayed at the north end of a fishnet and a green light at the south end respectively.

Points to note in sailing

- Sail through passage by allowing for the distance of 200 - 300m from fishing boats, since the net will not sink enough until about 20 minutes after casting net.
- Sometimes it happens that a net is turned by tidal currents in the direction of east and west, or signs may display opposite ends.
- Nets sometimes might be rolled up by screw propeller wash, after large vessels such as ferries or car carriers pass.
- When hauling net, the net is hung on the surface in the direction of hauling.

At night

The north (west) end

Attention must be paid just after a net is cast or after a large vessel passes through!



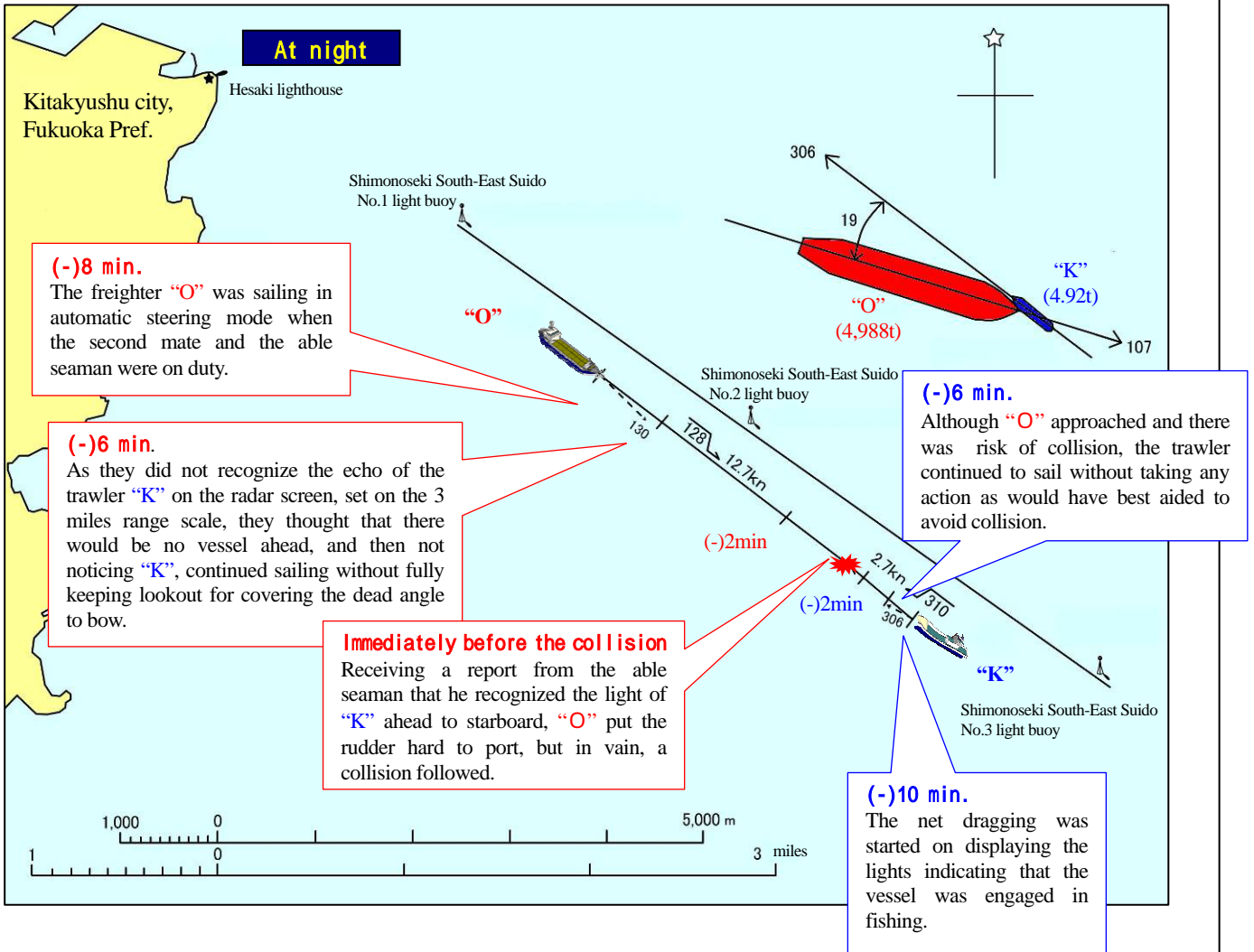
Sailing over fishnet in the shallow sea outside of a fairway is not allowed.
→ Pay attention to signals from any fishing boats.

