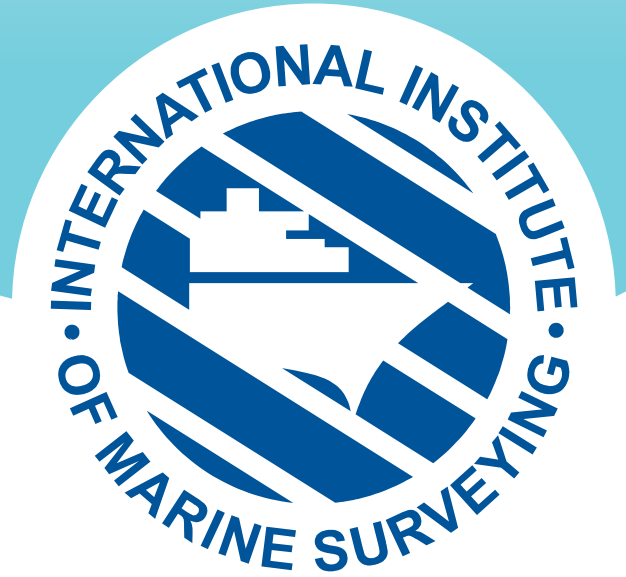


BTEC HNC and **BTEC** HND in
Marine Surveying



UNIT 1

An Introduction to the Marine Surveying Profession





Version 2

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Introduction

As we will see in the following chapters the diversity of the global marine industry opens up a large number of potential areas of surveying for the professional marine surveyor. The type of surveyor and type of survey required depends very much on the instructing party's involvement in a marine venture. Any one of the many diverse parties and stakeholders in a marine venture may at some time have a requirement to instruct a marine surveyor to conduct a survey on their behalf.

It follows from this diversity that many marine surveyors will specialise in a particular field and so conduct work for a specific type of client. This specialisation will have developed through the individual's background, knowledge and experience. The individual's education, training and qualifications play an important part in the process of becoming a specialist in a particular marine surveying field.

As no individual surveyor can specialise in every area of marine surveying it is common place for "associate" business formats to be developed. In this way, practitioners from different specific fields, nautical, engineering, cargo, commodity, naval architects or related marine backgrounds, in or out of the marine industry, agree to work together to be able to offer a wider range of services to potential clients. Others may simply specialise in one area and so develop their knowledge base to an extent to be considered experts in their field and become expert witnesses for the courts.

In its simplest format marine surveyors can be divided into two very specific types, those in the leisure, pleasure boating market and those in the commercial market. This does not mean that there is no overlap as some surveyors can and will have knowledge of both areas and offer their services into both arenas. This tends to be the exception rather than the rule.

This divide can be further broken down, in particular in the commercial market, where there is another divide between the independent surveyor and regulatory body surveyors such as government agencies, flag states and classification. Classification as we will see later is a bit of an enigma, for although they deal with rules and regulations on behalf of governments and flag state authorities they are run as commercial enterprises.

The aim of this unit and the chapters it contains is to give the potential new entrant to the marine surveying profession an overview of what to expect and for the existing surveyor a refresher to further hone their skills and increase their knowledge base.

This unit will concentrate on the role of the marine surveyor as opposed to the marine consultant. These two titles often cause confusion as to the differing roles they play. The content of this unit may overrun into the role of the consultant if it is deemed necessary to clarify or qualify a particular point.

For the sake of good order the following simple definitions for these two titles is given here:

"the marine surveyor is someone who measures, assesses, surveys, inspects, examines and reports on the subject of survey based on the client's instructions"

"the marine consultant offers their skills and services based on their knowledge and experience in a specific field, providing advice and knowledge that the client does not have"

This first unit will provide the prospective marine surveyor with an overview of the marine industry and all the elements that make the industry what it is. We will look at trade, the types of vessels and cargoes and the many different entities that make the marine industry work. This will give the student the background knowledge required to understand the details of the specific units covering the surveying of ships, yachts and cargoes which will be studied later.

Chapter 1

1.0 The Global Commercial Marine Sector

In its simplest definition the commercial marine sector is anything that is not leisure or pleasure in the private marine sector e.g. sailing craft of all descriptions and power boats in all shapes and sizes. Even in the leisure markets there are commercial enterprises, the hire and charter markets being just two examples from canal cruisers to mega yachts. But from a surveying perspective these tend to remain in the leisure market domain.

That leaves a vast area to be covered in the commercial marine sector. As 90% - 95% of world trade involves a marine element we can begin to understand the enormity of the global marine industry.

To support such an industry there has to be an equally enormous number of enterprises, institutions, regulatory authorities and of course personnel involved on a day to day basis.

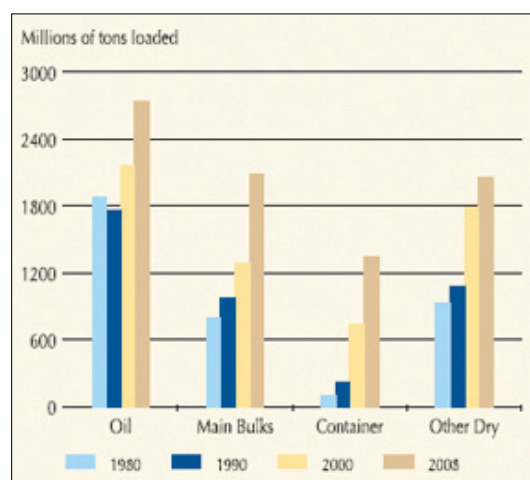
Ship owners, charterers, managers and operators, finance and insurance, cargo owners, commodity brokers, ship brokers, yacht brokers, ship and port agents, freight forwarders, ship builders, ship repairers, ports and terminals, stevedores, ship chandlers, bunker suppliers, the regulators and state authorities and not least the officers and crews of the ships.

In the modern parlance the marine industry is a 365 day, 24/7 industry. As a commercial marine surveyor this is one element of the work that has to be accepted, to survive and prosper, in the marine surveying profession. Like time and tide, ships wait for no man. In this industry, time really is money, enormous amounts of money.

1.1 Global Trade and Trading Patterns

To help to understand the enormity of the marine commercial sector we have to look at the global markets and trading patterns. In this way we will begin to understand the volumes and values of ships and cargoes being moved around the globe on a daily basis. Once we begin to understand these volumes and values involved in a marine venture then we will understand the importance of the professional marine surveyor and the valuable contribution they make on behalf of the many stakeholders.

In the last forty years the developing countries have consistently exported more international cargo than they have imported. The reason behind this is the global production system which has seen the production of manufactured goods being outsourced to these, much cheaper labour, developing countries. Industrial growth in developing countries and the demand for raw materials also plays a part. Developing countries continue to account for the largest share of global seaborne trade. On a regional basis Asia dominates followed by the Americas, Europe, Australasia and Africa.



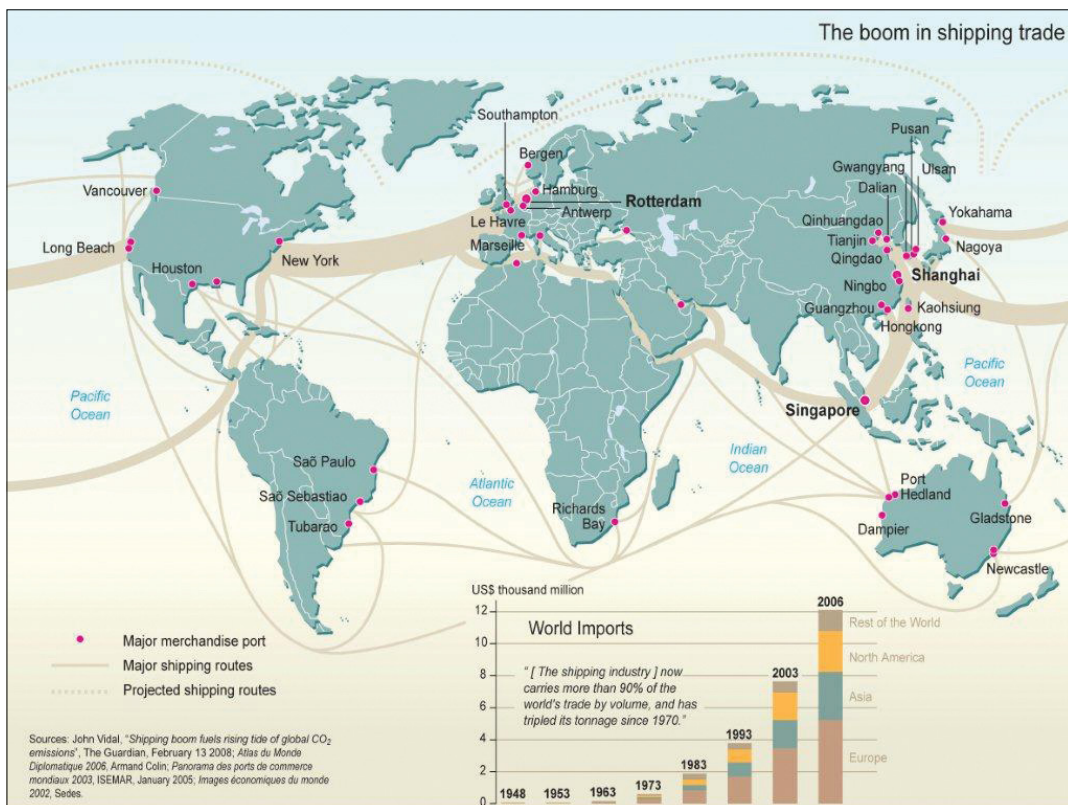
Development of Seaborne Trade

The major commodities in seaborne trade are crude oil, oil products, liquefied gas, chemicals, coal, iron ore, grain, fertilisers and bauxite with part finished and finished goods. The last two being in the main carried in containers with the rest being carried in bulk. There are of course the special areas of seaborne transport that include cars, heavy lifts, live stock and the offshore energy industry.

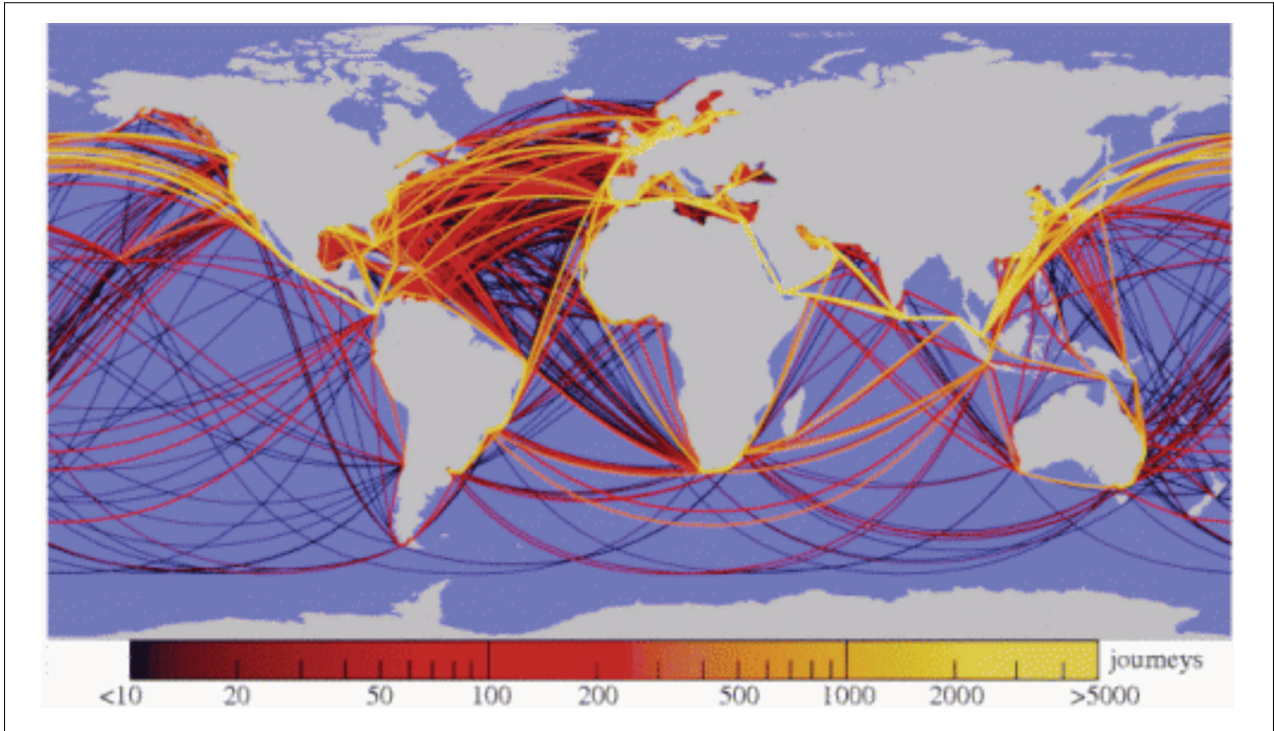
The ferry and cruise liner markets can also be considered specialist segments. The ferry market ranges from the small river crossing ferry to the large international trading Ro-Ro vessel carrying thousands of passengers and hundreds of cars and freight lorries.

It has to be noted that the global fishing industry is not considered as a trading entity within the shipping industry even though it is made up of thousands of vessels and millions of tonnes of produce are involved. This does not exclude the fishing industry and its stakeholders from the requirement of the services of a marine surveyor.

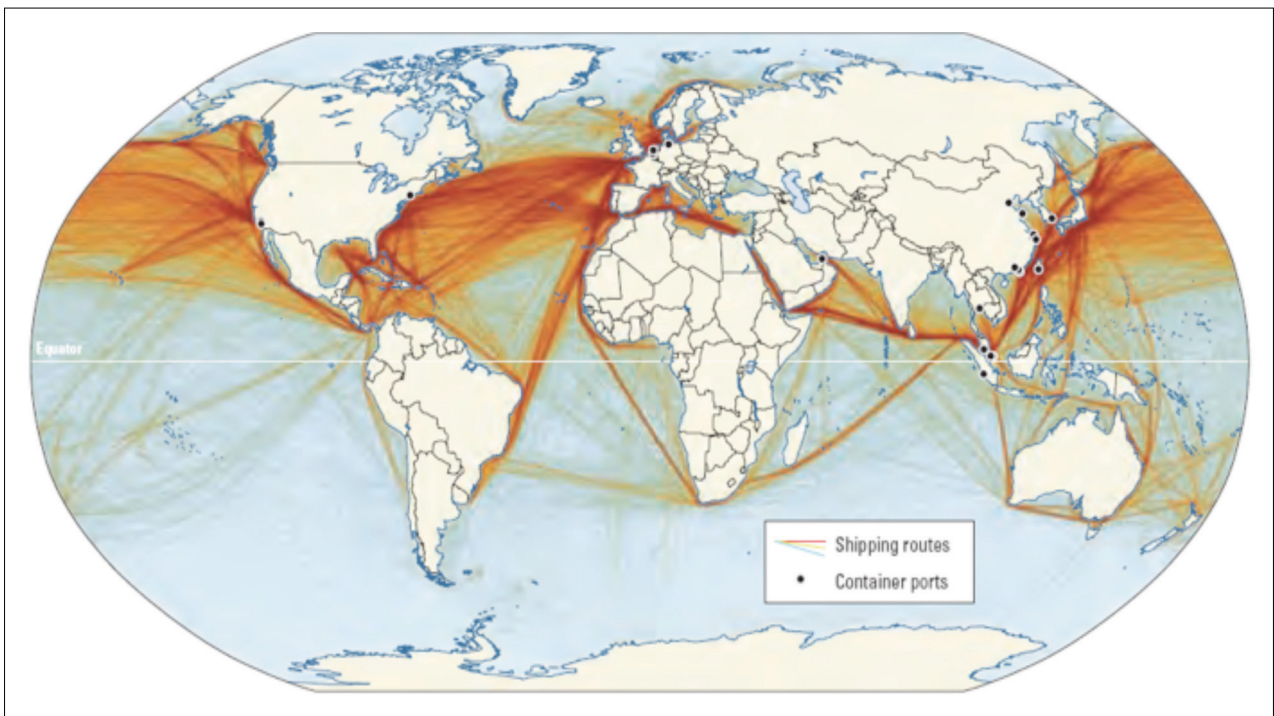
The major deep sea trading routes are across the Atlantic and Pacific in the Northern hemisphere. This is where the majority of the developing economies exist and so the nations which engage in international trade, the car and container trades are good examples of this. There will always be changes to trading patterns the most significant in the last twenty years being the rising share of world trade from and too China and the increase in inter-Asian nation trade. The principal ports of the world in Europe and North America have always served the international shipping trade. Now with the growing economies in the mid and far east specifically China and India, the major ports are in Singapore, Hong Kong, Shanghai, Mumbai, Chennai, Quindaio and many others.



How the boom in shipping trade has increased dramatically since the war years.



2010 shipping routes using GPS for data collection



World shipping routes with the main container ports

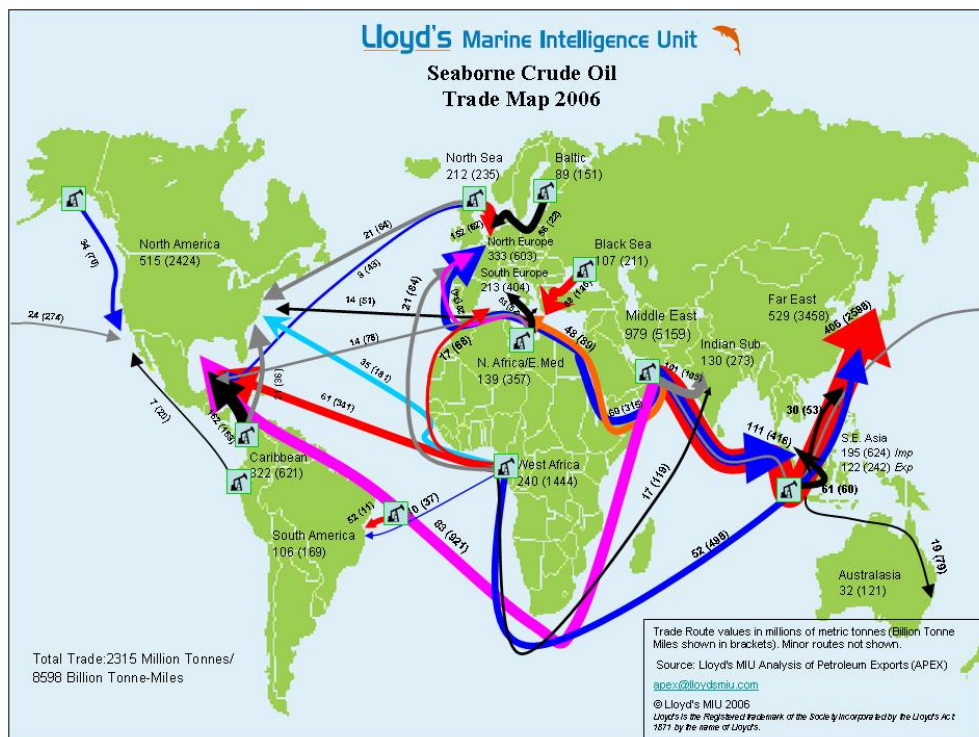
We will now look at some of the cargoes by type:-

Crude Oil

Crude oil can be considered the most important commodity traded in the world today. The whole of society relies on crude oil to sustain its way of life. The demand for crude oil and its products continues to increase.

However, the vagaries of the global economic situation have an impact on the global demand for oil. This will affect the total annual number of oil shipments and the tonnage involved. In 2009 the total shipment of oil, oil products and liquefied gas amounted to 2.65 billion tonnes and this was down from a 2008 figure of 2.73 billion tonnes or 3%. Crude oil alone in 2009 fell by 3.4% to 1.72 billion tonnes.

However the trend is always up and there is already a change in the present markets for crude oil and its products.



