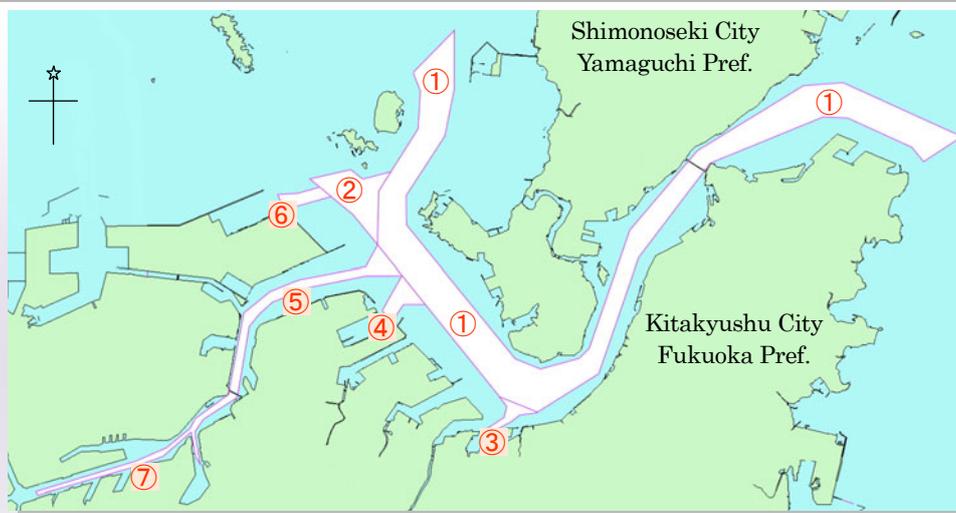


Important points for safe navigation 《relationship of priority between various passages》

In Kanmon Kaikyo several passages have been established and the relationship of priority of one passage over another has been specified by the Regulations for the Enforcement of the Act on Port Regulations. Vessels sailing a passage shall keep out of the way of other vessels sailing another passage which has priority over the former.

Special sailing rule on the basis of the Regulations for the Enforcement of the Act on Port Regulations

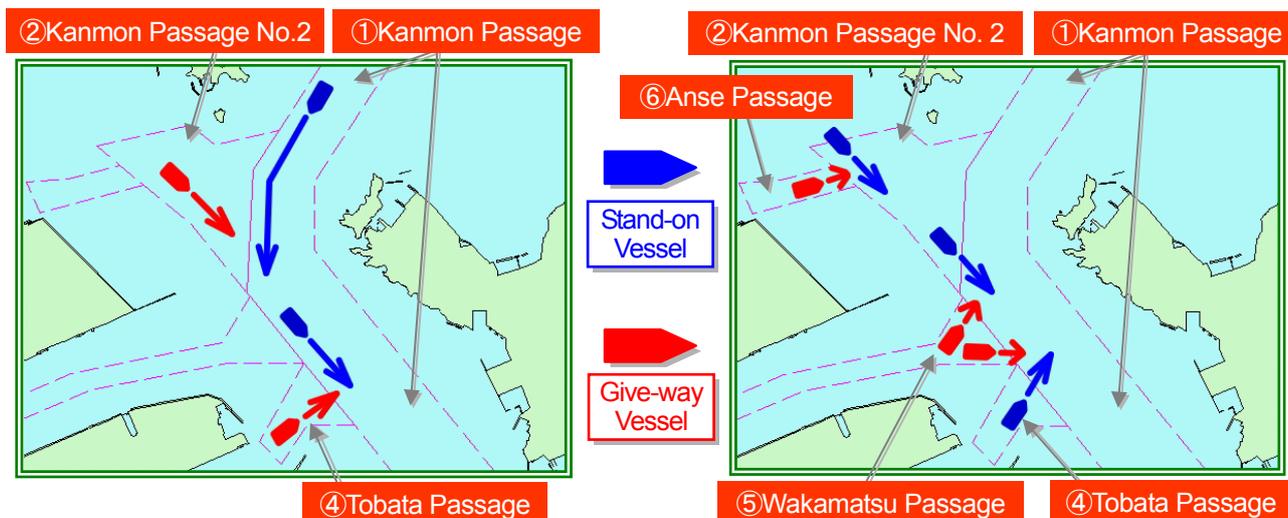


① Kanmon Passage	⑤ Wakamatsu Passage [a vessel shall keep out of the way of another sailing in ①,②and④.]
② Kanmon Passage No.2 [a vessel shall keep out of the way of another sailing in ①.]	⑥ Anse Passage [a vessel shall keep out of the way of another sailing in ②.]
③ Sunatsu Passage [a vessel shall keep out of the way of another sailing in ①.]	⑦ Okudokai Passage [a vessel shall keep out of the way of another sailing in ⑤.]
④ Tobata Passage [a vessel shall keep out of the way of another sailing in ①.]	