The south (east) end

A vessel engaged in fishing collided with a passing foreign flag ship!

Summary of Casualty

When the Japanese trawler vessel "K" was dragging the net at 2.7 knots at night, displaying two lights of green and white that showed that the vessel was engaged in trawl fishing in addition to the navigation light, the Korean-flag freighter "O" approached involving risk of collision. But without taking any action as would have best aided to avoid the collision, "K" continued to sail. On the other hand, "O" that was sailing toward Saganoseki Port, Oita Prefecture at the speed of 12.7 knots, after passing Kanmon Kaikyo, judged that there would be no vessel ahead, since she did not recognize the radar echo of "K" and sailed without fully keeping lookout for covering the blind area to bow, and collided with "K".



Small fishing boats with little movement are apt to enter the dead angle of other vessels, and are difficult to be seen on the radar screen.

Regarding the freighter,

There was a dead angle in the direction of the bow, caused by the center post of the deck crane and others.

The watchkeepers judged from the radar screen that there was no other vessel ahead.

When there is a dead angle to bow in sailing, it is possible to overlook a small fishing boat. Therefore, it is necessary for crews to cover the blind area by moving around right and left on the bridge of the vessel to make through visual check and keep sufficient lookout by all available means.



A foreign-flag vessel that misjudged the movement of a fishing boat engaged in hauling net with displaying fishing lights, collided with the fishing boat.

Summary of Casualty

During eastbound sailing at the western entrance of Kanmon Kaikyo toward the Kanmon passage at night, the Singapore-flag freighter "G" tried to keep out of the way of the Japanese trawler "K" which was engaged in trawl fishing, displaying the statutory lights, but she misjudged the movement of "K", making left turn in close proximity to the fishing boat, and collided with it.

The freighter "G" detected the echo of the trawler "K" on the radar screen on starboard bow, 1.4 miles off. The freighter decided to pass through the north of the fishing boat.

(-3.5 min.
"G" thought that the stern light of "K" 34° on starboard bow, 0.8 miles off, would be a mast head light, and misunderstood that "K" made a turn and had begun to head north ahead of her course. Therefore, "G" decided to make a starboard turn to pass over with the trawler on her port side.

"K" set a course at 150°, dragging the net at the speed of 3 knots. To show that "K" was engaged in trawler fishery, two green and white lights, sidelights and a stern light were displayed.