Crude oil shipping routes

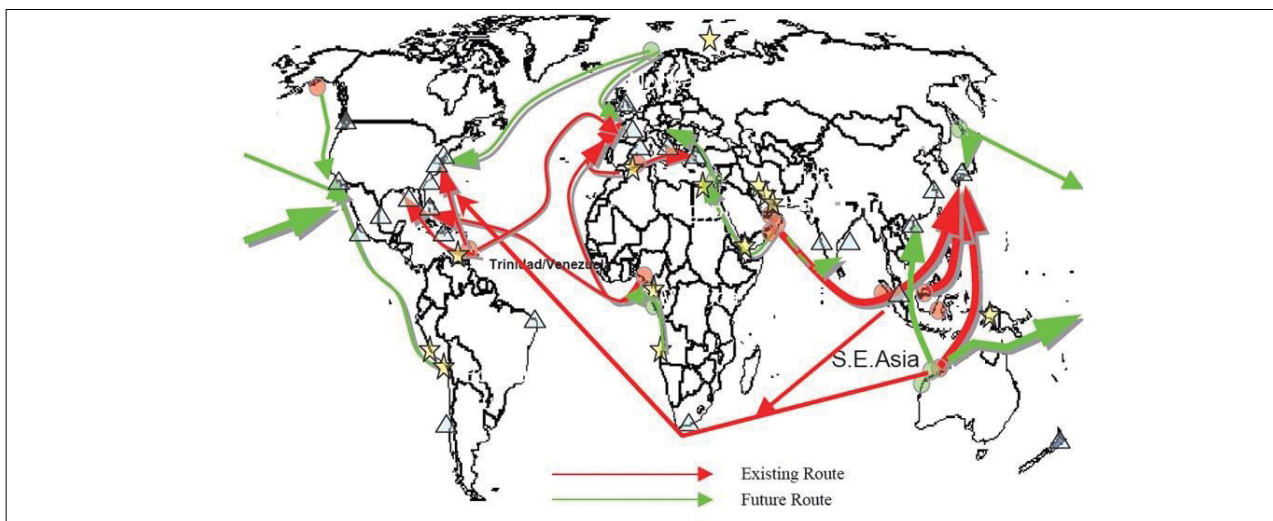
Petroleum Products

The varying demand for crude within the context of the wider global economy will also reflect on the demand for petroleum products such as petrol, diesel and aviation fuel. In 2009 the shipments of petroleum products fell by 2.4% to 924.6 million tonnes. The demand for diesel and gasoline for cars declined significantly. The developed nations accounted for approximately 38% of product exports and 55% of product imports. Developing economies accounted for 57% of product imports and 44% of exports. If you turn these quantities into monetary values you can see why the role of the marine surveyor becomes a very important part of the process.

Liquefied Natural Gas

In 2009 the LNG trade increased by 7.2 % to 242.8 billion cubic metres (bcm) and this was mainly driven by the United States import increase of 28% through cold weather and low gas prices. The large importers of gas in Asia are Japan, South Korea and Taiwan. At this time China is a relatively small importer, however, its projected growth will lead to a new larger and important import market.

The main global exporters of LNG are in the developing regions Qatar, Malaysia, Indonesia, Algeria and Nigeria.



World LNG trade routes

Dry Bulk Cargo

The latest figures available show that dry cargo shipment volumes including dry bulk, container cargo and other cargoes in 2009 stood at 5.2 billion tonnes. The five major bulk cargoes of iron ore, coal, grain, bauxite and phosphate, increased to 2.1 billion tonnes. As with liquid cargoes the enormous quantities involved in the shipment of dry bulk cargoes amplifies the important position of the marine surveyor.

Iron ore exports were estimated at 907 million tonnes in 2009. The major exporters included Australia, Brazil, India and South Africa with smaller exporters including Canada, Mauritania, Peru and Sweden. Australia remained the largest exporter the figure in 2009 amounting to 362.4 million tonnes, Brazil coming in second with 266.0 million tonnes.

Iron ore imports have surged in Asia with China remaining the world's leading steel producer at approximately 568 million tonnes. Other major importers of iron ore are Korea, Japan and India. Western Europe still remains a major iron ore importer.

Coal Cargo

Coal shipment volumes have remained fairly static over the last few years totalling 805 million tonnes in 2009. In the same period Australia and Indonesia accounted for 62% of the world's thermal coal shipments with Indonesia remaining the world's leading thermal coal exporter at 233.5 million tonnes.

Other major coal exporters include China, Colombia, the Russian Federation, South Africa and Venezuela. The major importers are Japan and Europe which together account for 43% of imports.

In 2009 there was a surge of coal imports into China both thermal and coking coal. Growing domestic energy requirements, low coal prices have prompted not only China but other Asian countries including India to increase their coal imports. These changing trends affecting the scale and direction of coal shipments have a knock on effect in the demand for bulk carriers and to alter bulk trade flows.

Grain Cargo

Grain shipments in 2009 were estimated at 316 million tonnes with wheat and coarse grains accounting for 75% of shipments. The largest exporters of grains are Argentina, Australia, Canada, the European Union and the United States. The use of maize and wheat has been declining in many countries. The industrial use of maize and wheat in particular for the production of starch and ethanol has also declined. The drop in trade volumes is broad, spanning all regions. The fall in trade volumes will have an impact on handy size bulk carriers which tend to be the principals grain size vessels.

Bauxite & Phosphate Rock

The changes in world trade volumes of these two raw materials are a good example of how the economic changes can affect demand. In 2009 trade in bauxite fell by 23% at 66.0 million tonnes. Europe, North America and Japan being the main importers. The main exporters being Africa, the Americas, Asia and Australia.

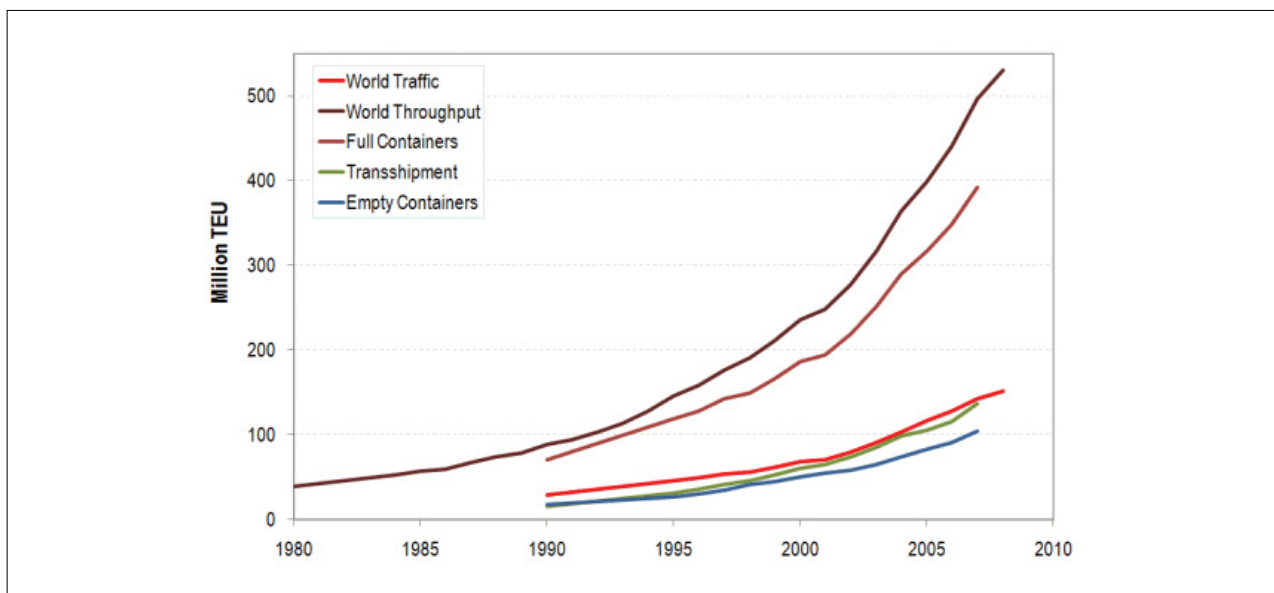
Phosphate rock volumes took a very severe drop by 39% mainly due to the depressed demand from the largest importer the United States, due mainly to the reduced grain production. There is an expected expansion in production with plans underway for increased operations in Brazil, China, Egypt, Finland and Morocco. New mines are being developed in Australia, Namibia, Peru and Saudi Arabia. This expansion programme will have an effect on supply and demand as well as trade flows and the trading patterns of the minor bulk trades and so handysize shipping.

Containerised Cargoes

Containerised shipping has until now grown at an impressive 10% per annum over the last two decades. In 2009 trade actually fell for the first time by 9.0%. The overall volume totalling 124 million TEUs¹ or 1.19 billion tonnes. Manufactured goods and durables are mainly carried in containers and as the main importers, the United States and Europe were badly hit by the recent financial recession so the container trade was also badly hit. The three main container routes, trans-Pacific, Asia-Europe and the trans-Atlantic, were significantly affected. Inter-regional trade fell by 11% to around 50 million TEUs while the North – South container route volumes fell to 21 million TEUs.

Container companies have been severely hit by the economic situation although market forecasts do see an improvement albeit slowly.

Having said all this there are signs of the container trade undergoing changes brought about by the break in the cycle. An example is the relocation of manufacturing plants to more cost effective countries like Mexico.



Thirty Years of Container Trade and Traffic

¹TEU - Twenty Foot Equivalent Unit

In summary for the global shipping industry economic recovery and increased trade is only part of the picture. The most important factor is the supply and demand imbalance and its implications on the shipping companies, freight rates and ship yards. The large numbers of vessels on the order books will see the growth in ship supply outgrow the demand. Cancelling and delaying ship deliveries, renegotiating contracts, lay-ups and bringing forward ship scrapping have helped to bridge the imbalance and so to some extent help manage the situation.

1.2 Ship Types and New Developments

In the previous paragraphs we have referred to a number of different types of ships involved in the global trading markets. It is important for the professional marine surveyor to have a good working knowledge of the different ship types involved in world trade and how they operate. This chapter is confined to the global commercial merchant fleet which in its simplest categorisation can be divided into dry and liquid cargo carriers. Under these two broad headings we can continue to divide, still further, the types of vessel under each category. This is the method adopted here although not every single type of vessel will be described. We will confine the ship descriptions to the main international trading types which the commercial marine surveyor will find themselves involved with in the normal course of their surveying career.

There has been tremendous development and change over the last four or five decades in marine transportation and the carriage of cargoes. One of the major changes has been the port turnaround times. Port development has seen the establishment of specialised terminals within a port complex. These terminals have been built to handle one specific type of cargo and so are more efficient than the traditional port. Bulk terminals for coal, ores, fertilisers, chemical terminals, gas terminals and of course the container terminal, are characterised by their large container cranes and straddle carriers.

The advent of the container and container ship, very large crude carriers (VLCCs), and the offshore industry has changed the carriage of cargoes, ship operations and ports beyond recognition.

The economies of trade have also played a part in the changes to marine transport. Larger ports have been built specifically to accommodate super size container ships to reduce the transport cost per tonne per container. By reducing the number of main port visits by intercontinental trading ships and using smaller feeder ships for onward shipping, larger and larger ships can be employed on the longest leg of a voyage.

In the oil trade ULCCs came onto the scene with ships up to 500,000 tonnes deadweight (dwt²) being built. Then came the Panamax tanker (80/90,000 dwt) and the Suezmax tanker (150/160,000 dwt) built within specific size limits to facilitate a particular trading pattern.

In the bulk trade, again ship sizes increased specifically for the economies of trade carrying cargoes from developing export countries further afield. For example, Iron ore and coal from Australia, Brazil, and Indonesia. New larger bulk carriers are being built to trade specifically between two ports because the size of these ships can only be accommodated by these two ports.

Liquefied natural gas (LNG) although being traded since the 1960s by ship, the demand for gas has increased ten fold over the last ten years. This has meant the development of new ships of increasing size and technical development for the safe carriage of this cargo. New terminals have been built to specifically accommodate not only the ships but the storage of the gas ashore and its onward shipment usually by pipeline.

The offshore oil and gas industry has expanded into a global phenomenon with exploration reaching almost epic proportions. Every part of the world has seen seismic exploration in an effort to find oil and gas from the equatorial regions to the Arctic Circle. This has brought with it new technologies for exploration, production and storage.

²dwt: - Difference between a ship's loaded and light displacement, consisting of the cargo, fuel, fresh water, stores and crew

The offshore industry as it moved into deeper water demanded new ships, larger anchor handling ships, more powerful and larger platform supply ships, installation, maintenance and repair ships, construction ships, well stimulation ships, drill ships, jack-up rigs, and mobile offshore units.

Also seismic ships with multi streamer facilities and 3D and 4D capabilities. This has also led to offshore support bases being developed, some from existing ports like Aberdeen in the UK to service the North Sea sector.

The renewable offshore energy industry, although relatively new, has developed exponentially over the last decade. Wind farms have been at the forefront of the renewable energy drive. This has brought with it new technologies and so new ships to facilitate this development. Installation and service ships of many shapes, sizes and design are now involved with the wind farm industry.

There are also developments in wave and tidal energy which require specialist support ships.

There are approximately 50,000 trading commercial merchant vessels split into five main sectors. These sectors do not include the offshore or fishing industry. The reason for the approximation is that this number is only a snap shot at a particular time. New build ship orders vary over a period of time so new vessel deliveries also vary. There is also a move to scrap more vessels from an environmental point of view as in the case of the tanker market where there is a phase out period for single hull tankers. The number of vessels going for scrap and the time of their scrapping also varies. In 2011 there were 1560 tankers on order, whether they will all be built will depend on the economic markets and the availability of sufficient funding to finance such a large building programme. This is one area where the balance will change as the numbers being scrapped or available for scrapping will not be close to the order book number.

The following are the 2010 percentages for the five main sectors:

General cargo	32%
Bulk carriers	17%
Containers ships	10%
Tankers (all)	28%
Passenger ships	13%

We shall now look at ship types in more detail:-

1.2.1 Dry Cargo Ships

Dry cargo ships can be divided into three more categories unit cargoes, bulk cargoes. and the multi-purpose ship which in its way is the replacement for the general cargo ship and so a mixture of the first two types.

Unit Cargoes.

Container ships
Ro-Ro ferries
Refrigerated ships
Heavy lift ships

Bulk cargoes

Bulk carriers
OBOs
Live Stock carriers
Car carriers

Multi-Purpose Ships

General cargo ships

Container Ships

Although we categorise container ships as dry cargo ships, the containers they carry can be dry containers, liquid containers (tanktainers), bulk containers and reefer containers plus a number of specially constructed containers to facilitate a particular type of cargo, e.g. half heights for heavy lift/project cargoes.



The largest container ship with a capacity of 15,550 TEUs

There are basically two types of container ships, the large intercontinental carrying thousands of containers and the smaller feeder ship carrying containers only in the hundreds.



Feeder ship, 500 TEUs

The large ships can only call at the large ports with the appropriate facilities. This is as we explained previously for economy of scale and so reducing freight rates. The smaller feeder ships then trans-ship the containers to the smaller ports usually restricted to the short sea trade.

Ro-Ro Ferries (Roll On Roll Off)

Ro-Ro ferries themselves can be split into three categories:

- Ro-Ro freight lorries only
- Ro-Ro car and passenger only
- Ro-Ro car, freight and passengers.



Freight only Ro-Ro



Cross Channel Ferry Car, Freight and Passenger Ro-Ro

As the name implies these ships are constructed to allow vehicles to drive on and off. These ships have special ramps built forward or aft sometimes at both ends to facilitate port access.

In the freight only ports, trailers may be driven onto the ships and in this case motor “tugs” are used to handle the trailers on and off. The freight only ferries will not have accommodation but may have limited accommodation for the lorry drivers on the longer haul routes.

Car, freight and passenger ferries, like the cross channel and inter island ferries, make up the majority of the Ro-Ro traffic. Car and passenger Ro-Ros only are usually smaller ships on short sea routes.

Refrigerated Ships (Reefers)



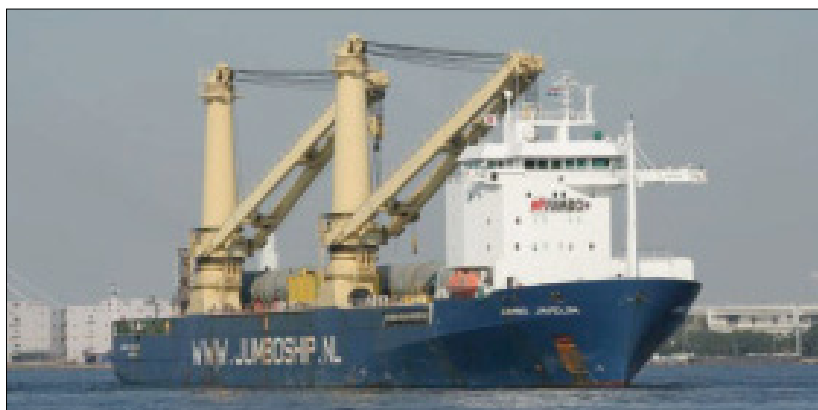
Reefer ship Discovery Bay

Refrigerated ships more commonly referred to as **reefer** ships are built specifically for the transport of perishable goods. This may be in freezer or chilled mode. They have refrigerated, insulated holds usually with multi-tween decks for maximum stowage capacity. The refrigeration plant on board circulates air depending on the method in use which is controlled by temperature monitoring. The air delivery and return temperatures are constantly monitored and adjustments made accordingly.

The number of air changes are also monitored and adjusted depending on the cargo and the carrying instructions. Common cargoes are frozen meat, chilled fruit and vegetables. The newer ships are carrying refrigerated containers where the container has its own built-in independent refrigeration unit which during voyage transit is plugged into the ship's main electrical supply. The containers have their own monitoring and recording systems. Today many containers have their own tracking systems and telemetry which can be linked to satellite systems to allow real-time monitoring of the container position and internal conditions.

Heavy-Lift Ships

Heavy lift ships can be categorised into two types: The semi-submersible and the heavy lift crane ship. Crane ships have lifting capacities from a few hundred tonnes to several thousand tonnes. They rely purely on the crane lifting capacity and control of the vessel's list and trim through ballast transfer. The maximum crane lifts usually depend on two smaller cranes being rigged in tandem and so doubling the lifting capacity.



Heavy Lift Crane Ship 800t lift capacity (1600t with cranes in tandem)

The semi-submersible type is just that. The ship is ballasted down to a pre-determined draught. The unit for transport is then floated over the ship's main deck. The ship then de-ballasts and the unit is lifted. The unit is then lashed and secured in accordance with pre-computed calculations. This system is used extensively for the transport of offshore jack-ups and mobile offshore drilling rigs.



Mighty Servant I in submerged mode awaiting cargo float over



A new generation of semi-submersible heavy lift vessel the Type "O".
This is an artist's impression but this vessel is under construction



Yacht Express a special semi-submersible yacht carrier

The specialised yacht carrier is a relatively new ship to come into the market driven by a need to transport ever more numbers of luxury super yachts around the world. It can be better described as a Flo-Flo (Float on Float off). These ships flood their after decks the same as a dry dock. The yachts are driven on board in a pre-determined order then the water is pumped out. Blocks and cradles are used to secure the yachts for the sea passage. Divers are used to check the yachts are properly landed onto the pre-positioned blocks.

Livestock Carriers

The modern livestock carrier is a far cry from older ships seen on the trade. The modern ship has good animal welfare facilities with extra space, good standards of cleanliness, temperature control as well as special animal husbandry staff to cater for the feeding and watering of the animals carried.

The modern livestock carriers have carrying capacities of up to 6500 cattle or 25000 sheep.



A modern livestock carrier

Car Carriers

Car carriers have a reputation as being the “ugly ships” They are seen as boxes that float.

The principle behind their shape being for maximum uplift of vehicles on several adjustable decks. These ships have their own ramps and load and discharge at special facilities. Although called car carriers in the trade they carry other vehicles, vans, tractors and lorries. The vehicles are driven on and off under their own power usually into large open air storage compounds.



A large car carrier berthed at a special reception facility (Note the tractors)

Bulk Carriers

Bulk carriers are specially designed to carry loose homogenous cargoes in large bulk quantities.

They range in size from Handysize around 30,000dwt, many with their own handling gear carrying scrap, grain, fertilisers, and forest products. Panamax around 80,000dwt usually iron ore and grains. Capesize around 160,000dwt plus carrying iron ore and coal. There are also a fleet of mini bulkers operating short sea trades especially in the inland waterways of Europe, these are usually in the 1000 – 3000dwt range.



A fully loaded capesize bulk carrier

Multi-Purpose Ships

Multi-purpose ships as the name implies can carry many different types of cargoes. The cargoes are usually in smaller quantities from containers, dry bulk, timber and timber products, general break bulk cargoes and project cargoes. They can be sub divided into geared and gearless ships. The ships tend to be small in dimensions such that their draught and air draught allows them to enter the smaller ports.

This makes them very suitable to act as container feeder ships as well as mini bulkers for minerals, fertilisers and building products like sand. The gear is usually made up of two possibly three deck cranes with a SWL of around 20t with the ability to tandem two cranes for increased lifting capability for project cargoes.



A multi-purpose general cargo ship

Passenger and Cruise Liners

Passenger ships like the old transatlantic ships are a rarity except in the context of passenger only ferries which still exist for short sea and inter-island routes.

In contrast the cruise industry has expanded to mega proportions with increasing numbers and sizes of cruise ships entering the market on a regular basis. This market increase has been supported by the decreasing passenger rates being made available. The ocean cruise is no longer the domain of the rich. The size of the new generation cruise liners has gone from a few thousand passengers to over six thousand on liners like the Oasis of the Seas.



Cruise Liner Oasis of the Seas

1.2.2. Liquid Cargo Ships

Liquid cargoes traded in the international markets can be categorised into four types, crude oil, oil products, chemicals (including animal and vegetable oils) and LNG/LPG. In the offshore industry many liquid cargoes are carried for drilling purposes. These are not being traded but on occasions surveyors can be instructed where there may have been a carriage problem, a quantity dispute or contamination problem.

