



Report 96-210

Longline Fishing Vessel *Amigo*

17 nautical miles south-west of Hokitika, West Coast

1 October 1996

Abstract

On Tuesday, 1 October 1996, at approximately 1930 hours, the longline fishing vessel *Amigo*, while anchored off the Waitaha River mouth, approximately 17 miles south-west of Hokitika, was overcome by seas and foundered. Searchers located wreckage from the *Amigo* on the beach the following morning. The body of one deck-hand was recovered some days later. The Master and another deck-hand were presumed drowned. The cause of the accident could not be identified conclusively.



Amigo

Transport Accident Investigation Commission

Marine Accident Report 96-210

Vessel Particulars

Name:	<i>Amigo</i>
Type:	Longline fishing
Class:	X (Coastal Fishing) (over 12 m)
Limits:	New Zealand Gazetted Coastal Fishing Zone
Length:	13.29 m
Breadth:	4.0 m
Depth:	2.45 m
Gross Tonnage:	22.15 tonnes
Construction:	Wood
Built:	Invercargill, 1969
Power plant:	One 6LX Gardner 82 kW diesel engine, driving a single fixed-pitch propeller
Speed:	8 knots (maximum)
Operator:	Owner
Location:	17 nautical miles south-west of Hokitika, West Coast, South Island
Date and time:	Tuesday, 1 October 1996, at approximately 1930 hours ¹
Persons on board:	Crew: 3
Injuries:	Crew: 3 (fatal)
Nature of damage:	Vessel destroyed
Inspector in charge:	T M Burfoot

¹ All times in this report are NZST (UTC + 12 hours)