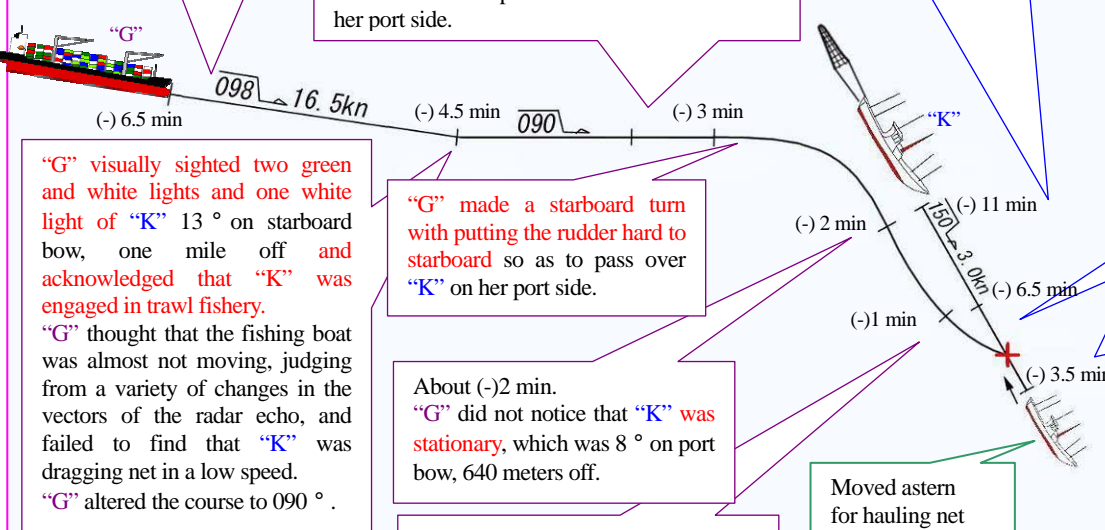
At night

(-4.5 min.
"K" sighted two white lights of "G" for the first time, 38° on the starboard quarter, one mile off. "K" judged that "G" would pass through on the stern side of "K".

"K" put the bow to the direction of 150° and started hauling net from the stern, moving astern in the direction 330° at the speed of 2.5 knots.

Around (-2 min.
After completion of hauling net, "K" was stationary. "K" visually sighted the port light of "G" coming nearer, 640 meters off the right stern of "K".

(-1 min.
"K" which recognized "G" coming near on starboard quarter, 240 meters off and turning to port, lit the green rotation light, leaving the net behind, take "full ahead", and putting the rudder hard to starboard, but in vain.

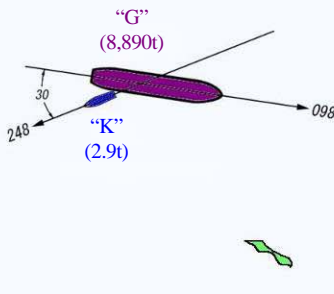


"G" visually sighted two green and white lights and one white light of "K" 13° on starboard bow, one mile off and acknowledged that "K" was engaged in trawl fishery. "G" thought that the fishing boat was almost not moving, judging from a variety of changes in the vectors of the radar echo, and failed to find that "K" was dragging net in a low speed. "G" altered the course to 090°.

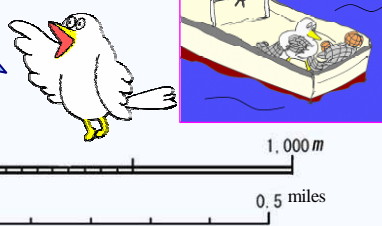
"G" made a starboard turn with putting the rudder hard to starboard so as to pass over "K" on her port side.

About (-2 min. "G" did not notice that "K" was stationary, which was 8° on port bow, 640 meters off.

"G" thought that "K" had made a port turn and had headed ahead of her course, as the lights of the trawler looked changed. Therefore "G" tried to pass through the stern side of "K" and put the rudder hard over to port.



Keep enough distance from a vessel that engaged in fishing when keep out of her way!



There are various fishing methods in Japan!

