



**Report 96-207**

**Fishing Vessel *Avenger***

**Te Waewae Bay, Foveaux Strait**

**29 July 1996**

### **Abstract**

On Monday, 29 July 1996, at approximately 2230 hours, the fishing vessel *Avenger* was reported overdue on a trip from Preservation Inlet to Riverton. A search conducted at first light the following day located the bodies of the two crew members amongst flotsam from the vessel. The vessel was not recovered and the cause of its sinking was not identified conclusively. A safety issue identified was the seaworthiness of the *Avenger*, which was not required to be surveyed.



*The Avenger in 1992*

# Transport Accident Investigation Commission

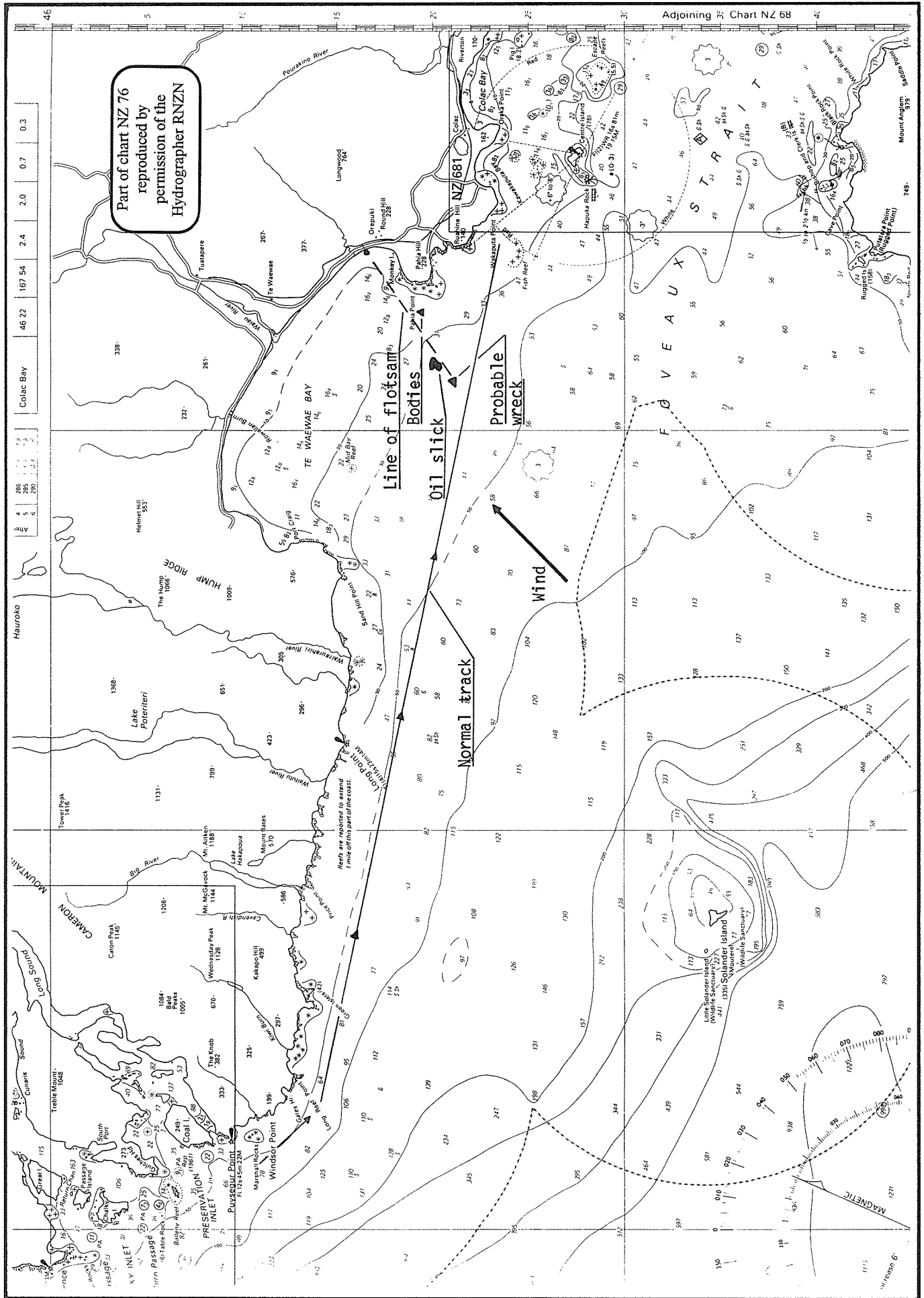
## Marine Accident Report 96-207

### Vessel Particulars:

Name:	<i>Avenger</i> (ZM2967)
Type:	Crayfish and longline fishing
Class:	X (Fishing Inshore) (under 12 m)
Limits:	New Zealand territorial sea
Length:	11.0 m
Breadth:	3.5 m
Draft:	1.8 m
Gross Tonnage:	20 tonnes
Construction:	Steel
Built:	Southland 1967
Power plant:	One GM 150 kW diesel engine driving a single fixed-pitch propeller
Speed:	8 knots (maximum)
Operator:	Owner
<b>Location:</b>	Te Waewae Bay, Foveaux Strait, Southland
<b>Date and time:</b>	Monday, 29 July 1996, at approximately 1400 hours <sup>1</sup>
<b>Persons on board:</b>	Crew: 2
<b>Injuries:</b>	Crew: 2 (fatal)
<b>Nature of damage:</b>	Vessel not recovered
<b>Inspector in Charge:</b>	T M Burfoot

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<sup>1</sup> All times in this report are NZST (UTC + 12 hours)



Part of chart NZ 76 reproduced by permission of the Hydrographer RNZN

Adjoining Chart NZ 68

Figure 1  
Approximate track and positions of note

# 1. Factual Information

## 1.1 History of the voyage

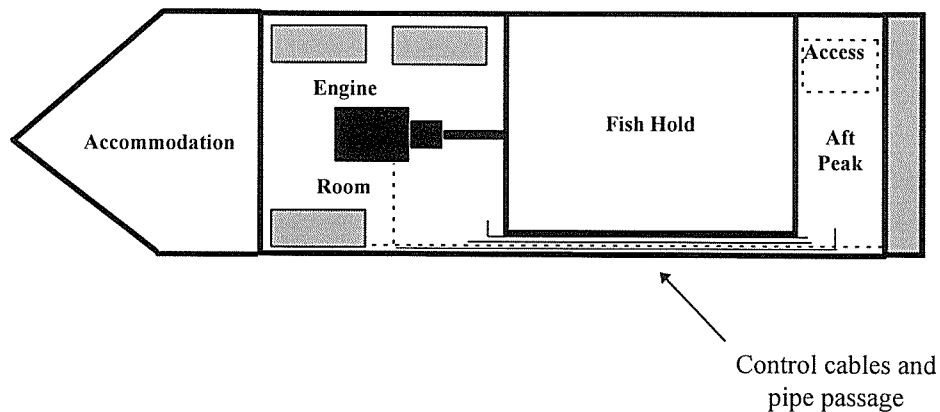
- 1.1.1 On Wednesday, 24 July 1996, at approximately 0500 hours, the *Avenger* departed from its base port of Riverton bound for fishing grounds off Preservation Inlet, Fiordland. On board were the Master and one deck-hand. It was the Master's intention to harvest the catch from his crayfish pots and reposition them as appropriate.
- 1.1.2 The outbound trip was uneventful and over the ensuing four days the crew harvested their pots during the day, seeking shelter by night at Weka Island, and on Sunday evening, 28 July, the *Avenger* tied up with three other crayfish boats at Weka Island, inside Preservation Inlet.