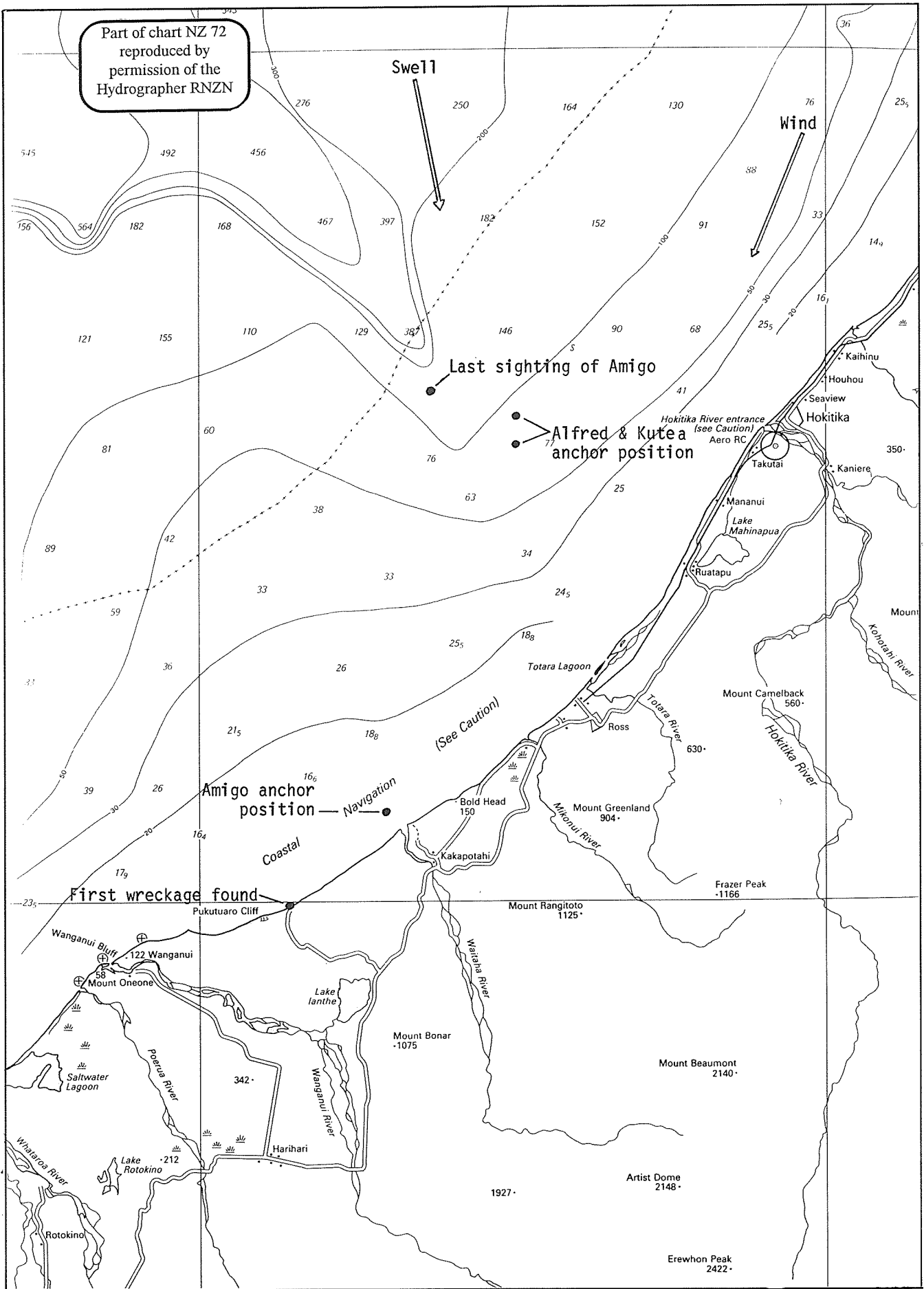


Figure 1
Chart showing key locations

1. Factual information

1.1 History of the voyage

- 1.1.1 On Wednesday, 25 September 1996, the longline fishing vessel *Amigo* departed from Greymouth to fish the Hokitika Trench off the west coast of South Island. On board were the Master, one Qualified Fishing Deck-hand (QFDH) and one unqualified deck-hand.
- 1.1.2 Over the ensuing five days numerous “sets” were made in the area. On Tuesday, 1 October, the Master radioed the fish processing plant and reported that he had approximately eight tonnes of fish on board, and he was going to make one more set before returning to Greymouth the following day.
- 1.1.3 During that day the wind increased to approximately 30 knots from the north-east. The forecast was for the wind to increase further and back to the north-west that evening with the passing of a cold front. Two other fishing vessels, the *Alfred* and the *Kutea*, were fishing in the area also. All three vessels, having set their lines, were riding out the gale at anchor in the vicinity of the Hokitika Trench. (Refer to Figure 1.)
- 1.1.4 As the wind increased all three vessels began to drag their anchors, so their Masters decided to move in to shallower water. The Masters of the *Alfred* and the *Kutea* opted to anchor approximately eight nautical miles off Hokitika in 80 m depth of water.
- 1.1.5 At approximately 1730 hours, *Amigo*'s Master spoke with the Master of the *Alfred* by VHF radio, and told him that he was anchored approximately 1.5 nautical miles off the Waitaha River mouth, near the small settlement of Kakapotahi, to try and gain some shelter from the north-east wind. That was the last contact with the *Amigo*. Little is known about the depths of water close to the coast in this area, as it is largely unsurveyed.
- 1.1.6 At 1934 and 1936 hours the Greymouth Police received consecutive 111 telephone calls from residents of Kakapotahi, each reporting a red flare sighting to seaward of the Waitaha River mouth. A Class II Search and Rescue (SAR) was initiated.
- 1.1.7 Calls made on VHF radio and cellular telephone accounted for all of the known vessels in the area with the exception of the *Amigo*, which did not respond to any of the calls. The strong winds, rain, rough sea and the onset of darkness, combined with the area's remote location, made access to the search area by aircraft, boat or four-wheel-drive impracticable.
- 1.1.8 At 2054 hours Police alerted the National Rescue Co-ordination Centre (NRCC) to the situation and at 2334 hours the NRCC upgraded the search to class three, and took control.
- 1.1.9 At 0212 hours on 2 October 1996 an RNZAF P-3 Orion aeroplane was deployed from Whenuapai and arrived in the search area at 0330 hours. At 0440 hours the P3 detected the *Alfred* and *Kutea* anchored off Hokitika, but failed to find any trace of the missing *Amigo*.
- 1.1.10 At 0550 hours a helicopter was tasked to perform a beach search at first light. At 0620 hours the helicopter crew located part of the *Amigo*'s wheel-house, its life-raft, life-jackets, life-rings and other flotsam strewn along the coast near Green's Beach. A weak signal from one of the *Amigo*'s EPIRBs was detected and the beacon was found activated, but with its antenna broken off. The life-raft had been inflated but had sustained damage to three of its buoyancy chambers. None of the equipment inside the raft had been utilised.
- 1.1.11 Over the ensuing days more wreckage from the *Amigo* was located strewn up to 28 nautical miles down the coast. The machinery and mooring equipment was not recovered.