Relationship of priority between passages in the western part of Kanmon Kaikyo

In the western part of Kanmon Kaikyo, the Kanmon Passage is connected with the Kanmon Passage No. 2 and other passages, making the relationship of priority complicated. This water area is congested with numerous vessels, ones transiting the strait and others entering/leaving various passages. In such a situation, vessels sometimes find themselves on a collision course.

The junction between the Kanmon Passage and the Kanmon Passage No. 2 requires special caution for navigation because vessels converge here from various directions: southbound vessels sailing through the Kanmon Passage, westbound ones heading for the Kanmon Passage No. 2 after crossing the Kanmon Passage, and eastbound ones from the Kanmon Passage No. 2 to the Kanmon Passage.



- ◆ When sailing this area, it is important to pay attention to the movement of other vessels—with the relationship of priority between passages in mind—and, communicating with each other by VHF, etc., as necessary, take avoiding action in sufficiently ample time so as to avoid a situation involving risk of collision.
- ◆ Kanmon MARTIS may sometimes provide information concerning on-coming vessels, etc. by VHF. Accordingly, vessels are requested to make sure to keep a listening watch on VHF (16 Ch).

Important points for safe navigation «in the vicinity of Hayatomo Seto»

Hayatomo Seto, located in the eastern section of Kanmon Kaikyo, forms the narrowest part of the strait, where numerous vessels converge and strong tidal streams occur. The passage bends near Moji Saki and, therefore, mariners are requested to con their ships with caution, taking into account the effects of tidal streams. Of Hayatomo Seto, the Sailing Directions for Seto Naikai(*) gives descriptions as follows and special sailing rules are specified on the basis of the Regulations for the Enforcement of the Act on Port Regulations.

* Issued by the Japan Coast Guard in March 2009; an English version is also available.

- ◆ This Seto, where many vessels of various sizes are encountered, is the most difficult part of Kanmon Kaikyo.
- ◆ The strait bends at the narrowest part and the tidal stream is strong. The boundaries of strong river-like streams can be distinguished from on board vessels.
- ◆ At the spring in summer and winter seasons, the strongest tidal stream may exceed 9 knots.
- ◆ Concentrations of fishing vessels and pleasure fishing boats are encountered when the stream is weak, and numerous large vessels are also observed concentrated close to the time of slack water.
- ◆ Slack water lasts only a few minutes in the middle part of the strait.

Special sailing rule on the basis of the Regulations for the Enforcement of the Act on Port Regulations

Navigation rule in Hayatomo Seto

- ▶ Motor vessels sailing against tidal streams shall maintain a sailing speed in excess of 3 knots over the tidal stream.

* The Kanmon Straits & Harbour Pilot Association requires as a criterion for accepting a vessel that she is capable of maintaining a speed over the ground of 5 knots or more, in the period of adverse tidal currents.

The Sailing Directions for Seto Naikai show the following ranges of area which experience the strongest tidal streams in Hayatomo Seto:

During the period of eastgoing current:

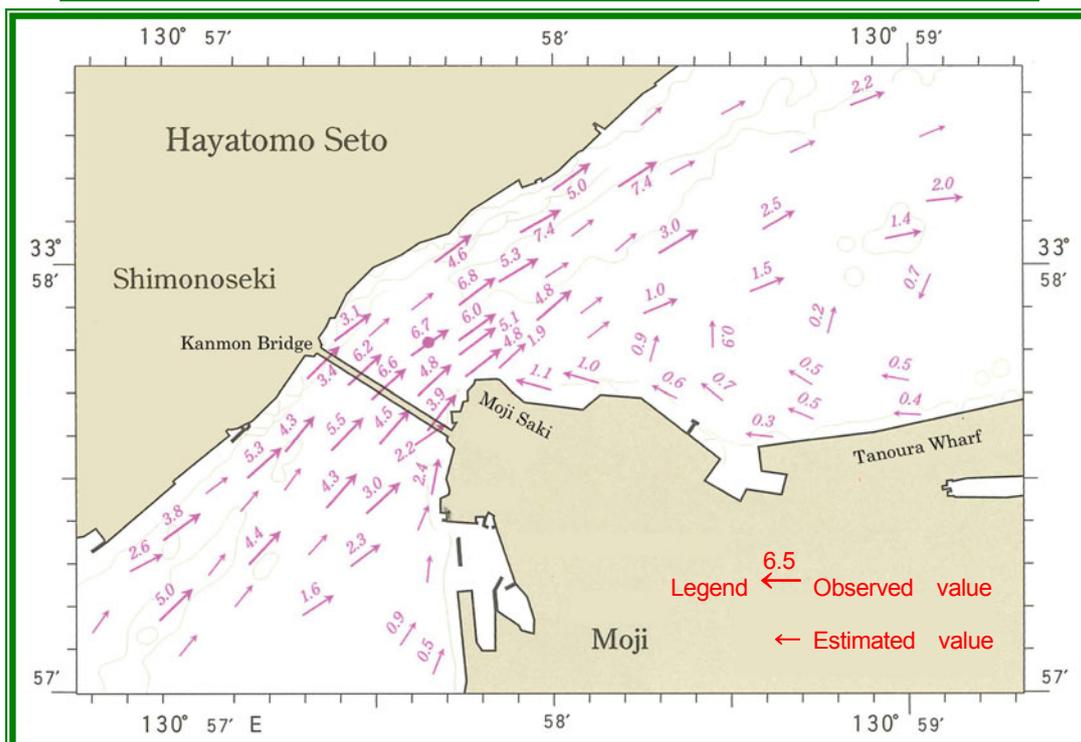
Area which extends northeastward about 1200 m long and 200 to 300 m wide, from the vicinity of Moji Saki, along the Kanmon Passage, but slightly closer to the side of Shimonoseki from its center

During the period of westgoing current:

Area which extends southwestward about 2,000 meters long and 150 to 300 meters wide, from the vicinity of Moji Saki, along the Kanmon Passage, but slightly closer to the side of Shimonoseki from its center

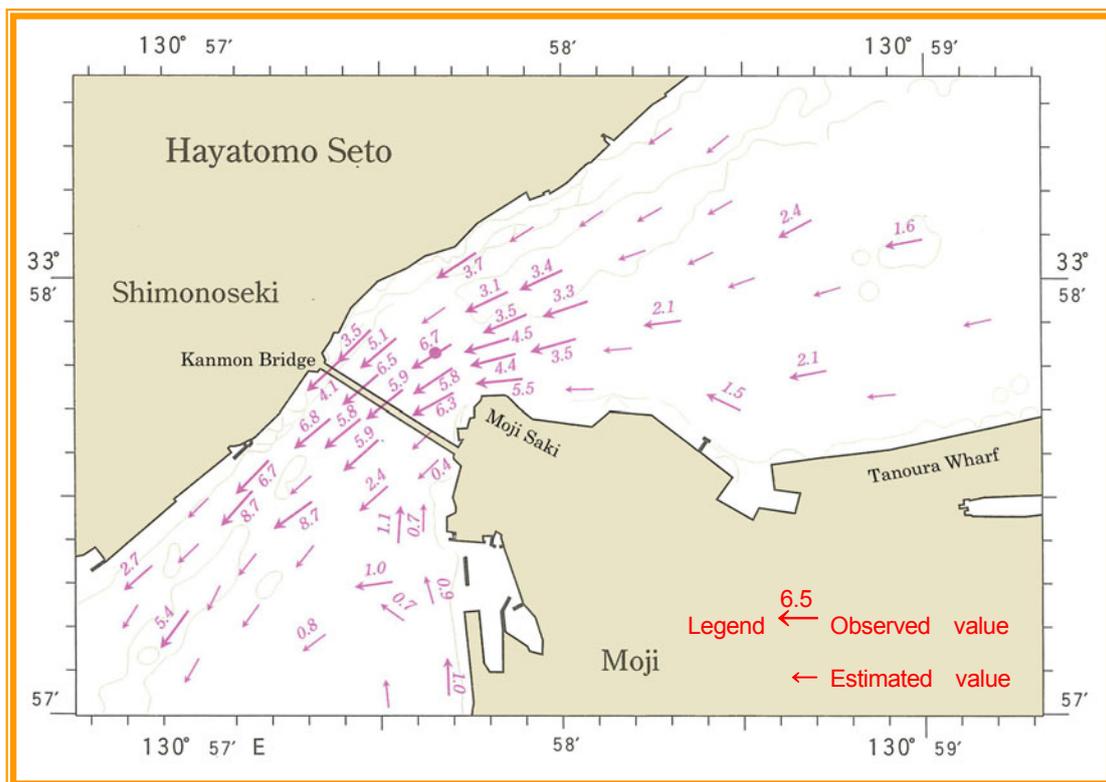
In both easterly and westerly currents, the strongest stream area extends from the vicinity of Moji Saki along the Kanmon Passage but slightly closer to Shimonoseki. When sailing during a period of strong tidal streams, both eastbound and westbound vessels are required to bear in mind that, regardless of the direction of the tidal stream, they may take a sheer toward the side of Shimonoseki.

