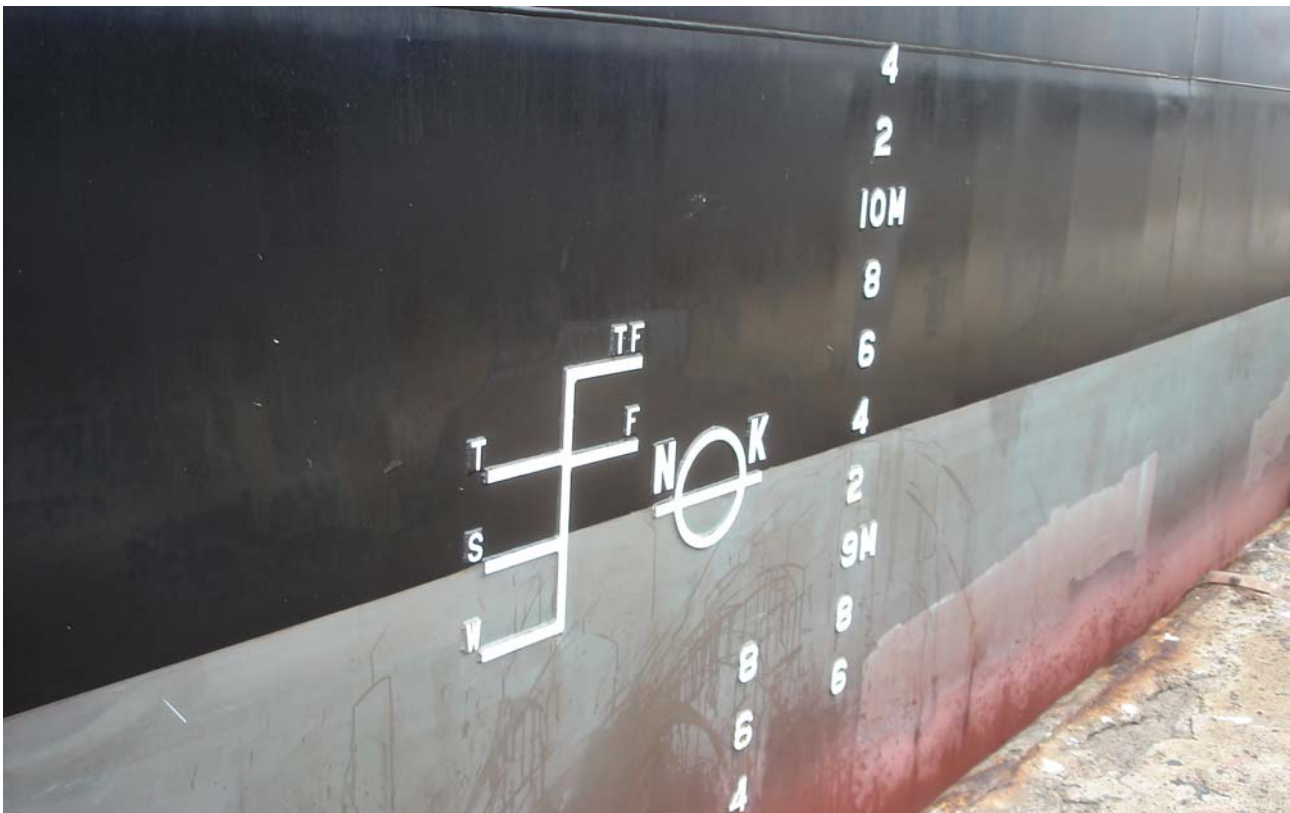


Load line rules in South Africa

There have been a number of costly misinterpretations of the International Load Line Rules experienced when ships call at South African ports