1.1.12 The search for the missing crew was hindered by the build-up of foam on the beach caused by the rough sea. The body of one deck-hand was recovered one week later. The Master and other deck-hand were presumed drowned.

1.2 Vessel information

1.2.1 The *Amigo* was a double-ended, wooden, longline fishing vessel, built in 1969 at Invercargill. The vessel was powered by one 82 kW Gardner diesel-engine driving a single fixed-pitch propeller, which gave a service speed of approximately seven knots. Two banks of batteries, which were charged by two belt driven alternators, produced a 24 V power supply.

1.2.2 The *Amigo*'s engine-room was located amidships with the fish-hold aft and the accommodation forward of the engine-room. The wheel-house, which was located on top of the engine-room, had two sliding doors, one rear facing, which opened onto the aft deck, and the other opening to the starboard side of the vessel. Access to the accommodation and engine-room was from inside the wheel-house. (See Figure 2.)

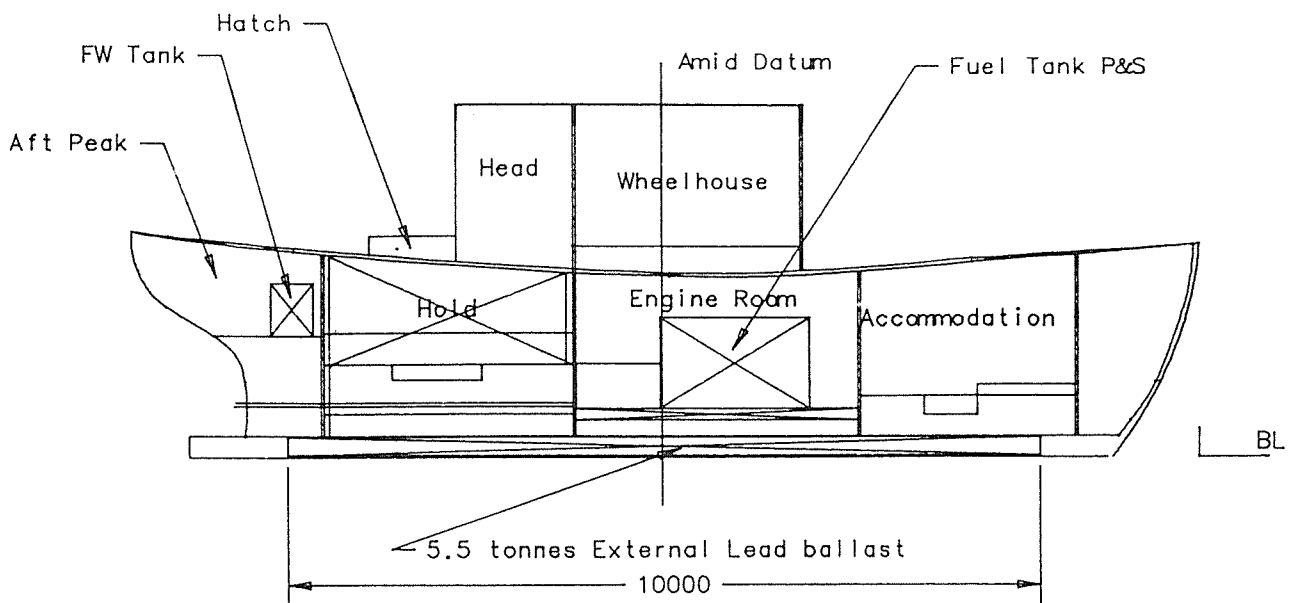


Figure 2
Profile of *Amigo*
(Diagram not to scale)

1.2.3 The fish-hold was fitted with removable pond boards to prevent the catch from shifting. The hydraulic steering ram and rudder top-end bearing were located in the aft-peak, a small space behind the fish-hold. Access was through a hatch on the aft-deck.