To facilitate the carriage of these liquid cargoes ships are built accordingly for the specific trade and cargo. The actual tonnage range does vary depending on whose definition you use.

Ultra large crude carriers ULCC 320,000dwt +
Very large crude carriers VLCC 200,000 – 320,000dwt
Suezmax 120,000-200,000 dwt (able to transit the Suez Canal)
Panamax 60,000 dwt – 80,000 dwt (able to transit the Panama Canal)

Product Carriers 10,000 dwt – 60,000 dwt range

Chemical tankers 5,000 dwt – 30,000 dwt

LNG carriers average 140,000m³ – new generation vessels now reaching 266,000m³

ULCC/VLCC

Both these types of ships are designed for the maximum uplift of crude oil cargo. They have a minimum number of tanks from 18-21 with maximum pumping arrangements for efficient discharge.

They also have the ability to load by gravity at rates of thousands of tonnes per hour to expedite the loading operation. These ships trade on an intercontinental basis from the oil producing countries through terminals usually next to the oil fields or at the end of a pipeline system. The physical size and large draughts restrict their access to only the largest ports. Many of these ports are specifically oil ports built for the natural deep water available like Milford Haven in the UK or specially built as an offshore facility like LOOP (Louisiana Offshore Oil Port) in the Gulf of Mexico.



Fully loaded VLCC of 313000dwt

Product Tankers

'Products' mainly refers to the products of refineries and the petro-chemical industries but there are also very specific products outside the petro chemical industry which require transportation in large economic quantities like orange juice, wine, vegetable oils, and drinking water.

Product ships are smaller ships usually in the 30,000 - 50,000dwt range designed for the carriage of oil products like petroleum, diesel, naphtha, lubricating oils, and bitumen. They are built with a larger number of tanks to facilitate the carriage of a number of segregated cargoes at any one time. These tanks may be coated and have heating coils for the safe carriage of the cargoes. The tanks may have their own separate pipeline and pumping system.



Product tanker of 47,500 dwt Freja Baltic

Chemical Tankers

Chemical tankers, because of the hazardous nature of their cargoes, are very specially constructed to withstand any potential problems with the cargo and its effect on the environment from a spillage.

This class of tanker has a very good track record with regard to cargo spillage or other problems. The ships are divided into classes depending on the level of protection against pollution with Class I being for the most hazardous, to Class III for the less hazardous. International Maritime Organisation (IMO) (www.imo.org) categorises chemicals from A the most toxic, to D the least toxic. These are then listed in the International Maritime Dangerous Goods (IMDG) code, commonly known as the Blue Book, stating on which class of ship an individual cargo may be carried. The IMDG Code also contains information about the carriage of these chemicals listed. Chemical tankers are built under Classification Society rules and a Certificate of Fitness issued by the Society stating the carriage capability of the ship.



Typical chemical tanker of 17,000 dwt

LNG Tankers

Over the last thirty years LNG tanker size has remained fairly static at around 140000m³. In the last five years the demand for gas has increased to an extent that new import terminals have been built to accommodate larger gas tankers with capacities up to 266,000m³. These new generation ships have been built with specific trading patterns from the Middle East to continental Europe. Gas when liquefied is about 1/600th of the space needed under atmospheric conditions. This is the reason why gas is carried in liquid form to maximise the carrying capacity. Gas carriers are constructed under very strict rules and their containment tanks are categorised into three specific types: pressurised with the cargo under pressure at ambient temperature, semi-pressurised with the cargo at low temperature and under pressure, and fully insulated and refrigerated with the cargo at atmospheric pressure but at low temperature. The containment tanks are usually constructed from one of four different types depending on the cargo carrying method: flat panels, spherical, cylindrical and box type membranes.



LNG carrier of 135,000m³ (note the spherical tanks)

1.2.3. Offshore Ships in the Oil, Gas and Renewable Energy Industry

It is outside of the scope of this part of the unit to go into detail about the complex structure and the different elements of the offshore industry.

The history of the offshore energy industry dates back to the 1890s in America when the first so called offshore rig was built just 90m off the shores of California, although the precise history of the beginning of offshore development is somewhat contradictory. However, it is safe to say that oil exploration and production offshore in the last five decades has moved ahead in leaps and bounds as the ever increasing demand for oil and gas has dictated the extremes that man will go to to find new oil and gas fields offshore.

The development of the seismic survey system for detecting seabed formations containing oil reservoirs certainly heightened the onslaught of offshore oil recovery. Offshore fields in the Gulf of Mexico, Nigeria and the North Sea are all well established oil producers with Brazil, the Far East and Australia fast catching up in the last decade. In all these new developments moving into ever deeper waters has been the driver to innovation and the new generation of ships coming into operation.

In only the last 50 years offshore support ships have gone from an engine power of 2-3000bhp to up to 30,00bhp. These new ships are equipped with dynamic positioning (DP) mechanical anchor handling systems, integral tank and cargo systems all activated and controlled by the press of a button or the movement of a joy-stick. New ships have been designed for specific offshore tasks, the construction ship for installation, maintenance and repair (IMR), the well stimulation ship, S&J³ pipe layers, survey ships, remote operated vessel (ROV) support ships, dive support ships, Floating Production Storage Offloading (FPSOs), shuttle tankers, multi-purpose ships, wind turbine installation ships, wind turbine maintenance support craft, and heavy lift crane ships.

Today, the offshore industry is moving into the extreme Arctic Polar regions where ice and freezing temperatures have placed new challenges in the search for oil and gas fields. Specialised tankers have been designed for ice control with specialist features to protect the crew from the extremes of the weather conditions. Ice breakers are becoming even more powerful to extend the working period of this new design of tankers in the ice conditions of the Arctic Polar regions.

³S&J:- S lay or J lay the method used to lay the pipeline on the seabed from the barge or vessel

The International Association of Classification Societies (IACS) have developed unified requirements for Polar ships with Polar notations.

Polar Class	Ice Description (based on WMO Sea Ice Nomenclature)
PC 1	Year-round operation in all Polar waters
PC 2	Year-round operation in moderate multi-year ice conditions
PC 3	Year-round operation in second-year ice which may include multi-year ice inclusions
PC 4	Year-round operation in thick first- year ice which may include old ice inclusions
PC 5	Year-round operation in medium first-year ice which may include old ice inclusions
PC 6	Summer/autumn operation in thin first-year ice which may include old ice inclusions
PC 7	Summer/autumn operation in thin first-year ice which may include old ice inclusions

IACS Polar Class Notations

Exploration & Appraisal	Seismic	Seismic survey vessels
Exploration	Well drilling	Jack-up drilling rigs Drill ships Semi-submersible drilling units
Top-side development	Construction & installation of production platforms	Crane barges Heavy lift ships Offshore barges
Underwater development	Drilling wells, installing wellhead manifolds, interconnecting wellheads back to the production facility	Jack – up rigs Semi-submersibles Pipe lay barges Pipe lay ships
Oil & gas recovery offshore	Surface production	Fixed production platforms FPSOs Production jack-ups & semi-submersibles
Oil & gas recovery onshore	Offloading & pipelines	Shuttle tankers Pipe lay barges Pipe lay ships
Field support	Supply services Maintenance & repair Emergency rescue and response	Platform supply(PSV) & anchor handlers (AHTS) Dive support ships, IMR/construction ships Survey/ROV support ships ERRVs, standby ships

A simplified table showing the offshore oil & gas recovery process.

Platform Supply Vessels (PSVs)

These can be considered the work horses of the offshore industry, they are the life line to not only the industry process but to the men and women who work in the offshore industry. They supply the drilling hardware and equipment e.g. drill pipes and casing as well as the muds and chemicals required in the oil recovery process, brine and bentonite. They also supply the personnel on board the offshore platforms with all their fuel, food, water and day to day consumables which, on a platform where there could be several hundred men and women, amounts to a large quantity of supplies. Over the last fifty years the PSV has increased in size and power dramatically. New hull designs, bow designs and cargo handling equipment have all been introduced in the name of efficiency, safety and the protection of the crew and the environment. The PSV is characterised by a large clear after deck to enable them to load maximum deck cargoes, usually unitised. The cargo tank systems are built under deck into the ship's structure with discharge/back loading using portable hoses. The new generation PSVs are fitted with DP systems to allow better and safer station keeping when involved in platform operations.



Far Server a new generation PSV

Anchor Handling Tug/ Supply (AHTS/AHT)

The anchor handler, as it is known, is a specially designed and equipped ship to carry out the primary function of handling rig mooring anchors and chains. When a mobile offshore drilling unit (MODU) has to locate in a specific position an AHTS will be mobilised. There will usually be two or possibly three AHTSs employed to handle and position the mooring anchors on the seabed. As the water depths have increased so has the size and capability of these AHTSs increased to allow them to work in these extreme depths. The new generation AHTSs have equipment handling systems for crew safety as well as DP systems for vessel positioning. The AHTS is characterised by a shorter after deck with a stern roller to allow the anchors to be landed on deck. They also have very powerful winch systems that can handle static loads of up to 500 tonnes. The vessels themselves have even more powerful engine arrangements with main engines and thrusters able to apply bollard pulls of several hundred tonnes.



AHTS Far Saracen (note stern roller and winch system)

Dive Support Vessels (DSVs)

In the offshore industry the amount of sub-sea equipment, wellheads, pipelines and fittings has increased dramatically over the last decades. All this sub-sea equipment has to be installed, maintained and sometimes repaired. To do this work the services of deep water saturation divers are required. To support the saturation systems specialised diving support vessels have been introduced. In the early days these were converted deep sea trawlers and similar vessels. As the demand grew and safety legislation made more demands, special diving support vessels have been designed and are in service on a worldwide basis today. These new generation vessels are some of the most sophisticated working in the offshore sector. They have multi complex diving chamber systems able to accommodate up to eighteen divers at any time. They have two diving bells, usually three man, and two moon pools for launch and recovery. These vessels are fitted with the latest dynamic positioning systems to the highest redundancy classification.



Modern Diving Support Vessel

Jack-up Rigs

Jack-up rigs are mobile drilling units used to operate in shallow waters. The water depths they work in depends on the size of the rig and so the length of the jacking legs. The larger rigs can work in water depths up to 150 metres although the majority are working in much shallower depths like the southern North Sea where depths are usually in the 30 to 50 metre range. The majority are of the three leg design.



Three leg jack-up rig

Mobile Offshore Drilling Units (MODUs)

The requirement to drill in ever deeper water brought in the semi-submersible drilling rig. This design was based on a number of submersible columns which could be ballasted and deballasted as required. They would be towed to the worksite in a deballasted condition and, when in position on site, ballasted down to form a stable platform to drill from. The majority of MODUs have eight point mooring systems to keep them in position while drilling operations are in progress. These mooring systems are made up of wire, chain and specially designed anchors weighing in excess of twenty tonnes. The anchors themselves are under constant development and we see torpedo anchors being used on some locations. The latest semi-submersibles have DP systems for station keeping.



Semi-submersible Mobile Offshore Drilling Unit (note the anchor chains)



Torpedo anchors on the after deck of a large anchor handling tug

Installation Maintenance Repair Vessels (IMRs)

All this sub-sea equipment has to be installed, maintained and on some occasions repaired. In the early days, and still to some extent today, this was done by an MODU. In the search for quicker and more cost effective operations there was a need to look at alternatives to the MODU. The new generation installation, maintenance and repair vessels evolved and do the majority of this sub-sea work today. They are in the majority large mono hull vessels equipped with high capacity cranes, large after decks for equipment, workshops and excellent accommodation facilities for a complete working squad and all their tools and equipment. They are all DP vessels classed to the highest level of redundancy.



Modern IMR vessel

Pipe Laying Barges/ Pipe Laying Vessels

As the greater production of oil and gas increased, so the need for more sub-sea pipelines to bring this oil and gas ashore increased. This was either a direct pipeline ashore, a pipeline to a common loading buoy or pipelines from multiple wellheads to a Floating Production Storage Offshore (FPSO).

To facilitate the laying of pipelines, specially designed vessels and barges were developed to accommodate all the differing types and sizes of pipes that are required to be laid on the seabed.

The early vessels were only able to lay one line but today the latest vessels and barges can lay multiple lines. New methods of laying pipes have also been developed. The J-lay and bottom tow are unique to deep water operations. These new generation vessels and barges have DP systems to the highest redundancy classification such that they do not require anchoring systems. This gives them far more mobility and so a quicker and more cost effective method of laying pipes. To be viable in the offshore market as the industry turns to ever deeper water, the modern pipelayer must be capable of laying pipes in extreme depths and in remote locations. There are different methods of laying pipes: the S-lay and the J-lay. There are also two methods of pipe handling. On some vessels and barges the individual lengths of pipe are welded together as the pipe is paid out over the stern of the vessel or barge using a stinger arrangement. This method tends to be slow as the welding process involves periodically stopping the operation to weld new pipeline sections together. There is also the reel or carousel system. This involves the pipe being wound onto a reel or carousel and the pipeline is spooled off the reel through the stinger to the seabed. The operation is quicker but delays occur if the vessel has to return to a port to replenish the pipe.



Semi-submersible pipe lay barge



New generation mono hull pipe lay vessel (note the stinger aft)

Survey & ROV/AUV Support Vessels

The increasing demand for sub-sea work has seen the development of large Remote Operated Vehicles (ROV) capable of carrying out repair and maintenance work in deeper and deeper waters. These ROVs have developed to what are known as work-class vehicles capable of having manipulators and robotic attachments to facilitate a variety of work tasks without diver intervention. To support these new generation vehicles specialised support vessels capable of deploying one or more of these ROVs have emerged onto the market. They have special hangars built into the vessel's structure with two moon pools for launch and recovery enabling the ROVs to be deployed in greater sea conditions than a conventional vessel. These ROVs are now joined by a growing fleet of Autonomous Underwater Vehicles (AUV) which as the name implies are not tethered.



ROV support vessel (note the blue ROV hangar door)

Emergency Rescue & Response Vessels (ERRVs)

In the 1960s and 1970s when the demand for oil moved into offshore locations there was a need for a standby safety vessel in case of emergency. In these early days a converted trawler was all that was thought necessary to cover the safety requirements. After the Piper Alpha incident in the North Sea and a number of other incidents worldwide, it was realised that a different class of vessel was required. Over the last decade this requirement brought about by new safety legislation has led to specialised vessels being built. These new vessels act as a mother ship to smaller fast rescue craft and daughter craft which are carried on board. These new generation vessels will usually take station to cover a number of platforms on a given location.



New generation ERRV

1.2.4 Wind and New Technologies

As the political and economic demand for renewable, cleaner and safer energy sources has increased, so wind turbine technology has developed tenfold over the last decade. The advent of offshore wind farms has seen an increase in offshore construction and installation in particular in the shallower coastal waters. The physical and generating size of these turbines has also increased to an extent that to make wind power generation economical, a new generation of installation vessels has been, and are still being designed, specifically for the wind renewable energy industry. A lot of the innovation and technology has been based on the engineering used in the offshore oil and gas industry.

Wind Turbine Installation Vessels

The wind farm installation vessel must be capable of carrying a number of turbine base structures and nacelles to enable the operation to be cost effective. They must also have good station keeping ability with a high capacity lifting capability. Many of the new generation are self propelled mono or twin hull vessels with a DP system or they have jack-up legs.



Wind turbine installation vessel (note the large crane)

Wind Farm Support Craft

The wind turbines as with any other engineering facility will require regular maintenance and sometimes repairs. To support the maintenance personnel a new design of small fast craft have been designed and built specifically for the task. They are usually based on the twin hull, catamaran hull form to give good stability. They are fast to keep ride time to a minimum with the capability of carrying a full maintenance crew and all their equipment. One unique feature of these craft is the transfer arrangements at the bow. The majority are built of aluminium although composite vessels are now on the market.



Aluminium wind farm support vessel (note the bow transfer arrangement)

1.2.5 Specialised Vessels

Although all the above may be considered as specialised vessels there are still many vessels that are trading the inland waterways, coastal waters and international seas that have only one specific task. It is beyond the scope of this unit to describe every type of vessel, barge or craft that a marine surveyor may in the course of his work happen to be involved with. The following are a number of the more common types the marine surveyor is likely to come across.

Cutting & suction dredgers

Cutting dredgers are used where there is a requirement to literally cut through sub-sea rock outcrops to either form a trench to lay pipes or cables, or to improve a navigational channel.



Cutter dredger

The coastal suction dredger is often used on a commercial basis to extract sand and gravel from the seabed for onshore construction purposes. They are also used to keep navigational channels open when these channels become silted up.



Coastal suction dredger (note the suction pipes)

Deep Sea Mining Vessels

Deep sea mining although relatively in its infancy the future of deep seabed mining is a reality. There is now a great deal of interest in seabed mineral recovery as more and more exploration finds larger resources. To date there are many new seabed mining vessels and facilities on the drawing board. In the meantime the present vessels have been converted or adapted from drill ships and/or installation maintenance and repair vessels used in the oil and gas offshore industry.



Typical mining vessel using a drill ship

Cable Laying Vessels

As the demand for communications as well as offshore cable systems has increased, so has the requirement for faster and quicker multi lay vessels.



Modern cable layer (note the midships carousel)

Ice Breakers

Oil and gas exploration is now moving into Arctic waters where the extreme weather and in particular the ice conditions have necessitated the use of more powerful ice breakers in greater numbers.



Large ice breaker in operation

Seismic Vessels

Offshore oil and gas exploration is only possible with the utilisation of seismic technology. The early days of small four to eight streamer 2D vessels have been superseded by multi streamer up to fourteen streamers with 3D and even 4D capabilities. To accommodate this number of streamers from the stern a new design of seismic vessel has been designed resulting in the Ramform concept, this design is also being further developed to increase and facilitate new seismic technology.



New generation Ramform Seismic vessel (note the stern breadth)

1.3 Stakeholders in a Commercial Marine Venture

Now that we have identified global trade and the ships involved, we have to look at the people and organisations that collectively put a marine venture together to make it actually happen. It is important as a marine surveyor to know and understand the various roles of these stakeholders.

1.3.1 Cargo Owners

This may seem obvious but without cargoes leading to seaborne trade then there would be no need for ships. Trading between nations has been the primary source of the shipping industry's development. Innovations fuelled by the vast appetite of the global consumer markets we have today, bringing with it the ever increasing demand for energy and new energy sources, has brought us to our present situation.

Anyone is classed as a cargo owner if they have goods to be shipped by sea. Cargo owners can be single one off individuals who have a need to move a single item or unit of goods through to major corporations and global companies like the oil majors and commodity companies such as ore mining and grain merchants. Shipping goods at sea in ocean vessels has its special problems which every cargo owner will incur no matter what the size or value of the shipment. Cargo owners may of course be importers or exporters, buyers and sellers of goods or, in many cases, both. The latter importing the raw materials, producing part finished or finished goods then exporting them.

The regimes covering the carriage of goods by sea involve knowledge of intricate terms and conditions associated with Bills of lading, ocean tariffs, insurance and liability. The small cargo owner will be unlikely to have all the required disciplines involved available in house. They have to employ specialist cargo brokers, shipping agents, freight forwarders, insurance brokers to handle the transactions along the way to make sure their goods depart and arrive at the right time and the right place, in good order. The larger organisations will have their own departments set up manned with experts in a specific field to handle and process their particular part of the transaction. These departments in larger corporations will almost certainly be supported by a legal team of shipping lawyers versed in the vagaries of shipping law and the carriage of goods by sea.

1.3.2 Ship owners, Managers, Charterers

Ship Owners

Ship owners come in many guises from the one ship owner/operators to the global conglomerate companies with several hundreds of ships trading in a number of the different trading sectors on an intercontinental basis.

As an illustration of the latter we can sight A.P.Moller – Maersk Group (www.maersk.com). This is a global company which employs over 100,000 personnel in 130 countries and operates in excess of 500 vessels of different types. Its marine business activities include: container ships and transport, crude products and gas tankers, offshore supply services, drilling rigs and FPSOs, towage and salvage.

The smaller one ship owner/operators tend to be confined to the coastal fleets and many of the European waterways vessels e.g. the Rhine barges, are family owned.

The structure of the majority of the larger ship owning companies are complicated with the holding company acting as the manager /operator of a group of one ship one owner companies. This structure is simply to spread the liability of the overall holding company.

There are many ship owners who are not directly involved in the running or operation of their ship or ships. Many ship owners are indirectly involved through financial investment only and leave the running and operation of their vessel to a ship management company.

Management Companies

Management companies provide a wide range of services from full management which is technical, operations and administration, to just technical management and crew management or any combination of these services the ship owner requires.

The number of these companies has grown extensively in the last twenty years as more and more owners place their ships and fleets under a management regime. The larger management companies, for example V-Ships (www.vships.com) have upwards of hundreds of vessels under their management. Many of the smaller management companies specialise in a certain type of vessel, just bulk carriers or chemical tankers as their management expertise and experience is only in these trades.