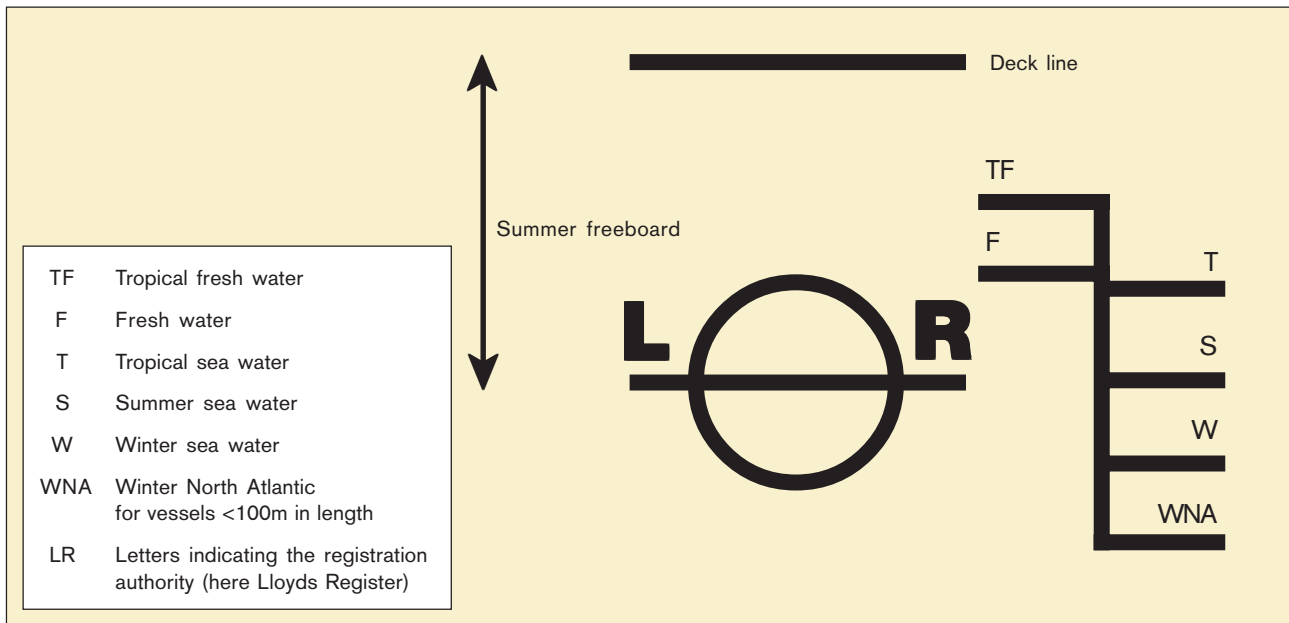


Samuel Plimsoll (1824–1898)

During the 19th century, when British trade with the rest of world was growing rapidly, the high loss of ships being experienced annually as a result of poor maintenance and 'overloading' created a serious cause for concern (during the period 1873/74 in excess of 400 ships sank around the British coast with the loss of some 500 lives). The condition of ships in some instances gave rise to them being referred to as 'coffin ships'.

In 1835, Lloyd's Register introduced rules regarding the

loading of ships in an attempt to reduce the losses, but this only applied to those ships registered with them. Since there was no law or authority to control the quantity of cargo a certain type of ship could safely carry, owners of ships not registered with Lloyd's could do as they pleased, many having no regard for safety. This disregard for safety at sea created a problem for seamen. They were refusing to go to sea, and in 1855, a group of seafarers known as the 'Seamen of Great Britain', wrote to Queen Victoria, protesting that Courts were finding them guilty of desertion when they complained or refused to go to sea in these so called 'coffin ships'.



Various attempts over the years were made, similar to that of Lloyd's Register, to ensure that only safe amounts of cargo were loaded, but unfortunately there was still no compulsory system to force shipowners to act on protecting their ships and lives at sea.

In 1870, Samuel Plimsoll MP and a coal merchant, commenced research into this situation, and although he campaigned in Parliament to improve safety at sea, he was deferred several times until success in 1876 when the Merchant Shipping Act made load lines compulsory. However, the position of the line was not finalised by law until 1894.