- 1.2.4 The deck was enclosed by solid wooden bulwarks constructed with freeing-ports. A mast was located on the foredeck in front of the wheel-house, behind which a double-drum trawl-winch was fixed to the deck. The trawl-winch doubled as the anchor winch. A hydraulically-driven net-roller, located on a gantry near the stern, was used as a pot or longline hauler. The gantry extended up into a pipe frame which accommodated fishing floats and associated equipment.
- 1.2.5 Navigation aids on board at the time of the accident included one radar, a depth sounder, GPS navigation, a SSB radio, a VHF radio, CB radio and a magnetic compass (with automatic pilot).
- 1.2.6 The safety equipment carried included three life-jackets, flares, two life-rings, three EPIRBs and a four-person inflatable life-raft. One of the EPIRBs was inside the life-raft, which was normally located in a bracket on top of the wheel-house roof and secured with a hydrostatic release. Another EPIRB was mounted in a bracket near the helm. The third was kept under the wheel-house seat. The flares were kept under the wheel-house seat, and the life-jackets in the accommodation. One of the life-rings was fitted with a light, and the other with a buoyant line.
- 1.2.7 Two 50 kg pick-anchors were carried, one attached to 80 m of 12 mm chain. A spare 20 m of chain, and an unspecified length of polypropylene rope was carried also.
- 1.2.8 In 1991 the *Amigo's* owner had the vessel's stability assessed by a naval architect. To gain a 30% increase in fish-hold capacity, permanent steel ballast was removed from the engine-room, inside the accommodation and under the fish-hold. This ballast was replaced by 5.5 tonnes of external lead ballast, secured to the vessel's keel. An inclining experiment indicated that up to 9.75 tonnes of fish, plus ice, could be carried in the fish-hold, together with up to two tonnes of fish on deck, without compromising the vessel's stability, providing the watertight integrity of the vessel was maintained.
- 1.2.9 The *Amigo* had just been taken off the slip, having had her hull surveyed and painted. The owner had a reputation for maintaining the *Amigo* well.

1.3 Crew Information

- 1.3.1 The Master was 24 years of age. He had been involved with the fishing industry for approximately seven years, obtaining his Qualified Fishing Deck-hand Certificate in September 1992.
- 1.3.2 In December 1995 the Master obtained a New Zealand Coastal Master Certificate and in February 1996 he, with the QFDH, began operating the *Amigo* out of Greymouth.
- 1.3.3 The Master had completed Basic Fire Fighting and Survival courses successfully. He also held a current First Aid Certificate.
- 1.3.4 The second deckhand joined the *Amigo* in May 1996.

1.4 Weather information

- 1.4.1 During the afternoon and evening of 1 October 1996, a small, deep depression moved south-eastwards to a position just south of South Island. An associated cold front extended northwards from the low pressure centre, preceded by a strong northerly wind flow and followed by lighter north-west winds. The cold front moved onto South Island in the afternoon and probably passed over Kakapotahi shortly after 1930 hours.