Charterers

Charterers are traders, merchants, commodity brokers who simply hire a vessel from the owner for the movement of a specific cargo or raw materials, usually bulk cargo, for a specific voyage or time period. The traditional contract of carriage for the movement of these goods is the charter party.

The chartering markets are very much divided into dry cargoes and the tanker market.

In both trades standard forms of contract are used although in practice these forms will probably be subject to additions, deletions and covered with added typed clauses. These forms are produced by organisations such as the Baltic International Maritime Council (BIMCO) (www.bimco.org) and the International Chamber of Shipping (ICS) (www.marisec.org).

In the dry cargo markets standard forms such as the GENCO (see appendix 6) are used especially in a single voyage charter. This is where the ship is hired to go to a specified port, load a specific type and quantity of cargo, then carry it to a specific port for discharge all for a negotiated rate usually based on a per tonne of cargo basis.

Many charterers may have a requirement to ship more than one shipment of cargo and in this case, a consecutive voyages charter party may be entered into.

Another form of charter party is the time charter. When a charterer has the requirement to ship more than one shipment involving more than one loading or discharge port, over a period of time, then this type of charter party gives the charter that flexibility. In this contract the ship owner retains the running of the ship but all commercial decisions are made by the charterer. The charterer in return as well as paying the hire fees also pays for the fuel and the expenses associated with their instructions to the vessel.

In the tanker trade there are single voyage, consecutive voyage, time charter and contracts of affreightment. The latter two are the more common types used due to the vagaries of the tanker market. The demand for crude oil by the producers and refiners can and will affect the load or discharge port even during the voyage. Standard forms are still used and these have been produced by the oil majors and organisations like Intertanko. Shellvoy (see appendix 7) is a common tanker charter party form.

The main difference between dry and tanker charters is the way the freight rate is expressed. In the dry charter market the rate is easily fixed at a rate per tonne of cargo carried. In the tanker trade, the choice of loading or discharge port can change quickly due to the changing demand by the producers and refiners. To overcome this, a scale of nominal rates, worldscale was introduced after the second world war which, with amendments, is still used today. This worked by allowing a charter to the whole of the Arabian Gulf as the load port and say Europe as the discharge port. The final rate was then sorted out once details of the exact loading and discharging port were known. This fluctuation in the markets was adjusted by applying a plus or minus percentage to the Worldscale rate.

1.3.3 Insurance, Finance and Legal**Insurance**

Marine insurance is a very important part of trade as it provides a secure environment for commerce as the global marine markets are fraught with dangers and risks. This is an area where marine surveyors using their knowledge and experience will be heavily involved.

Marine insurance has a long history dating back to the ancient Greeks and Romans. Over the centuries marine insurance has flourished in Europe with a group of Hanseatic merchants starting the first form of marine insurance in Britain.

In 1601 the first statute was prepared known as the Elizabethan Act. In 1652 the famous Lloyd's Coffee House was established where underwriters would meet and do business. In 1871 a group of underwriters took responsibility for the organisation of the market under the Lloyd's Act which brought structure to the organisation regulated by statute (www.lloyds.com). The Marine Insurance Act of 1745 prohibited the making of policies of marine insurance where the assured had no interest in the subject matter.

In 1906 the Marine Insurance Act came to the statute books and codified the principles of marine insurance law. The Institute of London Underwriters drafted a set of Clauses which were appended to policies in order to deal with areas that were not effective. These are known as the Institute Clauses and have been amended many times to take account of the changes in the marine industry.

Marine insurance can be divided into four main sectors:-

Hull & Machinery (H&M)

This type of insurance provides protection against physical damage to the vessel's hull and machinery including equipment that makes up the fabric of the vessel e.g. cranes, winches.

Liability Insurance

This is basically insurance against third party liability as well as areas that are not covered fully by the H&M policy e.g. collision liability. This type of insurance is provided by protection and indemnity clubs. These are mutual organisations and, as the name implies the ship owner will enter their ship or fleet into a club. The ship owner then pays a "call" each year that the ship or ships are entered into the club. The calls are made every year on 20th February. This type of insurance covers for example, excess collision liability, pollution, personal injury claims, property damage, cargo loss and damage, wreck removal, fines and certain legal expenses. The full scope of cover provided by an individual P&I club is detailed in their rule book. Ship owners and Charterers can be club members. There are thirteen principal P&I clubs, the UK P&I (www.ukpandi.com) and the North of England P&I (www.nepai.com) now known simply as North to name just two, which provide liability cover for approximately 90% of the world's ocean tonnage.

Cargo Insurance

This covers the loss of, or damage to, goods at sea.

Offshore/Energy

This covers property and machinery related to the upstream energy industry such as exploration and production (E&P). Typical risks include physical damage to drilling rigs, liabilities and business interruption.

Finance

The finance sector of the marine industry supports the ship owners and operators by providing the capital required to meet the ever increasing demands of world trade. This finance is required for the purchase of ships for fleet expansion and ship renewals, refinancing of existing assets, repair of ships and upgrading to comply with new legislation appertaining to the running and operation of vessels e.g. reduction of exhaust gas emissions and ballast water treatment.

Today the ship owner has other finance options over and above the traditional banking institutions supplying bank loans. These may be specialist investment banks, private equity companies and shipping trusts. There are also national marine tax initiatives designed to attract private investment in the shipping industry.

Legal

The marine industry is such a complex industry fraught with risks and dangers to all the stakeholders that it is inevitable that there will be disputes between the parties involved. Claims and counter claims are all part of the day to day work of the marine law firm. These firms come in many sizes, there are large corporate law firms like Holman, Fenwick & Wilan (www.hfw.com) which can provide the full range of marine legal advice in all the sectors. They have departments staffed with experts in a particular field in offices throughout the world.

Many smaller law firms will specialise in a particular sector or particular field which they use as their selling point to attract clients. Their services may include but are not exclusive to, charter party disputes, cargo claims, sale & purchase construction and building disputes, insurance and reinsurance, bunker claims, arrest of ships, general average, personal injury,

1.3.4 Freight Forwarders and Agents, Ship and Port Agents, Brokers**Freight Forwarders and Agents**

The responsibility of the freight forwarder is to arrange the carriage of his client's goods by contracting with the various carriers that may be involved. They operate with corresponding agents overseas giving advice on all documentation and particularly national customs requirements. They may specialise in a niche market e.g. heavy lift project cargoes or only handle domestic shipments.

Their fees may be based on scale rates or as a commission depending on the size and type of contract.



DHL a major player in freight forwarding

Ship and Port Agents

The exact duties of a port agent will differ depending on the type of ship, the cargo and the location. However, the reasons for appointing a port agent remain the same, that is to look after the ship and her crew while she is entering, berthed in and departing a port. Port agents are appointed by the principal who could be the owner or possibly a charterer under the charter party clauses. Time charterers are known in this circumstance in law as "disponent owners". This situation is important as the principal must be the one who pays the bill. But an actual owner may want other services which a charterer is not responsible for, e.g. crew changes or repairs of some sorts carried out while the ship is in port. This may cause a conflict of interest in which case the owner may appoint a separate ship agent to carry out these additional services. Agents receive fees based on predetermined rates set down by industry.

Brokers

A broker is simply that, he is an intermediary who "brokers" a deal between two parties. There are many different brokers in the marine industry.

Sale and purchase brokers, who as the name implies, negotiate the sale and purchase of ships, for example Ship Sales International (www.ship-sales-int.com) Yachting Brokers (www.yachtingbrokers.com).

Commodity brokers negotiate the sale and purchase of commodities on a global basis for transport around the world. Insurance brokers negotiate insurance with underwriters on behalf of the client depending on the client's requirements. Brokerage fees are almost exclusively based on commission. The commission rate is stated and agreed by both parties involved before the commencement of the work or service.

1.3.5 Port authorities, dry docks and repair yards

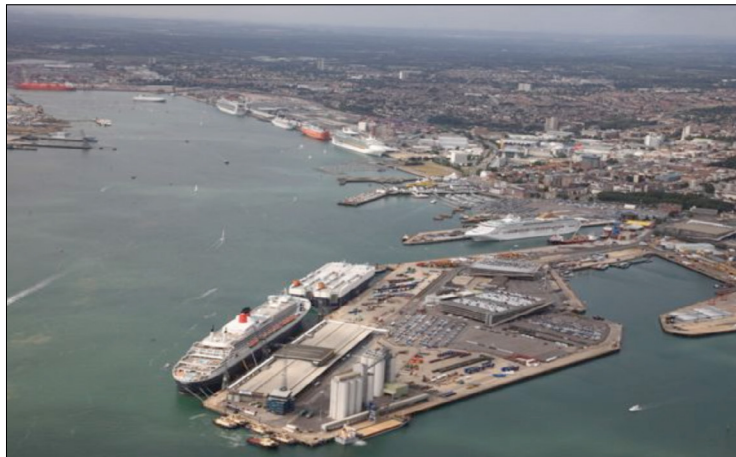
Port Authorities

A port facility has to be run and operated in both a responsible and commercial manner. Every port will have a port authority whose task is to oversee the day to day operations of a port. This is not only to protect their own investment but to make sure the ships and crews using the port can do so in the knowledge that they are in a safe working environment and that the port conforms to local and international legislation in such areas as health and safety and safe working practices.

The facilities a port provides will depend on many factors, its cargo handling type and capacity, vessel size, geographical location, the local infrastructure for distribution and the availability of specialist labour.

A port may only provide basic cargo handling facilities or there may be specialised terminals operated by private companies within the port complex such as, bulk raw material like iron ores, gas terminals, container terminals and chemical terminals. As the energy industry has expanded and developed many ports have evolved to cater for the specialist ships and cargoes involved in the energy sector.

Their fees may be based on scale rates or as a commission depending on the size and type of contract.



Southampton Docks complex

Dry Docks and Ship Repair Yards.

These two facilities are not always mutually exclusive but are more than likely part of the same set up sometimes within the port complex or adjacent to the port. They will offer full dry dock facilities up to a specific dimensional limit or just repair teams with specialist labour e.g. welders, electricians to effect repairs on board the vessel whilst staying in the port.



Dry dock & ship repair facility

Chapter 2.0

The Global Marine Leisure Sector

The marine leisure sector could be described as the supply, maintenance and use of craft for sport and recreation. Pleasure rather than trade. However, as with so many definitions in the marine field, that does not accurately describe the function of many craft and does not describe the areas of operation and business of many marine surveyors in this sector.

There are “pleasure” craft used solely for pleasure and “pleasure craft” used for commercial purposes within the leisure sector. These craft may be very similar or even identical but for the different purposes they may have different regulations affecting them.

As an example, the United Kingdom’s Maritime and Coastguard Agency (MCA) (www.dft.gov.uk/mca) defines pleasure craft as “vessels (craft) that are used for sport or recreational purposes only and do not operate for any financial gain to the owner”. This definition is useful as it does describe the majority of craft that a marine surveyor will encounter.

Many thousands of craft in the leisure sector, such as small charter yachts and angling / fishing craft, are defined as commercial craft by their port state or flag state. Therefore the term leisure will be used here to describe all craft that are used for sport or pleasure, including those used for financial gain. Other small commercial craft, such as small workboats and harbour craft (see Chapter 1.2.4) may also be surveyed by marine surveyors whose normal work is surveying sport or pleasure craft.

The term yacht has very different meanings in different countries and there is no International Maritime Organisation (IMO) (www.imo.org) legal definition. Here it will be used to refer to all craft (power or sail) that are used for sport or recreation i.e. it does not include harbour tugs or small workboats. The terms power boat and motor cruiser are considered as interchangeable by many, but here, the term cruiser will be used to describe a craft that has sleeping cabins and can be used to sleep aboard with some degree of comfort. Sailing yachts are often known as either cruisers or racers depending on their design and intended use. Nowadays they may closely resemble each other, hence the term cruiser/racer being used in marketing material.



A typical power boat (100 – 200 kW gasoline or diesel engine)



Motor cruisers (300 kW – 2000+ kW)



Sailing yachts or cruisers (typically 9 – 15 metres LOA)

This recurring difficulty with which craft can be defined illustrates the importance of the marine surveyor understanding all the elements of the marine industry (commercial and leisure sectors) not just their own area of specialisation and expertise. For example, a marine surveyor who only surveys small pleasure craft may find themselves dealing with the local port state of another nation when surveying small sailing yachts that are being used for charter holidays. Other marine surveyors may survey small commercial craft such as wind turbine support craft as well as pleasure craft.

It is important for the marine surveyor to understand the difference between craft build and craft equipment standards (or regulations). Pleasure craft are not as unregulated as many people think and the surveyor has the responsibility to their client to inform them of some of the more common equipment regulations. As an example, UK flagged craft over 13.7 metres have specific life-saving and fire-fighting equipment requirements. A number of marine surveyors state explicitly that they do not include life-saving equipment in their surveys. However, if surveying a craft for insurance cover the fire-fighting equipment cannot be ignored and, if surveying a craft for compliance with a commercial code, the safety equipment is paramount. In the USA the United States Coastguard (USCG) (www.uscg.mil) monitors craft in their territorial waters and make random searches. There are stiff fines for insufficient fire-fighting equipment and incorrectly plumbed black-water (toilet) systems even on non-commercial pleasure craft.

Unlike the commercial sector described in the earlier chapters, the leisure sector (and particularly the marine surveyor in this sector) has traditionally divided the sector down into two areas, large craft and small craft. In some countries and regions, this differentiation has become legally defined by operational and manufacturing regulations imposing precise size definitions. To illustrate the strata within the leisure sector we will look at an example. In the European Economic Area⁴ (EEA) craft used for pleasure between 2.5 metres and 24 metres in length must be built to conform with the Recreational Craft Directive (RCD) (www.rcdweb.com). Above this size private craft construction standards are usually regulated by the flag state or port state. This may involve the use of a classification society or the flag state directly. Therefore 24 metres has become a convenient figure to differentiate between small and large craft. Similarly the UK's MCA uses 24 metres as its upper limit for the UK Small Commercial Vessel code. (SCV)

⁴ European Economic Area consists of the EU member states plus Iceland, Liechtenstein and Norway

There is no legal definition of a super/mega yacht and traditionally the term was reserved for luxurious yachts over approximately 30 metres in length. Current flag state regulations for commercial yachts takes effect at 24 metres and therefore anything over this length is known as a large yacht. Regulators do not use the term super/mega yacht.

Historically, the USA and Italy were the largest producers (by number) of large luxury yachts, what we now know as super yachts. They were originally built in steel and/or wood. During the 1970s both countries successfully migrated to composite manufacturing in polyester resin and glass fibre. However, super yachts have proved to be a difficult product to manufacture efficiently and, as competition has increased, both these countries have struggled to maintain market share. Italian design is still wanted the world over and countries such as China and Turkey are becoming the new producers of this style of luxury yacht, often working in collaboration with existing Italian building yards.

New Zealand has become well known for very large sailing yachts in both epoxy-carbon composites and aluminium alloy.

The traditional shipbuilding strengths of the Netherlands and Germany have been successfully transferred to the production of very large and very expensive super/mega yachts such as Lurssen (www.lurssen.com) and Abeking and Rasmussen (www.abeking.com/Yachten.25.0.html).

2.1 The Future and Growth of the Marine Leisure Sector

Craft used predominately for private pleasure use started to appear in the late nineteenth century and early twentieth century. Initially these craft tended to be large in size and owned by the very wealthy. By the mid twentieth century the pleasure sector had grown greatly and craft diversity was enormous particularly in the sub 10 metre category. The post war consumer boom in the US and later Europe was instrumental in expanding the customer base for craft and engines designed and built purely for leisure use.

Although originally the owners and users of leisure craft were predominately USA and Europe, this soon expanded to include all parts of the world. China was one of the last remaining countries to discover the use of boats for pleasure but their large population and rapid economic growth has seen this country catching up very quickly with other nations.

Likewise, although early manufacturers were based in the USA and Europe near to the consumer, today New Zealand and Brazil are all large producers of both small and large leisure craft. There are of course exceptions to all these statements as many USA boat owners are familiar with the Chinese boat builder Cheoy Lee established in 1870. They have been very successful in building craft for the leisure sector.

The term “mass production” is often used to describe high volume boatbuilders such as the USA’s Sea Ray (www.searay.com) or Germany’s Bavaria Yachtbau (www.bavaria-yachtbau.com) or France’s Benetau group. It should be noted that comparison with the motor trade is not appropriate. A high volume boatbuilder may produce 40 units per month compared to Volkswagen who produce 40,000 Golf cars per month in Europe. That is not to say that there is no efficiencies of scale but leisure boat building has been a notoriously difficult business to run profitably due to rapid changes in consumer preference and demand, and the high cost of tooling for the relatively low unit production.

Recent economic turmoil has greatly affected the sector with many small boatbuilders in the USA and Europe filing for bankruptcy or being absorbed by other builders. What has been most striking is the shift in export patterns of the remaining brands with many European builders reporting a significant rise in exports to the Middle East and China.

To illustrate the current variety and volatility of the sector, we can look at a number of examples:-

For many years Italy lead the medium to large motor yacht sector with stylish, fast craft. However the latest 2010 figures from Italy⁵ indicate that the Italian marine leisure sector contracted 45% from sales of 6.2 billion euros in 2008 to 3.4 billion euros in 2010. Early signs suggest that 2011 figures may equal 2010 but are unlikely to increase significantly. Many European companies are struggling due to weak domestic, local sales.

Meanwhile, Chinese property developers are rapidly building waterfront property and designing or building new marinas to satisfy the growing demand. The existing marine leisure market is still small in China. However, sales growth is expected to be 20% to 30% per annum for the foreseeable future and, in the last two years, sales growth has been over 100% per annum. The Chinese market adds new challenges for traditional designers as the craft are used in different ways. At present, Chinese boaters do not tend to overnight on their craft and sun-bathing is not a traditional Chinese past time, therefore the craft layout and priorities are different. The demand for US and European brand names (particularly Italian) in China has led many European companies to look at investing in Chinese boatbuilding facilities. Conversely, China's Nauticstar Marine (www.nauticstar-marine.com) bought the Italian builder Cantieri Navali di Lavagna in 2010 to gain a foothold in the European market.

As well as demographic and economic changes, future growth in the global leisure sector will also be influenced by changes in manufacturing technology. Diesel-electric hybrid engines and motors have already been installed in leisure craft and lithium ion battery technology is slowly appearing. There is a growing interest in and demand for such technology sometimes led by new environmental laws on inland waterways but often simply because buyers want the latest gadgets.

Fibre reinforced plastic (FRP) is the most common hull building material used in the leisure sector. The most common reinforcement fibre is glass. However there has been a significant increase in the use of carbon and aramid fibres in the last ten years. Sustainable fibres made from bamboo, flax and even carrot have been trialled and these are likely to be used on a commercial scale within the next five to ten years. Similarly, polyester resin is no longer the only resin used for the matrix. Epoxy has physical properties better suited to marine applications than polyester and bio-resins have been successfully used in some small craft and surf boards. These new materials allied with new building techniques such as resin infusion mean there are new products to market to potential boat owners and new manufacturing methods available to builders. These changes will improve craft quality while reducing the environmental impact of a sector that has largely ignored such concerns until very recently.

Traditionally the primary role of the marine surveyor in the leisure sector was to undertake pre-purchase surveys of used craft for private clients. This business activity will clearly be affected by local and macro-economic factors in the surveyor's home country. However there are many opportunities for appropriately qualified and experienced surveyors to expand into other areas of surveying and marine consultancy. As can be seen above, the materials used to manufacture leisure craft are varied and complex and the marine surveyor needs to stay abreast of developing technologies. There are many sources for this technical information and for market data such as Professional Boat Builder magazine (www.proboat.com) and European Boatbuilder magazine (www.ibinews.com)

2.2 Parties Involved in the Marine Leisure Sector

In comparison to the commercial sector there are far fewer potential client opportunities, simply because the leisure sector involves a smaller range of activities.

⁵ UCINA, European Boatbuilder 2011

2.2.1 Private and Corporate Owners

The most common type of leisure boat owner is the private individual using their craft for private recreation. Therefore, to the marine surveyor working in this sector, these individuals will be the most common client. The craft is usually a very large discretionary purchase and the owner will tend to have a far greater emotional attachment than will be found in the commercial sector and this is an important distinction and one that the surveyor should keep in mind. It is necessary for the surveyor to remain professional and impartial at all times while the owner may see things in a different light. Private individuals may also operate their craft for financial gain and there is no legal requirement for the vessel to be owned by a corporation. There are corporate entities that own leisure craft. This may be for tax or legal reasons or if the craft is being used for commercial purposes.

2.2.2 Charter Companies

The majority of charter companies do not actually own their craft. A charter company may have any number of craft under management from one to one thousand and will receive an agreed percentage of the income from the craft. The company will often be responsible for the day to day maintenance and berthing arrangements of the craft when it is not out on charter. Chartering in the leisure sector is divided into three types: crewed or skippered charter, bareboat charter and flotilla cruises.