In 1906, foreign ships were also required to carry a load line if they visited British ports, and since then this mark on the side of the ship has been known in the United Kingdom as the 'Plimsoll Line'. Together with other important changes with respect to ships and safety, the load line assisted greatly in preserving the lives of ships' crews and passengers.



An example of the load line or 'Plimsoll' mark painted on the side of merchant ship

The International Load Line Rules

In terms of these load line rules, ships are required to ensure that the correct load line mark is displayed with respect to her midship draught, appropriate to the load line zone that she is sailing through. The chart on the next page illustrates these zones.

Although the International Load Line Rules, as the title implies, are in force 'internationally', there have been a number of misinterpretations of these rules experienced when ships call at South African ports.

Many ship masters believe that it is permissible to submerge their vessel's Load Line marks in salt water, provided they can show that the vessel's displacement does not exceed that which is laid down on the vessel's load line certificate. In other words, they believe that even if the ship is 'sagged', provided that the load displacement for the load line zone within which the ship is operating, is not exceeded, then the vessel is not considered 'overloaded'.

Section 214 of the South African Merchant Shipping Act 57 of 1951 (as amended), covers the overloading of vessels registered in the Republic of South Africa, whilst Section 216 deals with the overloading of vessels not registered in the Republic. Section 220 applies to the submersion of the load line on ships not registered in the Republic and applies the provision of Section 214 to such ships.

In part Section 214 (1) [applicable to vessels registered within the Republic] states that the master

"Shall not –

- a) So load the ship; or
- b) Suffer the ship to be so loaded; or

c) Bring the ship into any port in the Republic so loaded,

as to submerge in salt water, when the ship has no list, the load line on each side of the ship appropriate to the circumstances then existing.”

In part Section 216 (which pertains to load line convention ships not registered in the Republic). Section 216 (6) states