(Reference) Tidal current chart at Hayatomo Seto at the peak of eastgoing currents



Source data: Tidal Current Chart in Kanmon Kaikyo (issued by Japan Coast Guard in February 2006)

(Reference) Tidal current chart at Hayatomo Seto at the peak of westgoing currents

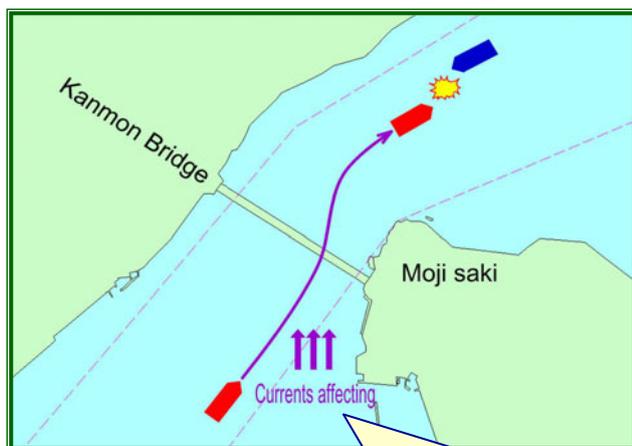


Source data: Tidal Current Chart in Kanmon Kaikyo (issued by Japan Coast Guard in February 2006)

◆ During strong tidal streams, east- and westbound vessels are required to bear in mind that, regardless of the direction of the tidal stream, they may take a sheer toward the side of Shimonoseki.

Currents affecting the navigation of eastbound vessels

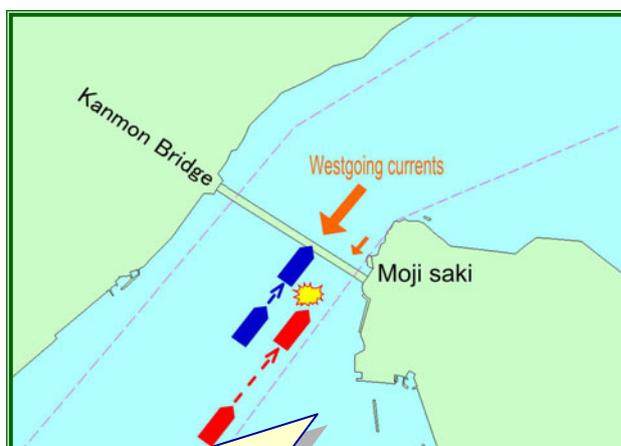
Eastbound vessels may sometimes unintentionally take a sheer toward the center line of the passage because of tidal currents, resulting in developing a close-quarters situation with westbound vessels. In such a circumstance, as indicated in Investigated Accident Case No. 3, vessels tend to end up colliding with each other because they cannot understand the intention of the other and, as a result, they fail to take appropriate avoiding action. It is important for east- and westbound vessels, when encountering each other, to check in ample time, where possible, the intention of maneuvers of the other vessel by communicating by VHF etc.



◆ Eastbound vessels are required to pay special attention to tidal currents which may drive them toward the center line of the passage.
◆ Attention to the distance from another vessel sailing ahead in the same direction.

Reduction in distance between ships

When sailing against adverse tidal streams, vessels may experience a drastic speed reduction in the vicinity of Hayatomo Seto. Therefore, mariners are required to pay special attention to keep a sufficient distance from another vessel sailing ahead in the same direction. In waters close to Moji Saki, the influence of tidal streams is rather small as compared with other areas. For this reason, during westgoing tidal streams, vessels sailing in waters closer to Moji Saki may find themselves, unintentionally, developing a close-quarters situation with, or overtaking without sufficient space, another vessel sailing closer to the center line of the passage. They are requested to take due precautions against such a tendency.