2.2.3 Finance Houses and Banks

Traditionally there were only specialist finance companies or departments of banks covering the marine leisure sector such as Lombard (www.lombard.co.uk/assets/marine). These companies would normally lend money via a marine mortgage where the vessel is the collateral to secure the loan. Now many high street banks will lend money to purchase a craft and simply use the purchaser's home as security for the loan. If the craft is the collateral for the loan and it is not brand new its value must be established or verified independently, and it would be the job of the marine surveyor to value the craft on behalf of the entity making the loan. This financial entity may pay for the valuation or the prospective buyer may have to cover this cost. For a marine mortgage it is normal practice to register the craft with the port state. This declares the lender's interest in the craft and so gives the lender the legal position to be repaid in full before or when the craft is sold. The registration process may also require the services of a marine surveyor to conduct a tonnage measurement.

2.2.4 Yacht Brokers

The majority of pre-owned leisure craft are bought and sold through a yacht broker. The advent of the Internet has seen an increase of craft being sold privately although many people still prefer to use an intermediary. The job of the broker is to sell the craft as quickly as possible for the highest possible price. Their primary responsibility is to the seller although a good broker will develop a relationship with all parties involved to ensure a speedy and efficient transaction. In this way the broker is more likely to secure repeat business. Conversely the surveyor has a duty of care to his client, the prospective buyer. The different clients and responsibilities may lead to some discourse in the professional relationship between the broker and the surveyor. The most effective and simple solution is for the surveyor to maintain complete professional integrity at all times.

Even though the surveyor's duty of care is to the buyer, that does not mean that the surveyor should exaggerate defects to artificially manipulate the price. Although a broker may not appreciate your diligence most will respect a surveyor who is honest and writes a good report that explains a problem in a balanced manner. A good surveyor will suggest and summarise sensible remedial action that allows a buyer to decide whether to proceed as agreed, renegotiate the price or simply walk away from the deal.

The normal buying process is as follows:

The buyer makes an offer to the broker subject to survey, securing finance and a sea trial (not all may be required).

The broker forwards this offer to the seller for their response (brokers prefer that buyer and seller do not meet).

If a price is agreed that suits both parties, then the buyer puts down a deposit. This is usually 10% but will depend on the actual quantum involved. A time frame is agreed for completion and the boat is then “under offer” and technically off the market.

A surveyor is appointed. Many brokers will have a list of surveyors although this should not deter the buyer from appointing their preferred surveyor. The surveyor will be instructed to conduct a pre-purchase survey which may or may not include a sea trial. A timely turnaround of the report is essential and most parties agree that 48 to 72 hours is reasonable for the survey of a craft under 24 metres. Buyers tend to be impatient and will ask for a summary as soon as possible after the survey. It is imperative at this stage that the surveyor does not impart too much information before he has had time to crystallise his thoughts based on his survey findings.

If the report identifies a large number of faults, the buyer may wish to renegotiate the price or not purchase the craft at all. It is paramount to remember that it is not the surveyor’s remit or responsibility to become involved with the buyer’s decision. It is the surveyor’s job to conduct a professional survey and to write a factual professional report. This report will give the buyer all the information required to make a reasoned and rational decision as to their next action.

Although terms may vary from one broker to another it is commonly accepted practice that if remedial work is small and inexpensive the agreed price stands as minor faults will have been factored into the agreed price.

2.2.5 Insurers

Underwriting risk in the leisure sector has changed significantly in the last twenty years. There are now numerous options available to the leisure craft owner. They range from the traditional Lloyd’s of London to large multinational household names that insure everything from buildings to vehicles.

An important issue has to be highlighted here which is the matter of duty of care and contract with an insurer.

As the owner has the contract with the surveyor and the owner is normally responsible for the payment of the surveyor’s fees the relationship with an insurer, is quite tenuous. If an owner makes a claim and the insurer decides that the defect was latent and the surveyor was negligent the insurer may simply avoid the claim. In this case the owner is then left to resolve the matter with the surveyor.

A number of insurers in the small craft sector do not have marine staff and so do not request to even see a survey report, they effectively leave the owner to take all responsibility. This situation has become more common as many insurers now use “agreed value” rather than “market value” to cover the risk in the event of a total loss.

2.2.6 Boatyards and Marinas

Marine surveyors working in the leisure sector spend a great deal of their time in either boatyards or marinas. A good working relationship with local yards is very important and one of the first jobs for a new surveyor, and certainly as part of the business plan, is to visit all the boatyards and marinas in their proposed working area. Boatyards may have a marina associated with it or vice versa, others will operate independently as separate entities. These boatyards and marinas will vary in size and provide a wide range of facilities from repair services to hard standing and dry storage for craft. During his time in any facility the surveyor must at all times comply with the facilities work policies including checking in and out and the correct use of personal protective equipment (PPE.)

Although there are still many family owned and run boatyards and marinas, the present day modern marinas in particular have been developed by large corporations.



Large modern coastal marina



Typical USA boat building and repair yard

Chapter 3

3.0 Commercial Surveyors & Types of Surveys

The term “commercial” has been used to differentiate between the surveyors in this section and the other types of surveyors in the marine industry described in other sections below.

The majority of commercial surveyors will be independent individuals or employed within a company, many of the latter structured as associate companies, offering their services to clients based on their areas of knowledge and experience. Surveyors in this sector tend to have a marine seafaring background with a relevant marine qualification such as a Master Mariner or Chief Engineer’s Certificate of Competency, with many years sea going experience. Others will have a marine related academic background such as a naval architect or an industry related degree. Apart from these basic preferred qualifications a commercial marine surveyor must have good health, excellent observational skills, an attention to detail, honesty and plenty of common sense combined with an ability to remain independent and impartial at all times.

It is important to note that independent commercial surveyors have no statutory rights of access to any ship or port or marine facility without express permission. If a surveyor is appointed by an instructing party whose position is at variance to the principal involved in the case, e.g. the ship owner, surveyors can and often are refused access to the ship, or at the least refused access to certain documentation. The surveyor’s ability to carry out their work will be completely dependent on the working relationships between the parties involved in a particular survey. This is where excellent communication skills are paramount to being a successful marine surveyor. Having said that, the commercial surveyor must comply with the law of the land in which they are working. This is where a competent and professional surveyor will make sure they are fully conversant with the legal jurisdiction and laws that may apply to the particular survey they are conducting and the circumstances they are working under. A good example of this is in the present day health and safety regime where non-compliance can have an effect on a surveyor’s ability to carry out their work, to the extreme of not being able to actually complete a survey due to not having the correct equipment or protective clothing.

3.1 Warranty Surveys

The definition of Marine Insurance Warranty under the Marine Insurance Act 1906 is defined, according to the Dictionary of Marine Insurance Terms and Clauses 1989 as:

“A marine insurance warranty is a promissory warranty by which the assured undertakes that some particular thing shall or shall not be done, or that some condition shall be fulfilled, or whereby he affirms or negatives the existence of a particular state of facts. The assured must comply literally with the terms of a warranty. Compliance in spirit is not acceptable. If the assured fails to comply with the terms of the warranty, the insurer is discharged from all liability under the policy as from the date of breach of warranty, but without prejudice to insured losses occurring prior to such date. A warranty may be “express” or “implied”. An express warranty is set out in the policy conditions. An implied warranty does not appear in the policy, but is implied to be therein by law.”

It is important that we understand the need for warranty surveys before looking at the role of the warranty company and the warranty surveyor. To the insurance market, marine operations have always been high risk. In the last fifty years with the development of the offshore market and the physical and fiscal size of the projects being insured, the underwriters recognised that it would be impossible for them to oversee the technical operations of such larger projects. To protect their interests the underwriters required an independent third party to approve the marine operations on their behalf.

This was the start of the position of the warranty surveyor. This position also brought with it other benefits. Independence, operational experience and marine and engineering expertise.

The work of the marine warranty surveyor was, and still is in some cases carried out by classification society surveyors. As the demand increased for their services, in particular in the offshore industry, specialist warranty companies began to establish themselves with the oil companies, offshore contractors and of course with the underwriters. The majority of warranty work is now done by these specialist companies. These companies operate on a global basis with offices, personnel and facilities represented worldwide.

The warranty company is staffed by multi-disciplined engineers and mariners, usually taken from the following: master mariners, marine and offshore engineers, subsea and pipeline engineers, structural and civil engineers and naval architects.

Owners, operators and contractors involved in offshore and special projects will take out insurance cover in the form of construction all risks and/or transit insurance. In the terms of these policies, the underwriter will have a "Marine Warranty Clause". This clause will state that under the terms of the offer of insurance, a warranty surveyor must be appointed to act on their behalf. It is the responsibility of the "assured" to appoint the warranty surveyor, however this surveyor must be acceptable to the "insurer".

Once appointed, the warranty surveyor will act on behalf of the insurer and assured to make sure those operations are conducted to recognised codes and standards within acceptable risk levels as decided by the insurance interests. The operations and risk levels must also comply with national and international regulations where appropriate.

The following are typical projects and operations where a warranty surveyor will be appointed:

- Load out, float out, float on/off
- Heavy lift and special projects
- Ocean towage
- Positioning of jackets
- Transit and positioning of jack-ups and semi-submersibles
- Installation of offshore structures, launching, up-ending, setting, piling, grouting
- Subsea installation of seabed structures
- Pipe laying and cable laying operations
- Positioning and installation of wind turbines offshore
- Operations involving renewable energy projects, tow outs



Tug and tow the subject of a Warranty survey

3.2 Heavy Lift and Project Cargo Surveys

The appointment of a surveyor in these situations will depend on the terms of the insurance policy and the parties involved. These surveys are very much the domain of the warranty company who have the personnel with the appropriate qualifications and experience to conduct such surveys.

However, it is not uncommon for independent surveyors to be appointed by an interested party where the surveyor has the necessary expertise in this type of marine operation.

The lifting survey requirements in these circumstances apply mainly to lifting operations by floating crane barges, crane ships, semi-submersible crane vessels and jack-up crane vessels.

In a project cargo there will also be flat barges and the securing and sea fastening of the cargo. Project cargoes will in the majority of cases involve a sea tow, be it coastal or ocean. In this case the surveyor may be involved in the preparation for the towage with the inspection of the towing vessels and barge. The proposed route with weather and refuge port considerations, navigational and water depth restrictions to surveying the lift off site. There are many specialist heavy lift companies operating in this sector, Dockwise (www.dockwise.com) and Jumbo (www.jumboshipping.nl) are two.

In a lifting operation the surveyor may be involved with all or some of the following points:-

- Load and safety factors
- The crane and crane vessel
- Structural calculations
- Lift point design
- Clearances
- Bumpers and guides for modules
- Sea fastening design.

In a lifting operation typical on site surveys would be as follows:-

- Sighting sling and shackle certificates and physical inspection
- Sighting of certificates for lift points and/or attachments and physical inspection
- Inspection of the rigging laydown and sea fastenings
- Inspection of securing of loose items in a module
- Suitability survey of the crane vessel
- Inspection of preparations for the lift
- Crane vessel moorings
- Crane vessel DP trials.



Heavy lift being loaded to a conventional cargo ship

3.3 Protection and Indemnity (P&I) Club Surveys

As stated in 1.3.3 the P&I clubs are mutual third party insurers for ship owners and charterers. These “clubs” will have a number of staff surveyors but the majority of surveys are conducted by independent marine surveyors. A list of their preferred surveyors in any geographical location is held by the individual claims manager or handler within the club structure. These clubs also have country correspondents who, as the name implies, act as the first line of communication if there is an incident in the region covered by the correspondent. The correspondent is appointed on the basis of local knowledge which is invaluable when information is required to assist in mitigating a situation that may be developing. These correspondents are often in a position to appoint a local surveyor on the basis of the correspondent knowing the particular surveyor through local reputation.

The principle of the P&I club being a mutual is that the members through their calls finance each other when an insured incident happens. To become a member the ship owner will enter their ship or ships into one of these clubs of which there are thirteen in the international group.

Before a ship is accepted into the club the club will require that the ship is surveyed in accordance with the terms and conditions of entry. Each club has its own conditions for entry and usually takes the form of a physical survey of the ship and documentation based on a pro forma document (see appendix 8) published by the individual club. Independent surveyors are appointed to conduct these ship entry surveys following the strict format of their entry terms and condition document.

These mutual clubs insure third party liabilities for the ship against any claims under the terms of the Rule Book issued by the clubs. This obviously means that there will always be claims against the ships entered, for as we have seen, the marine industry is very high risk with large amounts of money being involved in a marine venture.

In the case of a third party claim the club will appoint a surveyor to act on their behalf. This will inevitably mean assisting and advising the ship’s master as to what actions to take. This could be anything from simply advising on practice of the port and trade to mitigation of the situation if serious damage or loss is occurring through ongoing events.

In the case of the P&I clubs loss prevention is always their main aim. Clubs will appoint independent surveyors to conduct pre-shipment surveys of cargoes. This is the situation where large cargo claims are likely to happen. Steel cargoes are a good example where claims for damage are a regular feature of shipments. The pre-shipment survey is carried out to make sure that the condition of the steel prior to shipment is accurate and properly specified on the bill of lading. This will also involve the packaging condition and labelling. There may also be a requirement for the stowage and securing of the cargo to form part of the survey. This will involve making sure that the ship has prepared the holds in accordance with good practice prior to and during loading of the cargo.

Grains and fertilisers are other common cargoes where claims often occur. Part of the pre-shipment survey for these cargoes will involve sampling. The sampling procedures for bulk cargoes are laid down in the Code of Safe Practice for Bulk Cargoes issued by IMO. The sampling process will involve specifics like moisture content, where the cargo has shipment limits due to the potential of liquefaction, coal is an example, or temperature where spontaneous combustion may be an issue.

3.4 Sale & Purchase Surveys

In the marine industry ships are bought and sold not only for ship replacement or fleet expansion but when the market economies dictate the supply and demand of raw materials and goods requiring an increase or a decrease in tonnage on a particular trade.

There are specialist sale & purchase (S&P) brokers who have vast knowledge of sale and purchase transactions. They are experts in the market valuation of ships and the legal requirements of the sale and purchase contract. These brokers will not necessarily have knowledge of ship operations and condition and so they will rely on other sources of information usually from the owner themselves.

It is unusual for a broker to appoint a surveyor to conduct a condition survey on their behalf unless there is some doubt of the ship's actual condition. The surveyor will nearly always be appointed by the prospective purchaser. The pre-purchase survey is always conducted under extreme time pressure. This is due to the fact that this type of survey is carried out when a ship is in port loading or discharging cargo which in itself hampers the work of the surveyor. It is important that the surveyor seeks detailed requirements from their client to make sure that any specific areas that the prospective buyer may want the surveyor to look at are done in sufficient detail. It may be that the prospective buyer has a specific trading requirement in mind which may need specific equipment or vessel dimensions, mooring arrangements or capabilities of cargo gear and equipment. When conducting pre-purchase surveys it is advisable that two surveyors conduct the survey, one to cover the engineering aspect and another for the nautical areas.

3.5 Break bulk surveys

In the traditional definition of break bulk cargoes these are cargoes that involve individual items i.e. crates, cases, cartons, bags, bales, bundles, drums and barrels. Break bulk surveys would therefore be associated with the handling, stowage, storage and carriage of this type of cargo as well as the survey of damaged cargo. Today this type of goods are usually loaded into containers although the principles of the handling and stowage still apply to containers. However, the loading and discharging of containers known as stuffing and unstuffing, is seen as a surveying task in its own right.

3.6 On/Off Hire Surveys

The merchants and traders of this world exist to move shipments of raw materials and finished or part finished goods around the global markets in the search for maximum profit. They will "fix" cargoes and ships as part of this trading transaction. They will hire in or charter in a ship to carry a cargo or several shipments of a type of cargo as the market demands. It follows from this, if we consider the volumes and tonnage of bulk cargoes referred to in chapter one, that at any one time there will be a great number of ships on hire. This means that in any given time period there are equally a large number of ships going on and off hire. This continual process of on hire/off hire requires the services of a commercial surveyor. When a ship goes on or off hire, it is paramount that a condition/damage survey is conducted, to avoid costly claims by the ship owner for damage repairs.

It is possible that a ship owner will appoint a surveyor although in the majority of cases it is the charterer. There are occasions when a joint survey is carried out where the surveyor will represent both owner and charterer, the cost of the survey being borne equally by both parties.

The survey is predominately focused on the cargo holds, cargo gear and adjacent decks and structures as this is where the majority of damage is going to occur from cargo operations.

The principle behind doing a condition survey at on and off hire is that comparisons, through observation of subsequent survey reports, can be made to assess who is responsible for any repairs that may be required.

In an on-hire survey it is very important that the vessel's trading and statutory certificates and documents are checked carefully to make sure they are in date at the commencement of the hire.

As the price of bunker fuel is continually escalating then the quantity of bunkers at the start and finish of a hire period is paramount. The charterer pays for the bunkers at the start of a hire and replenishes bunkers during the hire period. The principle is that the charterer returns the vessel with the same amount of bunkers as at the start of the hire period. In practice this is almost impossible to do. In this instance the charterer will supply additional bunkers to make up the short fall or, in the majority of cases, there will be a financial adjustment. It is imperative that all bunker tanks are sounded in the presence of the surveyor and a senior engineer, these must include settling and service tanks.

The temperatures of the oil in the tanks must also be carefully obtained. The densities of the oils will normally be verified from the previous official bunker receipts. The bunker calculations can be made using the ship's official tank tables then using standard formulae utilising the tank tables, soundings obtained, volume calculated with temperature and density adjustments to obtain the mass in metric tonnes. The bunker quantities and calculations will be recorded and signed off by the chief engineer and the surveyor. The bunker quantities will form a part of the delivery certificate in the case of an on-hire survey.

3.7 Container Condition Surveys

Containers are inspected for their physical condition for a number of reasons:

- To see that they conform to the Convention for Safe Containers (CSC Approval)
- To assess their condition for on/off hire usage (leasing)
- To assess their condition prior to loading or discharging cargo (stuffing /unstuffing)

The International Convention for Safe Containers was developed by IMO and introduced as a convention in 1972. The CSC has a number of specific objectives.

- To maintain a high level of safety of human life in the handling, stacking and transporting of containers by formalising structural requirements.
- To facilitate the international transport of containers by formalising common international safety requirements.

The Convention lays out in two Annexes the way that these two objectives are met.

Annex I: Regulations for the testing, inspection, approval and maintenance of containers

Annex II: Structural Safety Requirements and tests

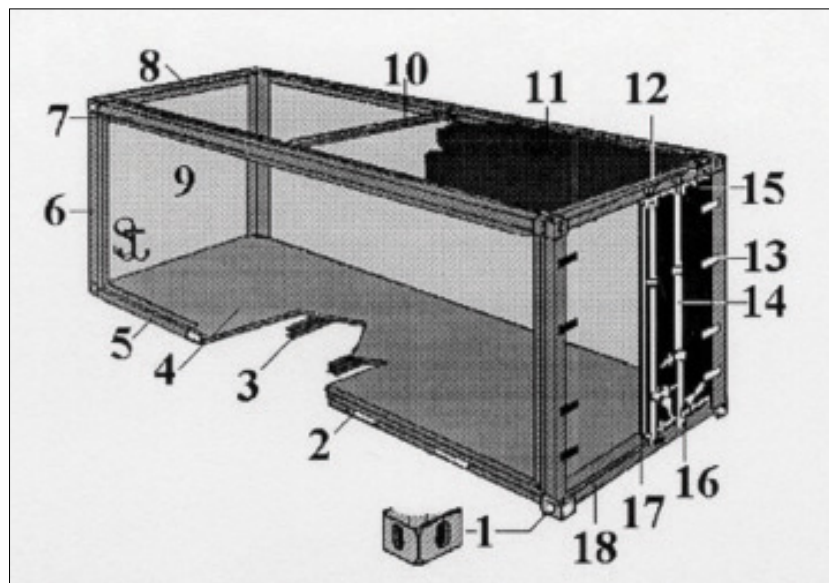
The requirements of the Convention are that every container used in international trading must have been approved by the administration of a contracting state or an organisation approved by that state in conformance with the Annexes of the Convention.

Every approved container must display a CSC Safety Approval plate and be subject to regular inspection. The subsequent maintenance of the container is the responsibility of the owner.

The approval incorporates an "Approved Continuous Examination Programme" (ACEP) this is normally the domain of the classification society surveyor.

The establishment of the container leasing company was the forerunner of the container inspection company. The operation of a successful leasing company is very much dependent on accurate container inspections. In 1971 the Institute of International Container Lessors (IICL)(www.iicl.org) was formed.