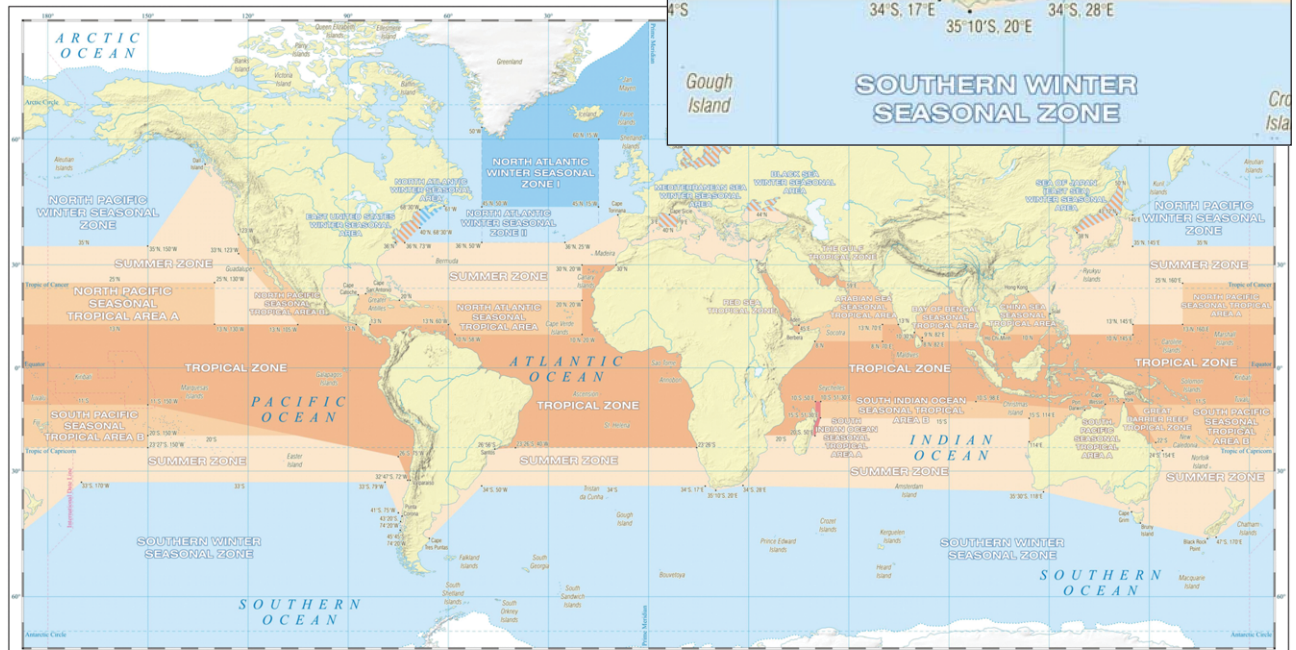
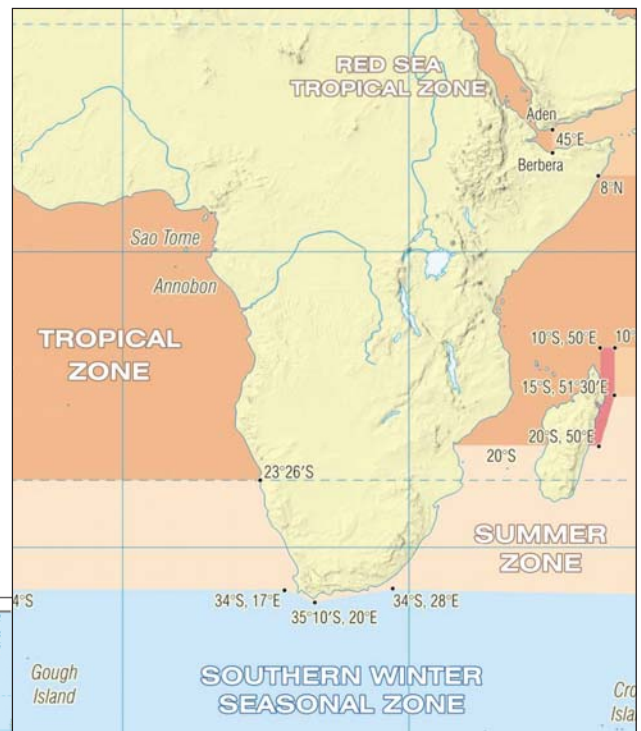
“For the purposes of this section a ship shall be deemed to be loaded beyond the limits allowed by the certificate if she is so loaded as to submerge in salt water when the ship has no list, the appropriate load line on each side of the ship, that is to say, the load line appearing by the certificate to indicate the maximum depth to which the ship is for the time being entitled under the Load Line Convention to be loaded.”

From the foregoing it may be seen that hogging or sagging is not taken into account. The vessels appropriate load line mark shall not be submerged when the vessel is upright in salt water. Salt water is considered to have a specific gravity of 1.025.

South Africa is a popular location for vessels passing on their east-west trades whilst fully laden to replenish bunkers, fresh water and stores. Unfortunately, in some cases, these vessels arrive in a condition either on or near to their ‘summer mark’ and since South

Africa is within the summer zone, these ships have to adhere to the International Load Line Regulations with respect to that zone. Therefore, their summer mark has to be visible subsequent to replenishment of bunkering, fresh water and stores at the time when she is deemed to be ready for departure, i.e. ‘at the time of calling for her departure pilot’.

Unfortunately, there are many cases where the sailing pilot has been ordered for departure and on boarding the pilot has discovered that the summer mark has been submerged. When this occurs, the pilot informs the port control which in turn contacts the local safety authority, the South African Maritime Safety Authority



Source: International Convention on Load Lines 1966, and Protocol of 1988 as amended in 2002