- 1.1.3 The *Avenger's* Master was experiencing problems with the vessel's electrical system. When the start switch for the engine was closed the VHF radio apparently shorted out and began to emit smoke. By isolating the 24 volt system from the other services the Master was able to run the engine. When the engine was stopped and its start system isolated, power to the other services could be restored.
- 1.1.4 Early on Monday, 29 July, the Master of the *Hustler* decided to return to Riverton. Prompted by the inconvenience of the 24 volt system fault, the *Avenger's* Master indicated that he would "probably go back too". The *Hustler* departed from Weka Island, the crew harvested their pots and started back to Riverton. The *Hustler* passed another fishing vessel heading towards Preservation Inlet and by VHF radio explained to them that the *Avenger* may be following and, if so, their radio would not be working.
- 1.1.5 At approximately 1030 hours the other vessel contacted the *Hustler* and confirmed that the *Avenger* was "on her way back" to Riverton. The *Avenger* was at that time approximately 1.5 hours behind the *Hustler*. It was estimated that the *Avenger* would have had approximately 500 kg of crayfish on board.
- 1.1.6 The wind between Puysegur Point and Long Point (see Figure 1) was west-south-west at 15 to 20 knots. A two to three metre southerly swell was combining with a low south-west swell and creating a confused sea. The sky was overcast, and drizzle reduced the visibility to approximately half a nautical mile.
- 1.1.7 At approximately 1330 hours, as the *Hustler* passed Sand Hill Point at the head of Te Waewae Bay, the weather cleared and the wind increased to 25 to 30 knots from the south-west, but reduced to approximately 15 knots as the vessel neared Centre Island in the northern part of Foveaux Strait. Visibility remained good.
- 1.1.8 The *Hustler* lay off Riverton for approximately two hours awaiting the tide for crossing the river bar. The crew had expected the *Avenger* to arrive off the harbour within this time, but at approximately 1930 hours, when the *Hustler* entered Riverton Harbour, the *Avenger* had not been sighted. (The *Avenger* was a little slower than the *Hustler*.)
- 1.1.9 While unloading their catch at the fish factory, the *Hustler's* Master informed the duty manager that the *Avenger* had been approximately two hours behind them and "shouldn't be too far away". At approximately 2200 hours, the duty manager became concerned that the *Avenger* had not arrived, so he contacted the local volunteer radio operator, with whom the fishing boats "log in", and reported the vessel overdue.