Its membership is made up of the companies engaged in international leasing of containers. The organisation is very active in governmental issues and regulations, publishing many definitive technical manuals for use by container owners and lessors. The "Guide for Container Equipment Inspection" is the most influential for inspectors. In 1984 the IICL introduced a container certification programme for container inspectors. The Container Inspectors' Examination is now the minimum standard required to be a container inspector. The examination covers inspection, repair and refurbishment of steel containers. The IICL examinations were developed to promote industry standards for inspection, repair, maintenance and operational issues. Examinations are held once a year in many international test centres. The examination is in a multi-choice format with 2 ½ hours allowed to complete the examination. There is a minimum pass mark of 70% before a certificate is issued. The course is based on self-study using the IICL's manuals and technical bulletins. In preparing for the examination the student will be required to study the seven IICL manuals which cover all the technical issues of inspecting, repairing, painting, maintaining and operating all the different container types. The successful students receive a certificate and a photo identity card. The IICL publishes a worldwide list of all certified inspectors and companies employing certified inspectors. The certificate lasts for five years after which the inspector must re-sit the examination and pass to become re-certified for another five years. At present there are 3300 IICL certified inspectors based in 69 countries, with 1200 companies employing IICL certified inspectors.



Exposed view showing parts of a standard twenty foot equivalent unit (TEU)

- | | | |
|------------------------|-------------------|-------------------------|
| 1. Corner casting | 7. Top side rail | 13. Hinge |
| 2. Fork lift pocket | 8. Front top rail | 14. Door locking device |
| 3. Bottom cross member | 9. Front end wall | 15. Cam |
| 4. Floor | 10. Roof bows | 16. Cam keeper |
| 5. Bottom side rail | 11. Roof panel | 17. Door gasket |
| 6. Corner post | 12. Door header | 18. Door sill |

In the normal course of carrying cargoes, containers will be subject to many forces from lifting, sea transport, road and rail transport. Over time they will be subject to damage as well as normal wear and tear. Cargo owners and insurers may depending on the nature of the cargo, appoint a surveyor to oversee the stuffing or unstuffing of a container. Part of this survey process will be the inspection of the container itself for any damage internally and externally, cleanliness, moisture, infestation, odours and damaged timber floors, are all areas that must be considered before stuffing a container and equally after unstuffing a container if damage to the cargo is found or suspected.



Containers damaged during loading

3.8 Hatch Cover, Hold Condition and Cleanliness Surveys

In the steel, grain, coal and fertiliser trades, the condition and cleanliness of the ship's hatches and holds is paramount to the acceptance of the vessel for loading. The issuing of a cleanliness certificate may be delayed or even refused if the ship presents itself in poor condition.

The charterer of a ship, the shipper of the cargo or a P&I club, will normally appoint the surveyor to conduct this type of survey.

The condition survey involves a close visual inspection of the condition of the hatch covers, hatch dogs, the rubbers, compression bars, channel ways and non return valves.

The survey may include the testing of the hatch covers for weather tightness. This is done by a number of different methods although the introduction of ultra sonic test (UST) equipment has become the more accepted method as long as classification society approved equipment is used. The other two older methods are the hose test and the chalk test.

In the UST method a transmitter is placed in the hold with the hatch covers closed. A hand held receiver is then passed over the hatch cover joints and coamings. The receiver will pick up any white noise emitting from gaps in the joints. The level of the noise will be an indicator of the size of the gap and by passing the receiver back and forth over an emitting area the gap can be fairly accurately pin pointed. To operate and correctly interpret the readings, an operator should be properly trained in the use and analysis of the readings.

The hose test requires several personnel which is the first drawback. The hatch covers are closed and a high pressure water jet is played on the hatch cover joints and coamings. If there are any gaps due to poor rubbers or mechanical damage to the compression bars or channels then water will flow through these gaps. The second drawback is that water runs freely so pin-pointing the exact location of the problem can in itself be a problem.

The chalk test is conducted by rubbing chalk along the hatch rubbers then closing the hatch covers. When the covers are opened again there should be a continuous white chalk line indicating that the rubbers are making contact with the compression bars. If there are gaps in the line then a problem can be suspected and close inspection in this area should be undertaken.

The cleanliness survey requires a scrupulous inspection of the internal condition of the holds. The surveyor is looking for any previous cargo residues, looking carefully in areas where residues can get trapped even when careful cleaning has taken place. Poor bulkhead and tank top condition is another area which has to be looked at in some detail. Poor paint cover with rust scale is definitely a cause for concern and would lead to the ship being rejected if the cargo was fertiliser or grain. Leakage from ballast tanks and double bottoms is another potential problem, while bilges and bilge wells must also be checked.

Depending on the previous cargo, the cleaning regime carried out by the crew must be verified. There may be a requirement for a hot water wash or fresh water only. The ship should check with the relevant people, charterer or shipper if there are any specific cleaning instructions over and above the normal ship's cleaning regime.

3.9 Structural Damage Surveys

Structural damage, depending on its location and severity, will normally fall under the domain of the classification surveyor, as this type of damage will probably affect the vessel's classification status.

It is possible that the underwriter's surveyor is the same as the classification surveyor. This does not mean that a local surveyor would not be instructed to conduct a survey, even on an interim basis, to survey the damage and to advise the instructing party accordingly which could be the ship owner, charterer, P&I club or any party who has an interest in any possible claim. In the case of hull damage, the judicious use of the ship's plans is paramount to accurately assessing, not only the location of any damage, but the quantum of steel work involved.

The aims of this type of survey can be considered to be in three separate parts:

- Determining the nature of the incident
- The extent of loss or damage
- The cause of the incident.

If the surveyor is appointed by the underwriter whose policy is covering the ship, then access to the vessel and full cooperation from the ship's master and crew will be forthcoming. If this is a third party vessel then the surveyor will have to use all his powers of persuasion, excellent communications skills and diplomacy. Masters and crews in this situation can be quite defensive to the point of obstruction. The surveyor must have a sound knowledge of the claims procedure so he can collect relevant information that will expedite the claim.



Serious structural hull damage following a terrorist attack

3.10 Personal Injury and Incident Investigation

This type of work is not strictly surveying even though a report will be the end product. Personal injuries to crew, an individual or individuals, injured while working for or on a ship, is too often an unhappy occurrence. This is not only a problem for the person(s) involved but for the ship, the ship owner and their P&I club who will be the final recipient of the claim for compensation.

The role of the surveyor in this case is to investigate the circumstances of how the injury was sustained. Remembering of course that we could be looking at a fatal accident which takes on a whole new spectrum with local police and authority bodies being involved. Lawyers will inevitably be involved at some point in the proceedings. The marine surveyor is very well placed to investigate personal injuries on ships as they understand the nature of the work and the safe operation of ships and their equipment.

The marine surveyor can be involved in incident investigations in two very distinct positions.

The first is as an official investigator appointed by the government of the ship's flag state. This surveyor has significant legal powers to allow them to undertake a detailed review and to analyse what happened.

The second position is when an independent surveyor is appointed to investigate a situation to establish the facts and only the facts. From these facts the lawyers will establish blame and apportionment of liability.

The marine surveyor apart from using his knowledge of ships, their equipment and operations in these investigations, must be aware of certain elements for conducting a successful incident investigation.

The first is actions at the incident site, the collecting and preservation of evidence.

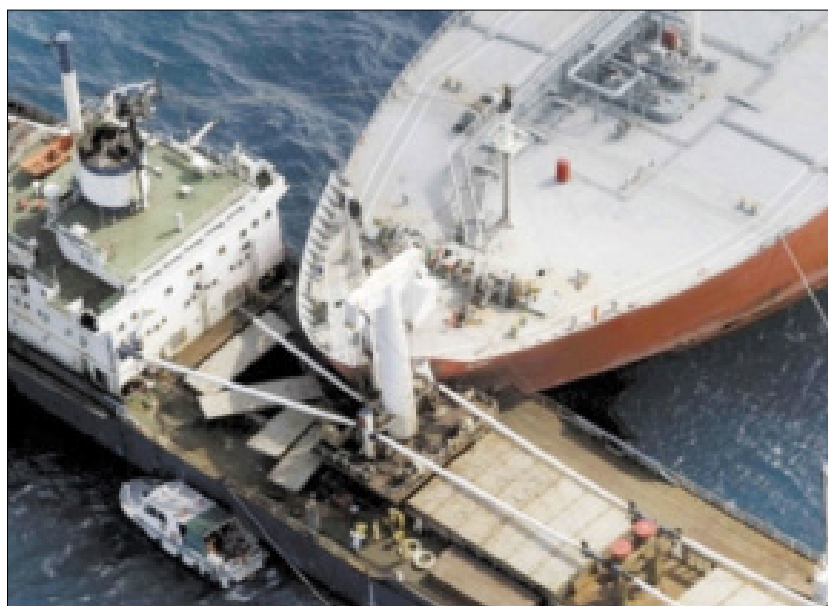
The human element is very important, looking at the man-machine interface, human capabilities, fitness and behaviour, stress and fatigue are all to be considered.

Using tried and tested interview techniques with witnesses is important.

Data collection by defining information requirements and using models like the SHELL model.

The ability to analyse the facts, again by using tried and tested techniques such as events and casual factor charts, barrier analysis and root cause analysis will all help the surveyor to conduct a successful incident investigation.

Incidents can be a challenge for even the most experienced marine surveyors. In some situations the surveyor may be the first on the scene and so mitigating the loss is of paramount importance. This is where a surveyor's knowledge and experience will play a very significant role.



Ship collision a typical Incident investigation

3.1.1 Machinery Surveys

Machinery surveys by their very nature are conducted by qualified and competent engineers. The survey will cover, not only the ship's main propulsion system, but auxiliary equipment from generators and boilers to ship's cranes, winches and all manner of ship's deck and cargo equipment.

Machinery surveys can be divided into several distinct regimes. Surveys are conducted under a normal survey regime as laid down by the vessel's classification society rules. These surveys check the condition and status of a piece of machinery to keep the vessel "in class". This type of survey would obviously be undertaken by a classification society surveyor. Many vessels operate under a continuous survey programme and are class notated as such. In this situation, the vessel's own staff, usually the chief engineer will perform surveys of designated machinery on a continuous basis in compliance with their classification society regime.

As stated in 1.4 above during a pre-purchase survey, the condition and status of the vessel's main and auxiliary machinery will be a very important part of the final report. In this instance, the services of a qualified and competent engineer are paramount. If the vessel is in service then much of the machinery can be observed operating. If a good working relationship is formed with the vessel's engineering staff, then the survey process will be expedited quicker and probably with more information about the operational history of the machinery and associated equipment. In a dead ship situation, it is far more difficult to make an assessment of the condition and status of the machinery.

In this situation the surveyor has to use their experience, knowledge and engineering skills to make professional observations.

When damage or suspected damage has occurred, the independent surveyor may be appointed by an underwriter, a ship owner or any interested third party to assess the cause, nature and extent of any damage. The surveyor may also be asked to make recommendations for repairs and oversee those repairs. If more than one party is being represented it is beneficial if the survey is conducted on a joint basis. In this way any problems can be resolved on site and agreement on issues like quantum and subsequent actions can be made. Damage surveys will normally be undertaken when the vessel is in service and the machinery in question has been operating. This may seem obvious but damage to machinery through collisions or groundings are not uncommon when the damage has been through mechanical impact as a result of the collision or grounding.

The surveyor must use all his tenacity and work closely with the vessel to avoid any potential delays in the vessel's operations. Surveying machinery before it is dismantled or at least being present as the machinery is dismantled is the preferred situation. In this way a true and accurate assessment of the damage can be made. This is where close liaison with the vessel, owners, agents and port authorities is paramount to completing a successful survey. The surveyor will be under immense pressure and time constraints so careful and logical planning is very important. The surveyor's role will often involve advising on part replacement and availability in the local area or repair facilities able to undertake any special engineering repair deemed necessary.

Refrigerated cargo carriers or reefers are commercial vessels that, when there is damage or serious malfunction, may lead to an insurance claim. Then only qualified refrigeration surveyors will be appointed due to the specialised nature of the machinery and equipment.

3.12 Electrical surveys

The electrical system on board a commercial vessel, no matter how large or small is an extremely complicated array of interconnected machinery, switchboards and control equipment. The surveyor must be properly qualified with experience of the installation of commercial vessel systems.

The main generating machinery and associated equipment comes under the classification society's routine survey regime to maintain the equipment in class. The classification society's own surveyors will carry out these surveys.

The independent surveyor will be appointed when there is physical damage or a serious malfunction of equipment or the control system has occurred that requires investigation and there is the probability of an insurance claim. The surveyor in this case may be acting for the insurance underwriter, the vessel owner or the equipment manufacturer, although the latter will in most cases have their own representative in attendance. If the vessel's operations are seriously compromised leading to delays to the vessel then the repercussions can be quite serious with the potential of many parties being involved all making claims against the vessel. The importance of expediting the survey and returning the equipment back into service cannot be stressed enough. The surveyor will be under pressure so a strict logical approach must be undertaken by the surveyor.

3.13 Electronic Equipment Damage Surveys

Electronic installations and equipment come under the domain of the classification society's survey regime. The society's surveyors will be trained and qualified specifically in the subject and the equipment found onboard commercial vessels.

The vessel's radio communications equipment is a particular area that is subject to regular survey for the certificate to be kept up to date. The ship's radio certificate lists all the statutory equipment on board that is subject to annual survey. It is the responsibility of the flag state to see that vessels under their jurisdiction conform to SOLAS 74 in respect of radio equipment required on board a vessel. The flag state usually nominates the vessel's classification society as an authorised organisation to carry out these annual and other radio surveys. In turn the classification society will sub-contract a radio equipment company with qualified surveyors to undertake this work.

The independent surveyor may be appointed in the case of damage to, or malfunction of, a system where there is the probability of an insurance claim. A vessel owner may have to produce an independent report to justify an insurance claim for damage. The situation can become quite complicated as in the case of an electronic control system malfunctioning. An example is a thruster control system which renders the thruster inoperable. If the vessel is unable to continue her work under the terms of a charter party then she may have to go off hire. This could have a knock on effect to the overall operations that she was involved with. As an example, an offshore diving operation that has to be halted which then stops any topsides work being completed. At the end of the day someone has to pay not only for the replacement or repair of a control unit but for any operational delays. So an investigation will have to be conducted to find the cause of the failure.

3.14 International Safety Management (ISM) Code Audits

The purpose of the ISM Code is to provide an international standard for the safe management and operation of ships and for pollution prevention.

The ISM Code requires that a company sets up a safety management system (SMS) for its ships. The objectives of this SMS are to provide safe working practices, provide a working environment without danger and establish safeguards against all identified risks.

The Code is made up of sixteen (16) sections starting from section one (1) the Implementation of the Code to section sixteen (16) ISM External Audits.

Part of the code is to have in place as part of the system internal and external audits. The purpose of the audits is to verify conformity with the Code by the company, the ships, officers and crew and to record non-compliances. External auditing is carried out by trained and qualified auditors as laid down in the ISM resolution appendix. Many marine surveyors with a sound working knowledge of the ISM code and SMSs on board ships and in company structures are good candidates for this role.

The basis of the external audit is verification by the vessel's flag state administration that there is conformity with the Code. The external auditors do not have the right to impose corrective actions but do have the right to advise if they are able to do so.

Internal audits are conducted by company personnel usually at superintendent level. Their prime task is to focus on the effectiveness of the system and to make recommendations for change, modification or improvement of the system should it be deemed necessary or non-compliances dictate the necessity to make any changes or modifications. The auditors and the audited persons have to find the solutions, especially in the case of the company auditor, as they have to impose these solutions to other departments in the company or the other ships in the fleet.

Over the last decade a whole new industry has sprung up with independent marine surveyors advising and setting up Safety Management Systems for shipping companies. These marine surveyors may undertake the internal audits for the company. Under the ISM Code there are basic competences laid down for persons involved in performing verification.

“Personnel who are to participate in the verification of compliance with the requirements of the ISM Code should have as a minimum of formal education according to the following qualifications from a tertiary institution recognised by the administration or by the recognised organisation within a relevant field of engineering or physical science

or

qualifications from a marine or nautical institution and relevant sea-going experience as a certified ships officer.”

They should have undergone training to ensure adequate competence and skills for performing verification of compliance with the requirements of the ISM Code, particularly with regard to:

Knowledge and understanding of the ISM Code.

Mandatory rules and regulations.

The terms of reference which the ISM Code requires that companies should take into account.

Assessment techniques of examining, questioning, evaluating and reporting.

Technical or operational aspects of safety management.

Basic knowledge of shipping and shipboard operations.

The training also requires that the verifier take part in at least one marine related management system audit.

It can be seen from the above requirements that the marine surveyor is well placed to become an ISM auditor.

3.15 Ship Vetting (SIRE)

In the early 1990s there was increasing concern about the numbers of substandard shipping that was trading on an international basis. In 1993 The Oil Companies International Marine Forum (OCIMF) (www.ocimf.com) introduced the Ship Inspection Report Programme (SIRE) a ship inspection regime specifically addressing the problem of substandard shipping. The programme is a risk assessment tool that is used by charterers, ship operators, terminal operators and government agencies that have a vested interest in ship and shipping safety in their territorial jurisdictions.

The SIRE programme has established a standard objective tanker inspection regime. The regime regularly inspects tankers and tanker operations creating reports that are held on a data base.

To date there has been in excess of 200,000 inspections carried out and the data base currently has over 37,000 reports in the system. On average 1,400 reports are received every month and on average 7,500 reports are requested every month, nearly 8000 ships are on the database.

OCIMF members request ship inspections and appoint an accredited inspector to conduct the inspection. The inspector has access to the vessel particulars from the database along with the appropriate questionnaire. The inspector then conducts an on-board inspection ranging from cargo operations to pollution control measures. This report is then up-loaded to the data base and with payment of a fee any registered company, terminal operator, port authority, oil, power, oil trading company which charters tankers and/or tank barges may have access to the report database.

Any government agency engaged in port state control inspections has free access to the database and the reports. The reports are held on the ship index for one year from the date of receipt and kept on the database for a period of two years.

The vessels covered by the regime are categorised as follows:

Categories 1 & 2 (depending on the tonnage)

- Oil tankers
- Chemical tankers
- LPG carriers
- LNG carriers
- Combination carriers

Category 3

- Offshore barges
- Inland barges (manned & unmanned)
- Integrated barges

3.15.1 The SIRE Vetting Inspector

To be able to meet its aims and objectives the SIRE system relies on the quality and integrity of the inspection process. In 2000, revisions were made to the SIRE programme to introduce a formal inspector's qualification. This included having in place a Ship Inspector's Training and Accreditation Programme. Prospective inspectors must attend a SIRE inspectors' course, pass a written examination and, before being accredited, they must undertake an audit whilst carrying out an inspection. When in 2004 further revisions to the programme took place new vessel categories as above were introduced. This also introduced three categories of inspectors depending on the category of vessel to be inspected.

Category 1 inspectors can inspect all categories of vessels

Category 2 inspectors can inspect category 2 and 3 vessels

Category 3 inspectors can inspect category 3 vessels only

Under the OCIMF/SIRE accreditation procedures all inspectors must possess professional qualifications and have appropriate experience as per the following:

Category 1 Inspector requirements:

A Master's Certificate from a recognised flag state for vessels over 3000 gross tonnage

or

A Chief Engineer's Certificate from a recognised flag state for propulsion power of over 3000kw

Hold valid accreditation under the OCIMF Ship Inspectors' Training and Accreditation Programme

At least five years' sea service on board tankers with not less than two years in a senior position

A Dangerous Cargo Endorsement appropriate to the type of vessel

An ability to demonstrate knowledge and familiarity with international and national regulations, codes and conventions, industry guidelines and procedures and standards appropriate to the type of vessel being inspected, e.g. SOLAS, MARPOL, STCW, OCIMF, ICS

Be capable of physically conducting a full and complete inspection as laid down in the Vessel Inspection Questionnaire (VIQ)

Be capable of writing and communicating in English as well as when inspecting category 3 vessels be able to communicate in the language of the vessel's crew.

Category 2 Inspector requirements:

A Master's Certificate from a recognised flag state for vessels between 500 and 3000 gross tonnage

or

A Chief Engineer's Certificate from a recognised flag state for propulsion power between 750kw and 3000kw

Hold valid accreditation under the OCIMF Ship Inspectors' Training and Accreditation Programme

At least five years sea service of which no less than two years must be in a senior position

A Dangerous Cargo Endorsement for the appropriate type of vessel being inspected

An ability to demonstrate knowledge and familiarity with international and national regulations, codes, conventions and industry guidelines the same for a Category 1 inspector

Be capable of physically conducting a full and complete inspection as laid down in the VIQ

Be capable of writing and communicating in English as well as when inspecting category 3 vessels be able to communicate in the language of the vessel's crew.