WINTER SEASONAL ZONES AND AREAS		WINTER	WINTER SEASONAL AREAS for vessels < LDA 100m	WINTER	SEASONAL TROPICAL AREAS	TROPICAL	
	North Atlantic Winter Seasonal Zone I	16 October – 15 April		East United States Winter Seasonal Area	1 November – 31 March	North Atlantic Seasonal Tropical Area	1 November – 15 July
	North Atlantic Winter Seasonal Zone II	1 November – 31 March		Baltic Sea Winter Seasonal Area	1 November – 31 March	North Pacific Seasonal Tropical Area A	1 April – 31 October
	North Pacific Winter Seasonal Zone	16 October – 15 April		Mediterranean Sea Winter Seasonal Area	16 December – 15 March	North Pacific Seasonal Tropical Area B	1 March – 30 June and 1 November – 30 November
	Southern Winter Seasonal Zone	16 April – 15 October		Black Sea Winter Seasonal Area	1 December – 28/29 February	South Pacific Seasonal Tropical Area A	1 April – 30 November
	North Atlantic Winter Seasonal Area vessels > LDA 100m	16 December – 15 February		Sea of Japan (East Sea) Winter Seasonal Area	1 December – 28/29 February	South Pacific Seasonal Tropical Area B	1 April – 30 November
	vessels < LDA 100m	1 November – 31 March				Arabian Sea Seasonal Tropical Area	1 September – 31 May
	Limits of the Winter North Atlantic Load Line			SUMMER ZONES		Bay of Bengal Seasonal Tropical Area	1 December – 30 April
	Note: The minimum freeboard for vessels of LDA < 100m within the limits of the Winter North Atlantic Load Line during the winter period shall be the winter freeboard plus 50mm; for other vessels the winter North Atlantic freeboard shall be the winter freeboard.			TROPICAL ZONES		China Sea Seasonal Tropical Area	21 January – 30 April
						South Indian Ocean Seasonal Tropical Area B	1 May – 30 November
						South Indian Ocean Seasonal Tropical Area A	1 April – 30 November

(SAMSA), who will then attend and conduct an investigation.

If a vessel is suspected of being overloaded, a Safety Authority surveyor will attend the vessel (in most cases, two surveyors will attend) and the following procedure will be carried out:

- 1 The vessel's load line certificate will be examined and details of freeboard allowed, as well as allowance for fresh water, will be recorded.
- 2 The density of the water in which the ship is floating will be ascertained by drawing appropriate samples and the utilization of a suitable hydrometer which has a valid certificate (temperature correction given with hydrometers is often so small as to be insignificant in the calculation).
- 3 The vessels freeboard at the mid-length load line marks will be measured by means of a steel ullage tape.
- 4 The dock water allowance will be calculated from the fresh water allowance shown on the load line certificate using the dock water density obtained in 2 above.
- 5 From the freeboard measurements (obtained from each side of the vessel at the load line or Plimsoll mark) obtained and the dock water allowance calculated, the vessels condition can readily be seen, i.e. whether she is overloaded or not.
- 6 If the vessel is overloaded, the vessel's TPC is utilised to give an indication as to how much water, stores, ballast, bunkers or cargo will have to be removed from the vessel. It should be noted that obtaining this figure and accuracy of same is not the responsibility of the Safety Authority surveyor but that of the vessel's master.
- 7 If the vessel is overloaded, the vessel will be detained under Section 220 read with Section 214 of the Merchant Shipping Act.
- 8 At some stage of the survey, the vessel's load line or Plimsoll mark will be checked with the data reflected on the load line certificate by measuring the freeboard from the deck line to the summer mark.

If it is found that the vessel is overloaded, then the ship will be detained until such time that the appropriate load line mark is no longer submerged in salt water. The decision as to what must be removed from the vessel remains that of the master. It is very seldom that cargo is removed from a vessel. Normally, bunkers or drinking water or ballast are discharged.

If overloaded, the vessel's master will be invited by the Safety Authority surveyor to render his account of events as to how and why the overloading occurred and any mitigating circumstances. The master will probably be charged under the Merchant Shipping Act. He will probably be given the option of appearing in Court or if he so wishes, he may sign an admission of contravention. In the latter case, the vessel will be required to lodge a deposit, the sum of which will take into account the severity of the offence and any mitigating circumstances. There is an appeal procedure whereby the deposit or part thereof may be refunded if the master or his representative submits a letter of successful mitigation.