- 1.1.10 The Police were informed and a team consisting of local fishermen, Police search and rescue advisers and local Volunteer Coastguard crew assembled at the Coastguard base at around midnight on 29 July. They had used a cellular phone to make contact with the crews of several fishing boats anchored in The Phutter, an anchorage within Port Craig on the west side of Te Waewae Bay. The Skipper of one of the boats confirmed that he had sighted the *Avenger* off Long Point at approximately 1300 hours that day.
- 1.1.11 At first light on 30 July, while a helicopter made a coastline search, an aeroplane conducted a grid pattern search of the area out to sea between Centre Island and Long Point. Several local fishing boats and a Coastguard tender participated in the search. The helicopter located some of the *Avenger's* fishing floats on the beach in the north-east corner of Te Waewae Bay. Searchers followed a line of flotsam (identified as belonging to the *Avenger*) upwind and found the bodies of the two crew entangled in a cluster of fishing floats and rope. Neither was wearing a life-jacket.
- 1.1.12 The *Avenger's* hull was not recovered, although oil slicks on the sea surface indicated the approximate area in which the vessel may have sunk. The vessel's life-raft, EPIRB, flares and life-jackets were not recovered.

## 1.2 Vessel and crew information

- 1.2.1 The *Avenger* was an 11 m crayfish and longline fishing vessel constructed mainly from steel. The hull and topsides were built in 1967, after which the vessel spent some considerable time standing in the open with unpainted topsides. Eventually its topsides were painted and the vessel sold, its new owner outfitting the boat and operating it for some 24 years.
- 1.2.2 By 1976 the steel on the *Avenger's* topsides had suffered serious corrosion. During a refit the wheelhouse and much of the deck plating and bulwarks were renewed. Originally the *Avenger* was built with a rounded stern. During this refit the owner had the stern squared off and extended 50 cm in length to incorporate an additional fuel tank, and improve the vessel's sea-keeping qualities. The original chain steering was replaced with a hydraulic system.
- 1.2.3 In 1991 the *Avenger's* deck-hand, who had crewed on the vessel for the previous seven years, obtained his Commercial Launchmaster Certificate and purchased the vessel from the former owner. Over the ensuing five years the new owner/Master continued to operate the *Avenger* out of Riverton.
- 1.2.4 In 1995 the *Avenger's* original engine was replaced with a second-hand diesel of the same make and model.
- 1.2.5 The *Avenger's* engine room was located slightly forward of midships, with the fish hold aft and the accommodation forward of the engine room. The wheelhouse, which was located on top of the engine room, had a rear-facing door opening onto the aft deck. Access to the accommodation and the engine room was from inside the wheelhouse (see Figure 2).
- 1.2.6 The *Avenger's* hull, superstructure, coamings, bulwarks and hatch covers (except that on the fish hold) were constructed from steel. The fish hold was offset approximately 30 cm to starboard, leaving an under-deck space on the port side for control cables and pipes to pass through to the aft peak, which was located aft of the fish hold. Access to the aft peak was through a hatch on deck near the stern. The fish hold was fitted with removable pond boards to prevent the catch from shifting, and an aluminium hatch cover.