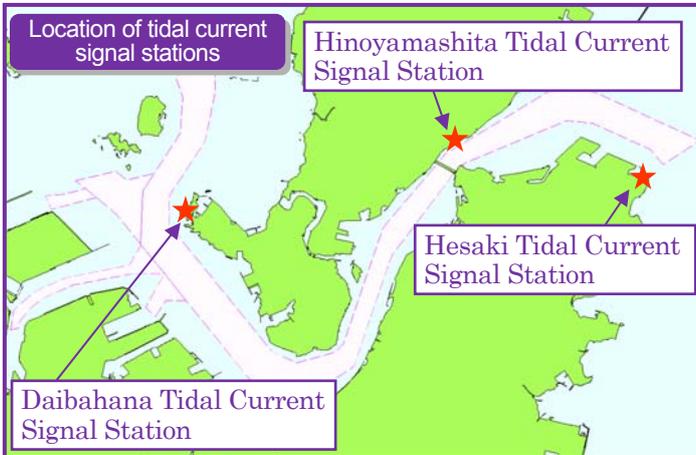


◆ Attention to the distance from another vessel sailing ahead in the same direction.
◆ Caution is required, in the vicinity of Hayatomo Seto, not to end up overtaking another vessel without sufficient space.

How to get information on tidal currents in Hayatomo Seto

In Kanmon Kaikyo tidal current information in Hayatomo Seto is provided by the Japan Coast Guard. In addition to the three tidal current signal stations which show tidal current information on electrical display boards, tidal current information can be obtained by radio broadcasts and the website of Kanmon MARTIS.

When a vessel intends to sail through Hayatomo Seto, it is vital to acquire tidal information in ample time by using these methods and adopt appropriate operational measures (waiting for tide, selection of appropriate course and speed) depending on the situation.



Example of a tide signal on the electrical display board of a tidal current signal station

Signal	E ▶ 3 ▶ ↑	
Meaning	Eastgoing	3 knots Further speed increase is forecast
Signal	W ▶ 6 ▶ ↓	
Meaning	Westgoing	6 knots Further speed reduction is forecast

Other means for providing information

Radio broadcasts (in Japanese; frequency 1,625.5kHz), telephone (in Japanese; tel. No. 083-222-8810), VHF (in the event of a tidal stream of 7 knots or more), Kanmon MARTIS website (in Japanese; <http://www6.kaiho.mlit.go.jp/kanmon/>), etc.

Important points for safe navigation 《 in restricted visibility 》

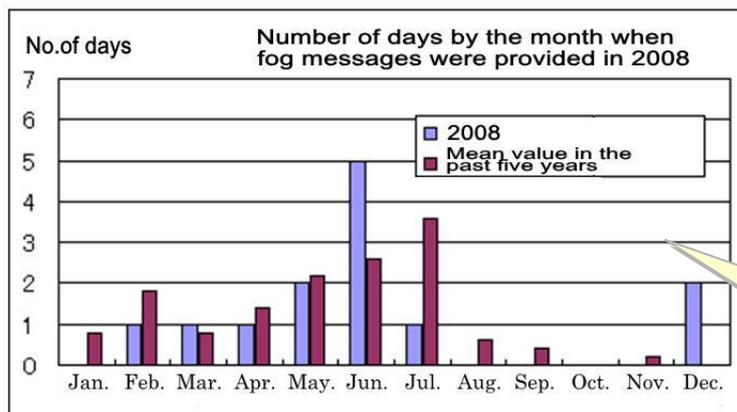
Every year, in Kanmon Kaikyo, fog starts to occur in February and becomes frequent in the period from April to July. When a visibility of 500 m or less is expected to last for some time, the harbourmaster of Kanmon Port issues a recommendation for the suspension of entry into the passage, in which event navigation will be restricted as follows:

Vessels intending to enter the Kanmon Passage	They shall suspend entry into the passage and take shelter in a safe area, as promptly as practicable, and wait for the improvement of the situation.
Vessels sailing through the Kanmon Passage	They shall either continue sailing through the passage with sufficient caution or take shelter in a safe area outside the passage and report, to Kanmon MARTIS, the name of the vessel, the location of the shelter, and other relevant information.

The Japan Coast Guard provides information by VHF etc., when it issues or cancels a recommendation for the suspension of entry into the passage, or when the visibility has dropped down to 2,000 m or less. In the event of a drop in visibility, mariners are requested to attempt to obtain such information and get their vessel ready for navigation in restricted visibility by raising the level of vigilance by posting additional lookouts and reducing the sailing speed to a safe one.

Provision of information in the event of restricted visibility

VHF (16ch), automatic identification system (AIS), Radio broadcasts (in Japanese; frequency 1,651kHz/in English; frequency 2,019kHz), Kanmon MARTIS website (in Japanese; <http://www6.kaiho.mlit.go.jp/kanmon/>), etc.



【Reference】 Number of days by the month when fog messages were provided for the Kanmon Passage (in 2008)

Kanmon MARTIS issues fog messages by classifying visibility into such divisions of 2000 m or less, 1000 m or less, and 500 m or less.

Source data: Kanmon MARTIS website