Category 3 Inspector requirements:

A Certificate of Competency for officers in charge of a navigational watch or master of a ship of less than 500 gross tonnage
or

Certificate of Competency as a Second Engineer

or

A nationally recognised Barge Master's licence

or

A nationally recognised Barge Engineer's licence

or

Extensive experience in barge operations or barge terminal management

OCIMF/SIRE accreditation for category 3 inspectors varies for geographical location and these are detailed in separate guidelines

At least two years on the type of vessels they are inspecting

A category 3 inspector with previous sea going service shall hold or have held a Dangerous cargo endorsement appropriate to the type of vessel being inspected

Be familiar with appropriate international and national codes, conventions and industry guidelines

Be physically capable of conducting a full and complete inspection as laid down in the VIQ

Be capable of writing and communicating in English and the language of the vessel's crew

Have been provided with adequate training to SIRE standards for inspecting the type of vessel being inspected.

3.16 Ship Vetting (CDI)

In the early 1990s as the SIRE system was gaining ground and acceptance, it became apparent that the hazardous nature, high value and physical properties of bulk liquid chemicals and chemical gases required a rigorous inspection scheme to make sure a ship was suitable to carry these special cargoes.

This led to a situation where the number of inspections came almost to an unmanageable point as every charterer required an inspection. On chemical tankers with many parcels of cargoes this often meant numerous inspections in a year or even more than one inspection being conducted at the same time. These inspections were being carried out at the most critical time of the vessel's operations when the full attention of the officers and crew was paramount. In an attempt to reduce the numbers of inspections, the European Chemical Industry Council (CEPIC) established the International Chemical Environment (ICE) programme. As part of this initiative a working group was set up to create a safety and quality assessment system for marine transportation. The working group developed an inspection regime that only required the inspection of chemical and chemical gas tankers once a year by third party accredited inspectors. This led to the establishment of the Chemical Distribution Institute (CDI) (www.cdi.org) in 1994 as a non-profit organisation to run the administration of the new regime. The CDI is managed by a board of directors who establish policy and oversee the staff running the everyday activities of the three schemes.

In 1997 a second inspection regime for bulk chemical storage terminals was put in place known as the CDI-Terminal scheme (CDI-T). The marine inspection regime then became known as the CDI-Marine scheme (CDI-M). The objectives of both schemes is to improve the safety and quality performance of bulk liquid shipping and bulk liquid storage terminals.



Typical chemical tanker and chemical storage terminal

The CDI recognised that chemical cargoes were not limited to bulk shipments and introduced a third inspection regime to cover marine packed cargoes (CDI-mpc). The CDI also recognised that packed cargoes were not limited to the chemical industry and developed the International Marine Packed Cargo Audit Scheme (IMPCAS). This scheme provides audit reports on all the elements of the chemical supply chain including shipping companies, ships, tanktainer operators, container depots, freight forwarders, agents and container terminals. The CDI-T scheme has 20 accredited inspectors operating on a worldwide basis. The CDI-IMPCAS scheme has nearly 200 accredited auditors mainly all based in the major container ports e.g. Rotterdam, Hong Kong, Singapore, Harwich.

The three schemes use questionnaires developed by the CDI technical committee. These questionnaires satisfy the requirements of the participating chemical companies to enable them to complete a risk assessment and for charterers, terminals and parties with a vested interest to obtain an independent objective report on compliance with regulatory and industry standards.

3.16.1 The CDI-M vetting inspector

All CDI-M inspectors are independent professionals accredited by CDI. They must hold a Class I Marine Certificate of Competency from a recognised flag state or an appropriate academic qualification for the industry along with adequate experience and knowledge of the operations and practices of the industry. To become accredited the prospective inspector then has to undergo extensive training at a CDI training facility. The training includes the correct application of inspection procedures, understanding of the questionnaires, conducting the inspections in a uniform manner and that the data collected is consistent. The prospective inspector is subject to both written and oral examinations to confirm their knowledge and experience before accreditation is granted.

Inspectors' reports are monitored to verify standards and inspectors must attend refresher courses at regular intervals.

3.17 The Expert Witness

The professional marine surveyor with their experience, knowledge and having established themselves over many years with a good reputation, may be asked to act as an expert witness.

It has to be said at the outset that this type of work is not for the fainthearted as the courts or at least the barristers look to every which way to discredit an expert witness. The marine surveyor choosing this route will have to take on additional training to be able to understand court proceedings and how to conduct themselves in the courts. This is a job where a strong constitution and a stiff spine are required. However the rewards, not only financially, but in increasing your exposure to the marine industry and so increasing your reputation are excellent.

The role of the expert witness is to give his expert opinion on the information and evidence that is to be produced in a court. Once a court report has been produced then all parties in the dispute can ask questions about the report. The report and any answers given by the expert witness, then form part of the evidence presented to the court. Arbitrations, tribunals and litigation are all areas where the services of an expert witness may be required. There are a number of organisations set up to offer the services of expert witnesses e.g. The Academy of Experts (www.academy-experts.org).

Under English law there are three types of expert witness:

Party Appointed Witness (PAE). The expert witness is appointed by one of the parties involved in the dispute. The primary duty of the expert witness regardless of who instructed him, or who is paying him, is to assist the court in the areas that he has expertise.

Single Joint Expert (SJE). The expert witness is appointed by both parties involved in the dispute. In this case again the primary duty of the expert witness is to assist the court in the areas of his expertise regardless who instructed him or who is paying him.

Expert Adviser. As the name implies the expert is appointed in an advisory capacity by one of the parties. This appointment is not covered by the Civil Procedures Rules.

The selection of an expert witness is not necessarily just on experience alone. The following points are considered when making a choice.

- Academic qualifications
- Previous expert witness experience
- Membership of professional bodies
- Accreditation as an expert witness
- Relevant training as an expert witness
- Geographical location
- Any other relevant skills e.g. ability to speak another language(s)

3.18 The Marine Coating Inspection

In December 2006, IMO adopted a performance standard for protective coatings (PSPC). This new coating standard provides technical requirements for protective coatings in seawater ballast tanks of all ships of all types not less than 500 gross tonnage as well as double-skin spaces arranged in bulk carriers of 150 metres and above. This standard is made mandatory through an amendment to SOLAS.

The standard sets out implementation dates as follows:

- the building contract is placed on or after 1 July 2008
- in the absence of a building contract, the keels of which are laid or at a similar stage of construction on or after 1 January 2009
- delivery of which is on or after 1 July 2012.

The standard covers areas that include primary surface preparation, thickness and block assembly. The standard also states that “To ensure compliance with this standard, the following shall be carried out by qualified coating inspectors certified by NACE coating inspector level 2 or FROSIO Inspector level III, or equivalent as verified by the administration”.

The National Association of Corrosion Engineers (NACE) (www.nace.org) is an American organisation which has a range of courses dedicated to coating inspectors. The level 2 course teaches advanced inspection techniques, and specialised applications for steel. The course covers in depth knowledge of surface preparation, coating types, inspection criteria and failure of coatings.

The Norwegian Professional Council for Education and Certification of Inspectors for Surface Treatment. (FROSIO) (www.frosio.no)

This is the Norwegian equivalent of NACE founded in 1986. They provide training courses and examinations for coating inspectors in accordance with Norwegian standard NS476.

The courses run by both organisations have similar curricula which includes:

Dehumidification, blast cleaning, water jetting, coating types, hot dip galvanising, spray metalizing, concrete surfaces, pipeline coatings, application equipment, inspection procedures, laboratory instruments, test methods, coating survey techniques and cathodic protection.

Chapter 4

4.0 Cargo and Commodity Surveyors and Types Of Surveys

4.1 Liquid Cargoes

The term liquid cargoes is used to classify those cargoes that are loaded or discharged via pipelines and transported in tanks in liquid form. This applies to the transport at sea in ships and the carriage by sea or land in containers or tanktainers.

Liquid cargoes can be divided into five categories, crude oil, petroleum products, liquefied natural gas (LNG)/liquefied petroleum gas (LPG), chemicals and animal and vegetable oils. LNG/LPG fall into a liquid cargo category as they are transported by sea in liquid form.



Typical ISO marine transport tanktainer

The role of the independent surveyor in all these cases will be to measure and verify the quantity of cargo loaded or discharged. The surveyor will usually be appointed by the shipper, owner or charterer. The oil majors use cargo/tank inspection companies that employ specifically trained personnel to measure and calculate cargo outturns on their behalf. The final figures are then reconciled against shore figures for using as an outturn quantity against a B/L (Bill of Lading, see appendix 9) figure or used as a B/L figure for shipment. The principles of measuring the quantity of all these cargoes are the same. The tanks are accurately measured and these measurements applied to the vessel's approved tank calibration tables to extract cargo volumes. Depending on the cargo a number of correction factors are applied and a final tonnage obtained. The surveyor's role may also involve the taking of samples for testing for specification. The sampling of liquid cargo products has to follow set procedures with the correct number of samples taken and each interested party retaining their own sample or samples. The cargo will be tested for specification prior to loading then, as the cargo is being loaded operations will stop and "first foot" samples will be taken for testing to check the specification before continuing with the loading operation. As the retained samples may be used as evidence in any dispute it is imperative that samples are taken correctly, properly recorded and labelled.

4.1.1 Crude Oil / Petroleum Products

Petroleum products are considered together here with crude oil as the principles of transportation are the same and product tankers' pumping and piping systems are similar. The mainstay of the product tanker is the transportation of feed stock products between refineries.

Crude oil is the raw material that provides the base for the production of LPG, petroleum feedstocks, fuels, lubricants through to bitumen. During the refining process the crude oil is distilled/purified producing black and white (more commonly known as clean) products. The origins and type of crude oil, be it heavy or light, along with the capability of the refinery will determine the amount and type of products that can be extracted during the refining process. Black products are almost seen as the leftovers once the clean products have been stripped from the crude oil by vaporisation and condensation. These black products are used mainly as heavy fuel oils and feedstock the latter being sold on to another refinery which will have the capability and process to strip more clean products out of the black oil. Clean products are the valuable end of the refining process and include jet fuels, petroleum and middle distillates.

The tanks are accurately measured using an approved measuring method on board like a fixed tank radar system, portable meters (UTI- Ullage, Temperature, Interface) or, at its simplest, by a steel tape with a heavy bob attached. These measurements, usually an ullage is taken, are then used to enter the vessel's approved tank tables to extract the correct volume. Trim and list are important factors to be considered in obtaining an accurate volume. Correction factors are then applied to these volumes for temperature and density, then a volume correction factor (VCF) is applied for standard temperature and the volume finally converted into a tonnage figure. A vessel experience factor (VEF) may be applied to the totals. At discharge obtaining an accurate remaining on board (ROB) quantity is an important element of the surveyor's role.

It is important that the surveyor is fully conversant with the measurement systems available on board tankers and the correct use of tank tables and cargo calculations. The shore terminal and refinery processes and procedures are equally important along with a sound knowledge of custody transfer procedures and documentation. The surveyor may have to measure the shore tanks as well as the ship's tanks. It cannot be emphasised enough the importance of following ship and shore safety rules and regulations during every aspect of the surveyor's role in conducting this type of survey.



Example of a portable UTI meter for oil measurements

4.1.2 Liquefied Gases

Liquefied gases are divided into two distinct groups.

LNG or liquefied natural gas. This is gas that is found naturally such as methane.

LPG or liquefied petroleum gas. This is gas derived from petroleum made up of various petroleum hydrocarbons, commonly butane or propane.

Surveyors involved with gas cargoes must be fully trained and experienced in the handling and transportation of these complex cargoes. They must be fully conversant with the International Gas Code (IGC) and fully understand the health and medical hazards when dealing with these cargoes.

As an example one short intake of butadiene will render you unconscious while ammonia will leave you with the worst headache you have ever had. This is on top of other potentially serious medical problems that are associated with these and many other gases.

There are of course other hazards which the surveyor has to be fully aware of including fire, toxicity, corrosivity, reactivity as well as temperature and pressure problems. Surveyors in this trade need to follow all relevant operational instructions and procedures as laid down in the vessel's International Safety Management Code under the safety management system on board. The quantity calculation is relatively easy with computer software programmes available to expedite the process. As the characteristics and limits of the cargoes are well defined, automatic systems are used on board to constantly monitor the quantity of cargo. This will also apply when terminal procedures mean closed loading, sampling and discharging is mandatory. This means that the ship's systems are all that are available for use in making a calculation. In this case the calibration of any system must be carefully considered. Any calibration tables in use must be certified by a recognised authority. Trim, list, the vagaries of density and the effect of tank expansion and contraction, are factors that may have to be corrected for in the calculation process.

Although the surveyor will only be interested in the quantum derived from the calculations it is essential that he has an understanding of the gas laws to fully appreciate the principles involved in the calculations.

Sampling of the cargo is an important aspect of the surveyor's role. The sampling procedures are laid down in the ICS Tanker Safety Guide (Liquefied Gas). Gas cargoes are carried for different reasons, they may be as fuel gas or for storage. The basis for sampling is to verify that the cargo meets agreed specifications. The sampling process has its risk element and should only be undertaken in the presence of a responsible officer. Attention to details such as segregation valves at the sampling point, the health hazards and the flammable nature of the product, including venting and purging operations, are vital for a safe and successful survey outcome.

4.1.3 Chemical Cargoes

The complexity of the chemical trade requires ships and crews to have an extremely high standard of competence and knowledge to carry out their operational tasks. This is equally so of the surveyor involved in chemical cargo surveying as surveying chemical cargoes is considered the most demanding in the liquid sector. The risks to health and safety, the potential hazards to the environment, ships, their personnel including physical damage from reactivity is immense, not least the potential serious harm to the surveyor. Surveying in the chemical trade is carried out for a number of reasons.

Chemical cargoes tend to be high end value and so the loading and discharging (outturn) figures must be properly reconciled between the parties involved, the shipper, receiver, ship owner or charterer, as the commercial impact can be quite severe. The accuracy of measurements and calculations is paramount.

The values of these cargoes demand that the specification must meet stringent requirements. Taking samples for testing is an equally important task for the surveyor to complete. Strict procedures are laid down to follow when taking chemical samples. It is not the surveyor's role to make any tests as these require the services of a qualified chemist and laboratory facilities. It is the responsibility of the surveyor to make sure samples are properly collected and recorded as per the terms of the charter party or any special instructions he may have received from his principal. Although the surveyor will not conduct the tests it is important that the surveyor has a good understanding and working knowledge of any tests carried out.

As we have said, these are high value, high risk cargoes. Very important roles for the surveyor are to ascertain the suitability of the ship's tanks into which cargo is to be loaded or, during discharge, to make sure contamination does not occur through misalignment of valves and pipelines. This should be a rare occurrence as the modern chemical tanker must comply with safety construction requirements. Each tank will have its own deepwell pump, pipeline and valve system to prevent cargo contamination. These must be properly cleaned and inspected to an acceptable standard. In the chemical trades even a small amount of cross-contamination can put a complete parcel off specification leading to rejection of the cargo.

These high value cargoes are part of other processes and the risks involved to any further process require that a perfect record is kept of the operation. In this way an accurate paper trail is in place to support and give evidence to any potential claim.



Measuring a chemical shore tank with a conventional tape and bob (Note the protective PPE)



Example of a Framo hydraulic deepwell pump at deck level



Taking samples on a chemical tanker using a sampling point. (Note the protective PPE)

4.1.4 Animal & Vegetable Oils

The transportation of animal and vegetable oils is regulated by the Federation of Oils, Seeds and Fats Association Limited (FOSFA)(www.fosfa.org) who impose a set of importation rules. There are few dedicated tankers in this trade. The modern chemical tanker with stainless steel tanks meets the high specifications required and so are used extensively in this trade. One of the standards produced by FOSFA is the previous acceptable cargo list and the banned immediate previous cargo lists. These were introduced in an effort to eliminate contamination and the cargo surveyor must be fully conversant with the content of these lists. The types of cargoes classified under animal and vegetable oils are quite extensive, a few examples are listed here: sunflower seed oil, cotton seed oil, soybean oil, olive oil, castor oil, coconut oil, palm oil, tallow, fish oils, agricultural derived liquids are also covered here, wines, alcohols and molasses.

As in all the other liquid cargo surveys, the role of the surveyor is to verify the cleanliness of the tanks, pipelines and pumps as being fit for the carriage of a certain specified cargo. The surveyor must have a sound knowledge of tank coatings used in chemical tankers in the shipment of animal and vegetable oils e.g. polyurethane, epoxy, phenolic and stainless steel. The ability to assess coating breakdown in a tank is an essential part of the surveyor's task. It is also the surveyor's role to measure the tanks to ascertain the quantity of cargo shipped or received. The specification of these cargoes is of paramount importance especially as we are talking about human consumption. The cleaning process has to be fully understood by the surveyor. The previous cargoes and the cargo to be loaded must also be fully understood in particular as to what cleaning process is used. Some cargoes can be cleaned easily with the simple application of water; others may require the injection of chemicals to remove the residues. It can be seen that with the strict standards involved the surveyor plays a very important role. Sampling and testing will have to be done in compliance with the strictest of procedures. Testing of animal and vegetable oils is different from other chemical cargoes. Although the testing is usually done by a certified laboratory from samples drawn by the surveyor, it is imperative that the surveyor understands the basic testing regimes and parameters as often part of his remit will be to witness these tests if not actually to perform them. These tests could include any of the following: hazen colour test, acid wash test, chloride test, permanganate time test, neutralisation value test.

4.2 Dry Bulk Cargoes

Cargo and commodity surveyors may be one and the same, or individuals specialising in a certain area of cargo surveying such as draught surveys, which is looked at separately. Or an individual who has worked in the commodity trade such as grain or fertilisers, who uses their knowledge of the commodity to carry out pre-load or during loading, sampling and testing for condition and specification on behalf of a shipper. Under dry cargoes we have the bulk cargoes including coal, grain, fertilisers, ores and animal feeds. The surveyor will be appointed to carry out several, or all, of the tasks associated with the loading, transportation and discharging of one of these commodities.

In the case of grains, fertilisers or animal feeds, the cleanliness of the holds and condition of the hatches is of particular significance. A ship presented in a poor condition could and probably would be subject to rejection by a surveyor resulting in down time whilst the ship is cleaned. This could possibly lead to disputes with the charterers, ship owners, port authorities and stevedore company.

Any serious faults with the hatch covers may also lead to the same result of rejection by the surveyor. Surveyors involved have an important role to play such that they must be very experienced in how to conduct a cleanliness survey and be able to utilise all facilities and equipment to survey the condition of the hatches and closing devices. The use of UST equipment and/or other test methods must be at the disposal of the surveyor. Bulk cargoes are subject to sampling and testing and this may be for specification checks, as in the case of grains or for statutory requirements to determine if the cargo is safe to load, as in the moisture content of coal.

Cargo surveyors are also appointed to conduct investigations into damage and contamination not just of bulk cargoes but to any shipment that has been the subject of a claim against another party.

One of the regular areas for cargo surveyors to be involved is the pre-load or discharge (outturn) survey of a cargo. Steel cargoes are subject to many claims and the protection & indemnity clubs will appoint a cargo surveyor on most occasions to conduct a condition survey on their behalf. It is not uncommon for the appointed surveyor to be instructed to also survey and report on the stowage, securing and lashing of steel cargoes. The surveyor in these cases must have a sound background in the transportation of steel products. The stowage, lashing and securing of cargoes is also the domain of the cargo surveyor. This can be from a large project cargo requiring very specific lashing and securing to the stuffing of a standard shipping container.

4.2.1 Coal cargoes

All grades of coal are carried in bulk from mini bulkers to capsize carriers. Coal in bulk is subject to a number of hazards that a surveyor must be aware of as they are at risk of explosion, spontaneous heating, liquefaction of the coal and severe corrosion of steel from the high sulphur content. The carriage of coal is subject to the IMO Code of Safe Practice for Solid Bulk Cargoes (BC Code). This gives advice on ventilation during loading and on the voyage to prevent the build up of methane gas.

Coal is subject to spontaneous heating and the extent and speed of the heating will depend on the conditions such as oxygen and moisture levels. Temperatures should be regularly checked by sensors or probes. Prior to loading the coal should be checked for temperature to make sure it is within acceptable loading limits. Coal is also susceptible to liquefaction which means that the coal takes on the characteristics of a liquid if the moisture level reaches a certain maximum level. The accurate assessment of the moisture content is therefore imperative. The ship's master must be presented, by the shipper, a declaration of the Transportable Moisture Limit (TML). The surveyor is usually appointed to take samples and have them analysed for moisture content and flow characteristics.



Discharging coal using mechanical grabs

4.2.2 Iron Ore

Iron ore is a cargo listed in the BC Code as a cargo that may liquefy if the TML is exceeded. The surveyor must satisfy their respective party by sampling the cargo to verify that the actual moisture content is within the TML. Direct reduced iron (DRI) is shipped in pellet form and has its own hazards which are subject to a safety regime as per the BC Code. DRI reacts with water and air to produce heat giving off hydrogen, depleting the oxygen in the holds. In this case, when loading DRI, the surveyor must check the holds for cleanliness and the hatches to make sure they are weathertight. The load temperature must be checked to see that it is below the acceptable limit of 65°C. Although not the responsibility of the surveyor, he should have a good working knowledge of the stresses involved when loading and discharging heavy ore cargoes in bulk.