When the vessel is no longer overloaded, appropriate remedial action having been taken, then the Safety Authority will (after the detention fee and contravention deposit have been paid) dispatch a Surveyor to check that the load line is no longer submerged in salt water and if this is the case, the vessel will be released.

Obviously, when freeboard measurements and dock water samples are being taken, the vessels master and officers are invited to witness all readings obtained and to express their agreement or disagreement with same. In the event of a dispute, they are advised to call in an independent surveyor to act on their behalf. In the event that a large rise and fall of water is occurring over the marks, several readings will usually be taken and if there is doubt, then usually the ship will benefit from same.

Section 313(2) itemizes penalties applicable to Section 214(1):

"Fine or imprisonment for a period not exceeding two years, and in addition, a fine of R4000 for every 25mm or fraction thereof by which the appropriate load line on each side of the ship was submerged or would have been submerged if the ship had no list."

Practicalities of lightening an 'overloaded' vessel

In the majority of cases, the only remaining liquid on board that the vessel can dispose of or 'discharge' in order to lighten herself and bring the summer mark into view, are the bunkers.

Vessels are designed to receive bunkers on board and therefore, it is extremely difficult and time consuming to remove the bunkers and pump them ashore. The bunker suppliers in South Africa are not in the business of repurchasing bunkers after they have been sold via a broker. The only method of legally disposing of bunkers is to declare that they are 'dirty oil / slops / sludge' and to call in an independent contractor who is in the business of removing slops and sludge oil from vessels.

This contractor will remove the bunkers from the vessel utilising their own pumps, if necessary, and road tankers, however, although this is at no cost to the shipowner, the contractor will retain the bunkers as payment for the service provided.

If bunkers are removed from the vessel, they are disposed of at no cost and thus a loss is experienced by the shipowner, who will be placed on notice by the owners of the bunkers, usually the charterers.

Overloading in South Africa is an extremely expensive loss not only with respect to the detention fee and contravention deposit but the loss of hire due to the delay of the vessel in port and the loss of bunkers.

A method of dealing with the situation without having to remove bunkers

There have been occasions when bulk carriers, laden with certain bulk cargoes, i.e. heavy density cargoes, have called at Durban where the vessel arrives in a 'sagged' condition and by shifting cargo from the midship hold to the extremities, has resulted in the sag being removed and a slight 'hog' being created in order to raise the midship summer mark to the waterline.

The method of shifting the cargo has been executed by utilising by vessel's own cargo gear (ship's cranes)

equipped with grabs and shifting the cargo out of the midship hold (i.e. hold No3 in a 5-hold Handymax bulk carrier) to holds No2 and 4 and then, in turn, from hold No2 to hold No1 and from hold No4 to hold No5. During this operation, the master is to ensure that a strict tally on grab loads transferred to the various compartments is kept in order to alter the cargo distribution on the stowage plan accordingly. The '*new condition*' of cargo stowage is then fed into the ship's loading computer for the purpose of establishing the longitudinal strength condition. It goes without saying that this procedure can only be carried out provided the longitudinal strength (i.e. sheer force and bending moments) are within the *seagoing* allowable parameters.

During the shifting operation, it is recommended that the main engines are run on various occasions in order to assist in altering the vessel's longitudinal condition and assist in changing the condition at midships.

SA Merchant Shipping Act 57 of 1951 (as amended)

In order to fully understand the 'sections' as quoted in this article, please refer to the SA Merchant Shipping Act 57 of 1951 (as amended), which can be viewed on the SAMSA website (www.samsa.org.za) under 'Legislation'.

This article has been prepared by Captain A R Brink of A R Brink & Associates (www.arbrink.com) – the South African correspondents to the UK P&I Club with assistance from SAMSA (The South African Maritime Safety Authority) and an article on Samuel Plimsoll found (www.rhiw.com) as well as the chart of 'load line zones' – Shipping Guides Ltd.