- 1.2.7 The vessel was powered by a single 150 kW GM diesel giving a maximum speed of approximately eight knots. Diesel fuel was carried in three 450 litre, self-contained fuel tanks located in the engine room (one on the port side and two on the starboard side) and in the tank located in the aft peak. Two banks of batteries produced a 24 V power supply. A “knife” switch between the two banks could be opened to isolate one bank and keep it in reserve for engine starting.
- 1.2.8 The engine room bilge was serviced by an electrically driven bilge pump which started automatically by a float switch in the bilge. When the bilge pump was running a red light showed on the wheelhouse console. A portable electric bilge pump was carried for pumping out the aft peak.



**Figure 2**  
**Under-deck plan of *Avenger***  
**(Diagram not to scale)**

- 1.2.9 Navigation equipment on board at the time of the accident included radar, depth sounder, magnetic compass (with automatic pilot) and a VHF radio. The SSB radio had been taken ashore for repairs.
- 1.2.10 A four-person life-raft was secured by two ropes to the top of the wheelhouse. Three life-jackets were usually stored in the accommodation and an EPIRB was mounted beside the helm in the wheelhouse. Flares were carried but it was not determined where they were stowed or whether they had reached their expiry date. None of the safety equipment was recovered after the accident.
- 1.2.11 The deck-hand had been involved with the fishing industry for a number of years. He had previously owned his own fishing boat based in Riverton. It was his first trip as deck-hand on board the *Avenger* since he returned from a 14-month excursion overseas.

### **1.3 Other information**

- 1.3.1 The *Avenger* was regarded as a “good sea boat” by those who had crewed on it prior to the accident. Although it had a low freeboard aft it was reported to handle a following sea “quite well”. Little is known about the *Avenger*’s stability characteristics; however, the previous owner reported that the aft peak had flooded on more than one occasion without altering the vessel’s handling characteristics significantly. On those occasions water had flowed forward, past the fish hold and into the engine room bilge, where it was picked up by the automatic bilge pump, the continuous “pump running” indicator light alerting the helmsman that water was entering the engine room.
- 1.3.2 It was reported by the fishing and engineering fraternity in Riverton that the *Avenger* was in a poor state of repair, the owner finding it difficult to finance the repairs that would have been necessary to make the boat seaworthy. The hull was apparently badly corroded in places, particularly around the aft peak area. One hole had been patched using rubber jandals, one on each side of the hole, with bolts and washers holding them in place. The access hatch to the aft peak was also badly corroded.

### **1.4 Survey information**

- 1.4.1 As the vessel was a fishing vessel under 12 m in length, there was no requirement under the Maritime Transport Act 1994 for the *Avenger* to be issued with a Certificate of Survey.
- 1.4.2 By 1998 owners/operators of vessels such as the *Avenger* will be required to comply with the New Zealand Ship Safety Management Code. The code has been formed round the International Maritime Organisation (IMO) International Safety Management (ISM) Code for the purpose of providing a standard for the safe management and operation of New Zealand’s domestic shipping, and for pollution prevention.
- 1.4.3 Operators will be required to register with an ISO accredited ship management company, certified by the Maritime Safety Authority (MSA), which will be responsible for setting up and auditing a safety management system appropriate for the type of operation in which each vessel is engaged.
- 1.4.4 On successful implementation of the safety management system the ship management company will issue the operator with a maritime document (licence to operate). By audits, an assessment of an operator’s risk level will be made and relayed back to the MSA which will monitor each operator’s risk assessment level, and may withdraw the maritime document should the risk level become too high.

## **2. Analysis**

- 2.1 From information provided by those interviewed and involved with the *Avenger*, it was probably unseaworthy when it embarked on the accident trip. The reported condition of the hull and its openings signalled the potential for a leak to develop when the hull was subjected to the normal stresses of the vessel’s day-to-day operation.
- 2.2 Although the cause of the *Avenger*’s sinking was not established, it appears that the crew did not have time to launch the life-raft, don their life-jackets, use flares or activate the EPIRB. This suggests that whatever the cause, the onset of the initial event was swift. A capsizing is the most likely cause.