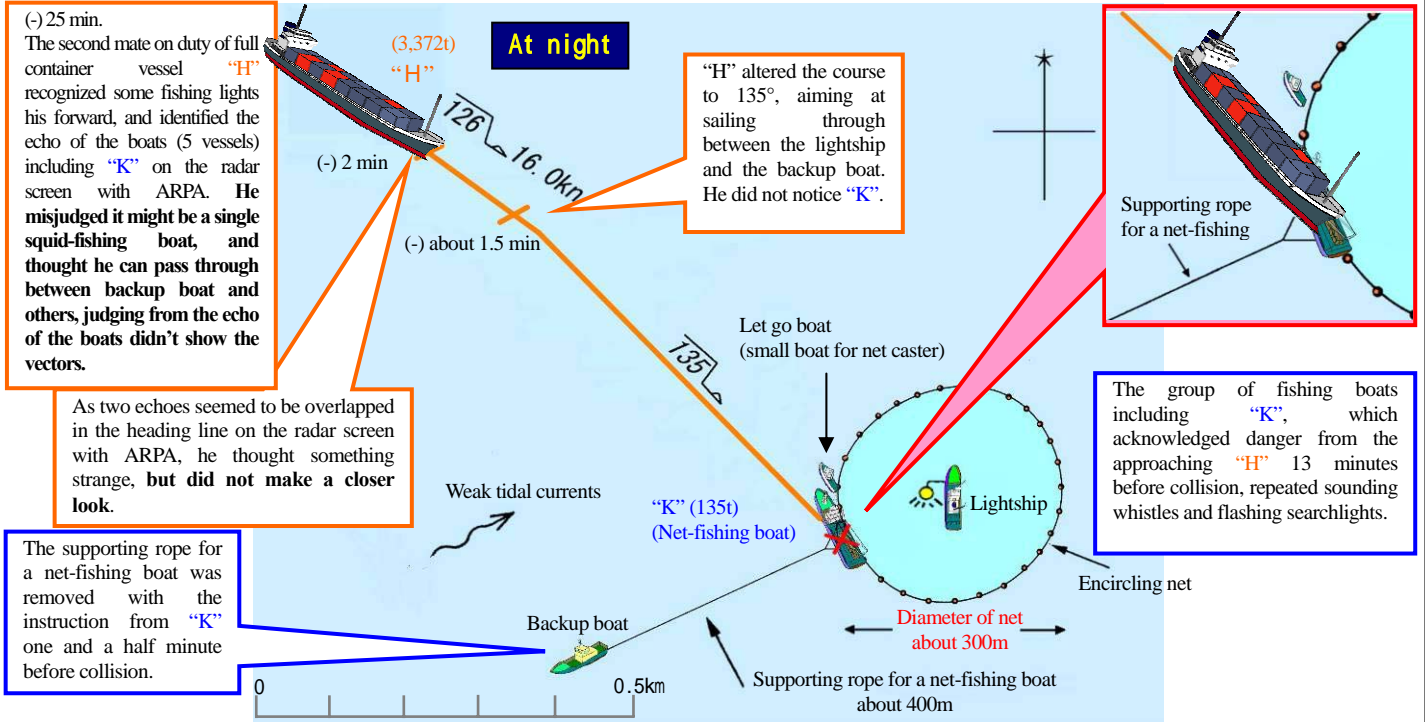
Small lights and shapes tend to be overlooked from the distance if they are exhibited by a small fishing boat. Even if those signs were sighted by other ships, it is difficult for those who are not familiar with Japanese fishing methods to judge properly the movements of a small fishing boat which usually repeats complicated activities of casting net dragging net hauling net. When a fishing boat under operation is observed, pay attention to the fishing method, movements, the length and direction of the net, and keep enough distance to keep out of the way of another!



The full container vessel collided with the roundhaul netter, offshore of Okinoshima, Fukuoka Prefecture

Summary of Casualty

The Panamanian-flag full container vessel "H", sailing in the north-east off Okinoshima, Fukuoka Prefecture, to the east toward Kanmon Kaikyo at night, identified a group of boats engaged in fishing ahead of her on the radar screen with ARPA, but continued sailing assuming that it had been a single squid-fishing boat, and as a result, collided with the Japanese roundhaul netter "K" under hauling net. After collision, "K" sank and among K's crew members, one person died, 6 went missing, and eight had injuries.



Large and medium-scaled round haul net fishery

This fishing method is to throw in a net in circle in order to enclose fish attracted by fish lamps, narrowing down the bottom end of the net and winding up the net so as to collect fish.

Season for fishing: year-round operation.

Operational time: Mainly at night (it differs according to the kind of fish)

Fishing duration: 1-3 hours for hauling net

Diameter of net: 300 – 500 meters

Supporting rope for a net-fishing boat: 300 – 400 meters

Movement: A net-fishing boat cannot sail at the time of hauling

Identification method and points to note in sailing

- A group, of 4 – 6 boats (including one to two net-fishing boats, a carrying boat, a lightship and a fish finder boat), throws in a net around the lightship which keeps fish lights on even after the net was cast in the center of the net so that they do not let loose fish.

- Use binoculars to identify the location of beacon lights, fish lights and others, and find out whether a group of boats is engaged in fishing or a single boat such as a squid fishing boat is engaged in operation.

The diameter of the net is 300 – 500 meters. At the time of hauling net, a backup boat receives a supporting rope from a net-fishing boat, and drags the rope to the opposite side of the fishnet. Therefore, do not sail between the net-fishing boat and the backup boat.