- 1.4.2 The marine weather forecast for the accident area was for a north-east wind at 40 knots, changing to north-west at 30 knots with the passage of the cold front, very rough sea easing from the evening, a northerly swell rising to three metres and a south-west swell of one metre. Poor visibility in rain was expected, easing to showers during the evening.
- 1.4.3 The forecast was broadcast by Maritime Taupo Radio at 0203, 0603, 1303 and 1803 hours; by Paparoa Maritime VHF station at 0750, 1450 and 1950 hours and by local broadcast stations.
- 1.4.4 In a northerly wind flow, the winds are deflected by the orography of South Island, to flow southwards parallel to the coast as north-easterlies, and are reinforced by convergence. The convergence is between the northerly winds and the north-easterlies off the land. These north-easterlies (slower moving due to increased friction) are often deceptively light on-shore and much stronger over the sea.
- 1.4.5 The winds recorded at Hokitika Automatic Weather Station (AWS) over the four-hour period before the accident were 30 to 35 knots from the north-north-east, gusting 45 to 50 knots. The wind was likely to have been 10 to 15 knots stronger over the sea, equating to 50 knots, gusting to 65 knots.
- 1.4.6 In these conditions wind-generated seas would combine with a short three-metre swell to form waves in excess of six metres in deep water. The waves would stand up on reaching the shallow water off the coast.
- 1.4.7 The *Kutea's* Master reported that he recorded wind speeds up to 60 knots from the north-north-east, where his vessel was anchored, but the predominant sea was coming from the north-west, and "it was pretty bad". Shortly after dark (approximately 1900 hours) the wind backed to the north-west "but only came away to about 20 knots".
- 1.4.8 High water at Greymouth on the day of the accident was at 1330 hours. Those with local knowledge of the accident area, and who were involved in the search during the day following the accident, stated that, at high water, waves were breaking just inside the position where the *Amigo* was reported to have anchored. At low water, larger waves were breaking up to three quarters of a nautical mile further out. This would have placed the *Amigo* inside the line of break at low-water.

2. Analysis

- 2.1 There was no evidence to suggest that the *Amigo* was not seaworthy at the time of the accident.
- 2.2 *Amigo's* Master had communicated with the *Alfred's* Master at 1730 hours, approximately two hours before the accident. At that time the Master did not report any engine or equipment malfunctions.
- 2.3 It was not determined why the *Amigo's* Master anchored in relatively shallow water, close to the coast, in the prevailing weather conditions. The Master may have been aware of the phenomenon whereby the wind-strength over the land was often reduced, and its direction deflected north-east. He may have been attempting to escape the full force of the wind by anchoring as close to the coast as conditions would allow.
- 2.4 No depths are given on the chart for the area where the *Amigo* was anchored. The Master may have had local knowledge of the depths in the area. It is conceivable that the *Amigo* may have been anchored in depths as shallow as 10 m. It is likely that the relatively shallow water was a factor in the sequence of events that lead to the *Amigo* foundering.

- 2.5 The wind speed where the *Amigo* was anchored may have been less than that further offshore; however, the swell generated by the wind offshore was from north to north-west (onshore). The swell would have been standing up as the water became shallower close to the coast. The vessel was likely to have been lying to the north-east wind, exposing its shoulder, or beam, to the swell.
- 2.6 The height of tide was falling at the time the Master anchored his vessel approximately 1.5 nautical miles off the beach. While the vessel may have been outside the line of break at the time of anchoring, it is likely that the vessel was caught inside as the break moved out with the falling tide.
- 2.7 The VHF had been serviceable two hours before the flare sightings and, if operational, was likely to have been switched on, as the Master was due to keep his radio schedule.
- 2.8 The *Amigo*'s crew had time to release a flare and activate one of the EPIRBs before the vessel sank, yet no radio distress message was received. It is likely the vessel's communication equipment was disabled, possibly due to a wave breaking the windows and invading the wheelhouse.
- 2.9 It could not be determined whether a failure in mooring equipment contributed to the accident as none of this equipment was recovered.
- 2.10 The vessel's hull and superstructure were totally destroyed by wave action, and were strewn along the coast for approximately 28 nautical miles. Little could be deduced from the wreckage. The life-raft was likely to have self-activated while the vessel was upside down in the surf.

3. Findings

- 3.1 The *Amigo* was surveyed and crewed as required for a vessel of its class.
- 3.2 The loading of the *Amigo*, as reported by the Master, should not have compromised the vessel's stability.
- 3.3 The Master was aware of the weather forecast.
- 3.4 It would have been prudent for the Master to have weathered the gale in deeper water, further off the coastline.
- 3.5 It is likely that the *Amigo* was overcome by seas breaking close inshore, foundered and broke up in heavy surf.

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