- 2.3 The weather and sea conditions in Te Waewae Bay on the day of the accident were within the limits in which the *Avenger* should have been able to operate in safety, provided that it was in a seaworthy condition. If the *Avenger* capsized prior to sinking, ingress of water sufficient to lose positive stability in the conditions experienced would be the most likely cause of the capsizing. The estimated 500 kg of crayfish in the vessel's fish hold would not have adversely affected the vessel's stability.
- 2.4 The cause of the electrical fault on the *Avenger*, when it was moored at Weka Island, was not established; however, it resulted in the Master commencing the trip back to Riverton without the use of the vessel's auxiliaries. Those auxiliaries included the navigation and communication equipment, and the automatic engine room bilge pump.
- 2.5 If the aft peak became flooded, water would have flowed from there, past the fish hold and into the engine room. As the bilge pump was not operational, the water level in the engine room would have risen until either the vessel lost stability, the engine stopped, or a combination of both. If water did enter the engine room, and this was detected by the crew, they would have had to stop the engine to pump out the bilge, and risk losing control of the vessel in relatively rough seas. This option would be available to them only if the batteries were still operative.
- 2.6 The *Avenger's* crew appeared to have escaped from the vessel before it sank and utilised a cluster of fishing floats for buoyancy. Searchers recorded the sea temperature as 8°C. It is unlikely that they would have survived in the water for more than one hour without the aid of life-jackets. Given the time taken for their peril to be recognised, it is unlikely that life-jackets would have saved their lives.
- 2.7 Had the *Avenger* been required to undergo an annual survey, or had the Master been complying with the New Zealand Ship Safety Management Code voluntarily, on the information reported it is unlikely that he would have been allowed to continue operating without substantially upgrading the vessel's condition.

### **3. Findings**

- 3.1 The *Avenger* was crewed as required for a vessel of its class and was not required to be surveyed under the Maritime Transport Act 1994.
- 3.2 The *Avenger* was probably in an unseaworthy condition before proceeding to sea on the accident trip.
- 3.3 The absence of effective navigation, communication and bilge pumping equipment on the *Avenger's* return trip (as a result of an electrical fault) had a further detrimental effect on its seaworthiness, and decreased the options available to the Master in the event of an emergency.
- 3.4 The weather conditions in which the *Avenger* was operating on the accident trip were not inappropriate, provided that the vessel was in a seaworthy condition.
- 3.5 A capsizing is the most likely cause of the *Avenger* sinking, probably due to an ingress of water into one of its main compartments.

- 3.6 The cause of the accident could not be identified conclusively.
- 3.7 The New Zealand Ship Safety Management Code, once it becomes mandatory, has the potential to reduce the likelihood of this type of accident.

19 February 1997

M F Dunphy  
Chief Commissioner

## Glossary of Marine Abbreviations and Terms

AC	alternating current
aft	rear of the vessel
beam	width of a vessel
bilge	space for the collection of surplus liquid
bridge	structure from where a vessel is navigated and directed
bulkhead	nautical term for wall
bus	an arrangement of copper conductors (Bus bars) within a switchboard, from which the circuits are supplied
cable	0.1 of a nautical mile
chart datum	zero height referred to on a marine chart
command	take over-all responsibility for the vessel
conduct	in control of the vessel
conning	another term for “has conduct” or “in control”
DC	direct current
deckhead	nautical term for roof
dog	cleat or device for securing water-tight openings
draft	depth of the vessel in the water
EPIRB	Emergency Position Indicating Radio Beacon
even keel	draft forward equals the draft aft
freeboard	distance from the waterline to the deck edge
free surface	effect where liquids are free to flow within its compartment
freshet	term used to describe an increase of water level in the river due to rain in the mountains
focsle	forecastle (raised structure on the bow of a vessel)
GM	metacentric height (measure of a vessel’s statical stability)
GoM	fluid metacentric height (taking account the effect of free surface)
GPS	Global Positioning System
GS	general service
heel	angle of tilt caused by external forces
hove-to	when a vessel is slowed or stopped and lying at an angle to the sea which affords the safest and most comfortable ride
Hz	Hertz (cycles)
IMO	International Maritime Organisation
ISO	International Standards Organisation
kW	kilowatt
list	angle of tilt caused by internal distribution of weights
m	metres
MSA	Maritime Safety Authority
NRCC	National Rescue Co-ordination Centre

point	measure of direction (one point = 1 1/4 degrees of arc)
press	force a tank to overflow by using a pump
SAR	Search and Rescue
SOLAS	Safety Of Life At Sea convention
sounding	measure of the depth of a liquid
SSB	single-side-band radio
statical stability	measure of a vessel's stability in still water
supernumerary	non-fare-paying passenger
telegraph	device used to relay engine commands from bridge to engine room
ullage	distance from the top of a tank to the surface of the liquid in the tank
V	volts
VHF	very high frequency
windlass	winch used to raise a vessels anchor