4.2.3 Fertilisers

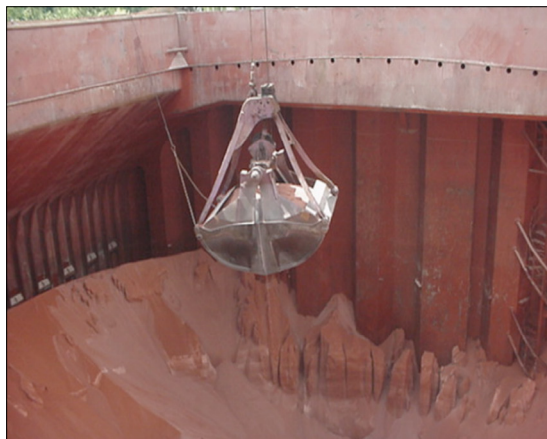
Manufactured fertilisers under the nitrogen, phosphorous and potassium or NPK range, constitute the majority of bulk fertilisers shipped around the world. Ammonium nitrates, phosphates and urea make up the bulk of the rest. Naturally produced fertilisers include potash, chalk, lime, bone meal, gypsum and dried blood.

Many fertilisers are identified in the International Maritime Dangerous Goods Code (IMDG) often referred to as the blue book as they are considered hazardous due to the content of certain other nutrients. As the majority of fertilisers are shipped in a finished condition, granular or more commonly prills, then the condition of the holds prior to loading is very important. The surveyor must be scrupulous in his inspection of the holds looking for cargo residues and making sure the holds are dry and free from any signs of water ingress or damp. There should be no rust, scale or coating problems. The bilges must be checked as operational dry and odour free.

If any of these potential problems exist then there is a significant risk of the cargo caking, coagulating and compacting. This is where the cargo surveyor has to be particularly vigilant at the discharge port in detecting these problems and reporting them accurately. In severe cases, the cargo may have to be discharged to a separate location to be assessed at a later date in particular to assess the quantum of cargo involved.



Example of Urea prills



Discharging phosphate

4.2.4. Grain Cargoes

Grains are traded on the basis of specification. In this case it is normal in the trade for sellers and buyers to appoint a surveyor specifically to sample continually throughout the loading process.

Prior to loading, the holds must be scrupulously inspected for cleanliness and the condition of the hatches and closing devices carefully inspected for weathertightness. In the majority of grain shipments a Phytosanitary certificate will be required. This can only be issued by the government agency in the UK, the Dept for Environment, Food & Rural Affairs (DEFRA). The buyer's surveyor will have been given specific quality standards against which the surveyor will carry out certain tests to make comparisons and to see that the shipment is within these standards. These tests will include moisture, admixture, infestation and possibly more specific tests like the Hagberg test for checking the alpha-amylase in wheat.

Sampling of grains is an important part of the surveyor's role. The drawing and testing of samples is strictly regulated by the Grain & Feed Trade Association (GAFTA)(www.gafta.com) and surveyors should be conversant with these rules as any divergence from them may result in problems if a dispute arises at a later date. The rules lay down the method of sampling, the number of increment samples to be taken and the type of bags and seals to be used. The contractual sample requirements for analysis and arbitration are clearly laid down depending on the commodity and the contract number.



Loading grain from a silo using a mechanical loader

4.2.5 Fishmeal

Fish meal has been highlighted here as it is one of those cargoes that a marine surveyor should be aware of. The majority of fishmeal is produced in South America, Peru and Chile in particular.

Fish meal can contain up to 10% oil unless specially defatted. Fishmeal is classified as a hazardous cargo as it is subject to self-heating and combustion. This is caused by aerial oxidation of reactive sites on fishmeal material. The industry solution was to render the product inert. This was achieved by the introduction of antioxidants during the production process. The meal is cooled and sprayed with an anti-oxidant usually ethoxyquin. Treated fishmeal then came under Class 9 of the International Maritime Dangerous Goods Code (IMDG). This allowed treated fishmeal to be carried in bulk or bags. Problems arose even with this form of treatment. If insufficient anti-oxidant is added at the time of production, then oxidation will start at sometime. The antioxidant is used up as the fishmeal ages such that if insufficient is used initially then the anti-oxidant will be used up before the fishmeal has had time to stabilise. During loading a surveyor must take the temperature of as many bags as possible and bags not conforming must be rejected. This also goes for wet, water stained or caked bags, they must also be rejected. The correct stowage details must be adhered to and any stowage precautions under the IMDG Code Taken into consideration. It is required that, during the voyage, the temperature of the cargo bulk or bagged is carefully monitored. This may require the installation of sensors. This installation is usually carried out by surveying organisations who will be contracted by the shipper or charterer.

During discharge of the cargo depending on the level of heating, the surveyor will have to make sure that damaged cargo is separated from sound cargo, bearing in mind that even heat damaged cargo has a value in the animal feedstock trade. Marine surveyors involved in this trade must exercise extreme caution and be fully conversant with the production, stowage and carriage in bulk or bags of fishmeal.

4.3 Draught Surveys

The draught survey is the recognised international method of determining a quantum of cargo loaded or discharged by measuring the change of displacement of a floating vessel. This information is then used by the respective party, cargo shipper, ship owner, buyer or seller in their commercial transactions or in times of dispute between interested parties. Surveyors conducting this type of survey must have a sound background in ship construction, naval architecture and ship stability. The surveyor must be able to understand and apply the necessary formulae and corrections involved in the draught survey calculations. Modern computer programmes take out a great deal of the work required to perform the previous long hand mathematical calculations that have to be done. This does not detract from the surveyor being able to manually calculate the results. Equally, the computer will not do or understand the vagaries involved in the practical elements of obtaining accurate measurements and information to enable the surveyor to complete the calculation.

Although the principles of draught surveying will be the same wherever they are conducted in the world, the surveyor must be aware that the, weather conditions affecting ships and ports vary to such an extent that they may affect the circumstances at the time, requiring an instant decision which has to be based on the surveyor's knowledge and experience. The draught surveyor will need to understand all the documentation required and where to find the appropriate information, hydrostatic tables, displacement scales, capacity plans and tables, sounding tables, correction tables.

The surveyor must be able to accurately read the ship's draughts applying all the necessary corrections to obtain the true mean draught. The assessment of the deductibles on board must be meticulously carried out otherwise an inaccurate final result will have serious financial repercussions to the parties involved. Tank soundings are prone to discrepancy between the sounding taken and the result from the sounding tables. The surveyor must be aware of factors affecting the results as in the accumulation of ice and snow or a delivery of bunkers during the cargo operation.



Reading draught marks using a boat

4.4 Cargo Damage, Loss and Contamination

This is an area where the cargo surveyor comes into his own by using his knowledge of the carriage of cargoes by land, sea and often by air. The surveyor's practical knowledge of stowage, lashing and securing of cargoes is invaluable in assessing the nature, cause and extent of cargo damage which is essentially the surveyor's role in these circumstances. When damage, including contamination, or loss occurs, the injured party, the defending party or their underwriters will appoint a cargo surveyor to investigate and inspect the subject of the claim. The surveyor will act in an independent capacity to collect and record the facts to present to his principal who in turn will use this report in an attempt to prove or refute the claim depending on where they stand as a claimant or defendant.

The surveyor may be appointed by underwriters, ship owners, charterers, P&I clubs, shippers, consignees, carriers or lawyers. It is always preferred that where possible joint surveys are conducted so that at least quantum of damage can be agreed at an early stage of the claim process.

Part of the surveyor's role will be to mitigate any potential further loss to the subject matter.

This may include having the damaged cargo separated from the sound cargo to avoid possible contamination. Separating damaged cargo is always a good idea, where practical, as it can make assessing the quantum much easier for the surveyors involved. Damage can take on any manner of manifestation from physical damage where the cargo itself is directly affected by being broken, dented, scratched, warped, bent through handling, by impact, vessel movement and cargo shift on the voyage. Then from insufficient packaging problems to cargo taint where two incompatible cargoes have been shipped wrongly in the same compartment. Moisture and damp damage are common place due to cargo being left uncovered in a storage area or ingress of water on board the ship. Loss can mean two different things where the loss has been because of a change in the physical state of the cargo or where an actual loss has occurred through theft or possibly being off loaded at the wrong port. Infestation and contamination in the dry cargo sector, particularly in grains and feedstuffs, can lead to extensive insurance claims.

4.5 Pre-loading and Outturn Cargo Condition Surveys

Although there is no legal obligation to insure a cargo it would be fool hardy not to do so. The risks involved in a marine venture are far too great for any shipper to take such a risk. The stages that a shipment of cargo has to go through from initial start point to the final end user exposes the cargo to many and varied risks. This being the case cargo surveyors will be appointed by different interests for different reasons. Shippers will appoint a surveyor to protect their interests by making sure that their cargo was in good condition on shipment as well as being stowed and secured in line with good practice. P&I clubs will, on behalf of their ship owner members, appoint a surveyor when the type of cargo is susceptible to large claims. Steel cargoes are a very good example of a high claims record. Pre-shipment surveys of steel cargoes are the norm in the trade.

In the case of steel cargoes every parcel is inspected for damage including the condition of any packaging that may be in use. The surveyor in this case would be expected to assist the master in clausing bills of lading appropriately. The stowage and securing of steel, especially steel coils, has to be done following strict guidelines. Although the ship is ultimately responsible for the stowage and securing, the P&I club would expect the surveyor to be fully conversant in the correct methods of stowing and securing steel cargoes and advise the ship accordingly. Heavy lift and project cargoes by their very nature will be high value, high risk. The underwriters of these cargoes will, as part of the insurance policy, insist that a surveyor is present at all stages of the loading to note and record all the events to make sure the correct methods of handling, stowage and securing are carried out in line with best practice. On many occasions part of the surveyor's task will be to conduct a hold inspection to make sure the proposed location for the cargo is fit for purpose. This inspection may be simply for cleanliness to protect a cargo from contamination or in the case of heavy cargoes that the tank top condition and weight rating is sufficient for the safe loading of the cargo.



Damage to tin plate packs as a result of poor stowage

4.6 Stuffing and Unstuffing Containers

The terminology is somewhat misleading if the dictionary definitions are used. However, these are the terms that the trade has adopted to imply the loading or discharging of a container. In fact what the surveyor is really doing on behalf of his principal, apart from inspecting and recording the actual condition of the cargo, is making sure the cargo is “stowed” properly when stuffing and that the cargo had been “stowed” correctly when unstuffing. Stowing of cargoes has a very specific meaning in nautical terms and should really be used. Containers are almost always stuffed at warehouses or factories where the staff has little knowledge of the movements imposed on a container at sea.

A ship will experience six different motions which in turn will be experienced by the container and its contents. A ship may only experience one motion at a time or a combination of any of them. If a container is not stowed properly then it is inevitable that damage will occur. All the principles of good seamanlike practice have to be applied to container stowage as if it was the hold of a ship. Just because a cargo is “inside” a metal box is no protection from all the risks involved in the handling and sea voyage that containers endure. The correct use of dunnage, tomking off, wires and bottle screws, webbing straps, cargo bags as appropriate to make sure there are no spaces to allow the cargo to move are the essence of good stowage. The surveyor will also be recording the cargo condition as well as making sure there is no cross contamination possible from other cargoes. The cargo may be subject to the IMDG Code in which case the surveyor must make sure that all the guidelines are followed including the use of correct labelling on the outside of the container.



Serious damage to cartons of potatoes due to initial poor stowage

4.7 Stowage, Lashing and Securing Surveys

The majority of cargo damage claims result from the fault of one of these three elements.

To start with, unless the cargo is properly stowed it is doubtful if any amount of lashing will prevent movement and so damage not only to the cargo but to the ship as well. Heavy steel coils incorrectly stowed and lashed have shifted causing considerable damage to the ship's structure.

Planning is the essence for a good stow and the surveyor should be involved at the planning stage.

In the case of heavy lift and project cargoes, the surveyor will almost certainly be part of the planning team. Lashing and securing depends on the nature of the cargo. There are very specific regulations for the carriage of deck cargoes including timber deck cargoes covered under the Merchant Shipping (Load line) (Deck Cargo) Regulations 1968. The surveyor must have a sound knowledge of the theory and principles of correct lashings as well as a good practical knowledge of the different types of lashings and their limitations that are available in the market. Lashing and securing in many cases are seen as synonymous and mean only ropes and wires. These are the two most common lashing materials. Securing has many other materials and equipment available, webbing straps, hydraulic banding, cargo bags, and chain and, of course, the parts that all these lashings and securing arrangements are lashed to such as pad eyes, d-ring and lashing lugs. The strength of lashing materials must be fully

understood from safe working loads and breaking strengths of wires, ropes, shackles and bottle screws. The correct use of bull-dog grips and the correct configuration of lashings is of paramount importance for the safe lashing and securing of cargoes. Sea fastenings are another area where a knowledge of the theory behind the design of sea fastenings and material strength is important. Sea fastening will inevitably involve the welding of a special bracket, the positioning of an appropriate pad eye or the welding down of the cargo carrying frame or structure directly to the steel deck or tank top. The standard of the welding has to be carefully considered in these situations. The surveyor must not only understand the basic rule-of-thumb⁶ for lashing but be equally conversant with the local costs of these elements which, in some cases, will become quite significant if not carefully controlled but not at the expense of a poor or inadequate lashing.



A well stowed cargo of steel coils showing the locking coils, proper dunnage and chocks all secured using hydraulic banding

Rule-of-Thumb⁶ “the sum of the minimum breaking loads of all the lashings should be not less than twice the static weight of the unit of cargo to be secured

Chapter 5

5.0 Statutory and Classification Surveyors and Types of Surveys

Statutory and classification have been covered together as many of the statutory surveys conducted are carried out by the classification societies as an authorised body.

The origins of the classification society dates back to the 1700s when underwriters were concerned about the fitness of ships to carry out marine ventures and protect the cargoes and crew. In 1760, a committee was set up and it attempted to record or “classify” the condition of ships using a simple alphabetical notation A,E,I,O,U depending on the standard of construction. This worked to a certain extent but relied heavily on the differing standards of the surveyors employed to conduct these ship surveys. In 1834, it was agreed that an independent “classification society” should be set up and the Lloyd’s Register of British and Foreign Shipping was born. This new system was seen as such a good idea that it became the forerunner for all the other societies today. This led to the formation of the International Association of Classification Societies or IACS (www.iacs.org) in 1930.

The following is a quote from IACS which summarises what classification of a ship is all about. “*Ship classification, as a minimum, is to be regarded as the development of world-wide implementation of published rules and/or regulations which will provide:-*

the structural strength of (and where necessary the watertight integrity of) all essential parts of the hull and its appendages,

the safety and reliability of the propulsion and steering systems, and those other features and auxiliary systems which have been built into the ship in order to establish and maintain basic conditions on board”.

This can only be achieved if compliance with the rules is maintained. This is the role of the classification society, to maintain ships to a set of defined rules.

Ship owners can opt to have whichever classification they want to “class” their new or existing ships. In the case of a new build classification societies will approve plans, building processes, the materials to be used in construction, then supervise the ship’s construction and installation of the hull, machinery, electrical and electronic equipment and systems, plus the approval of all the navigational and safety equipment required to be on board. Once the ship is completed under this supervision process she is said to have been built “under class”. A Certificate of Class will then be issued along with a full set of certificates valid for five years. These certificates are then subject to an annual endorsement to maintain the ship “in class”.

The classification surveyor depending on his qualifications and professional discipline will conduct a number of the following of surveys.

- Annual surveys of hull and machinery
- Drydock surveys
- Class renewal surveys
- Hull & machinery periodical surveys
- Class extension surveys
- Damage surveys of hull, machinery including electrical installations.

The services of the classification societies goes beyond those listed above. Classification societies test and approve equipment, approve materials used in the construction of ships and their equipment, they conduct extensive research and development programmes, and provide technical advisory services. In recent years they have expanded into other sectors out with the marine industry including wind energy, rail, pharmaceuticals and quality management.

Classification surveyors are in the main trained and employed directly by the classification society. Their surveyors will on the whole have a very high educational qualification, usually in specialised areas. There are a number of non-exclusive classification surveyors but these are becoming far fewer. Non-exclusive classification surveyors are usually individuals, sometimes companies, authorised by a classification society to conduct limited types of surveys on behalf of the particular society, and they were called non-exclusive as they may act for more than one society.

5.1 Statutory Flag State Surveys

Statutory surveys are those surveys carried out as required by statute under a Statutory Instrument or as required by the laws of a flag state. The two main areas that require statutory survey and certification are under SOLAS⁷ and MARPOL⁸ involving Safety construction, safety equipment, safety radio and pollution prevention. Others include tonnage measurement and certification, the International Safety Management Code (ISM) and the International Code for the Security of Ships and Port Facilities (ISPS).

5.2 Hull and Machinery Surveys

Under the classification “Special Survey Cycle” the hull is subject to annual and intermediate surveys. This will involve cargo hold and cargo tank structural inspections with periodical surveys for salt water ballast tanks. The surveyor will inspect hatchways, superstructure decks, weather decks, coamings and air pipes, casings, bulkheads, deckhouses, bow and stern doors, ports and deadlights, plus all closing arrangements. This is to satisfy the society that the ship will remain in a safe operational condition for the next year.

Docking surveys are covered under SOLAS which states that a ship must be drydocked twice in every five years. During this survey the surveyor will make an inspection of all the underwater items including the rudder and rudder parts, propeller, sea water inlets, bilge keels, anodes, thrusters and stabilisers if fitted, the hull plating and the hull coating. At one of the dry dockings, usually the special survey, the anchors and cables will be ranged for inspection. It is common practice for the cable to be end for ended.

There is a class notation of IWS which stands for In-water Survey. In special cases a ship may be exempt from a docking survey and an in-water survey carried out by an approved diving company. The classification surveyor will attend the survey and work with the divers through an audio/ video link.

Damage to a ship's hull can and usually does affect the ship's classification status. In this case the society will appoint a surveyor to attend any damage survey and to advise on the type and extent of repairs to keep the ship in class. If a permanent repair cannot be made then an acceptable temporary repair will be made and a Condition of Class noted on the ships documentation.

The ship's main and auxiliary machinery installation and equipment is also subject to regular surveys to maintain the ship “in class”. The machinery is to be surveyed once in every five years, however there are a number of systems which allows for certain machinery to be surveyed based on running hours. This usually applies to ships with relatively low running hours. CSM or continuous survey machinery is a class notation where 20% of the machinery is surveyed each year. The surveys are often carried out by the ship's senior engineers under approval from the society.

Control systems are also subject to regular surveys. In the majority of cases this will be an annual inspection to include alarms, fire detection systems, fire pumps electrical supply systems and bridge control systems. On modern ships there will be an array of specialist control equipment with micro processors for engine control systems, dynamic positioning systems and cargo control systems all of which are be subject to regular survey. In these cases the surveyor will have to satisfy himself that these systems operate in line with their design criteria.

There are many specialised ships like reefers (refrigerated ships) that have refrigeration plant installations with compressors, pumps, fans safety devices and control and monitoring systems that are subject to annual survey.

5.3 New build surveys

During the building of a ship, the classification surveyor will be very much in a supervisory role at the shipyard. A team of surveyors will attend the ship during all stages of the build. They will be from different disciplines and be responsible for a particular part of the build and/or installation from the hull construction to the testing and installation of the main and auxiliary machinery.

At this stage the classification society will do a stability assessment and produce intact and damaged condition stability data for the ship during her operations e.g. when loading and discharging cargo.

The assignment of the ship's loadline and freeboard are an important role of the classification surveyor.

SOLAS⁷ - Safety of Life at Sea
MARPOL⁸ - Marine Pollution

5.4 Materials and Equipment Approval

As part of the compliance process it is equally important that any material used in the construction of the ship or equipment to be installed on the ship must also be of an acceptable standard.

During the building stage all material that arrives at the shipyard must have a certificate stating that it has been produced in an approved steel works. All equipment from safety gear to bridge and navigational equipment, electrical and electronic components must be type approved by the classification society. This will require the classification society actually testing or witnessing testing at the point of manufacture. The manufacturer will have to produce and test to the classification society's approved standards and rules. The classification societies produce a list of approved manufacturers for materials.

5.5 Port State Control

Although strictly a statutory inspection under one of the Memoranda of Understandings (MOUs) port state control has been singled out as a separate sector due to its significance in the operation of ships today. The powers of the port state control officers (PSCO) can be quite severe to the extent of them being able to detain a vessel for non-compliance with statutory rules and regulations.

Port state control officers are specially trained, qualified and appointed by the countries who are a party to and signatory of the regional MOU e.g. The Paris MOU for Europe.

The basis of port state control is to inspect foreign ships which enter a sovereign states territorial waters to make sure they comply with the statutory conventions that come under port state control.

These conventions include SOLAS, MARPOL, STCW⁹, ILO¹⁰ No 147, The Collision Regulations, Tonnage Measurement and Civil Liability CLC 92. The basis being to, over time, eradicate sub-standard shipping. The inspection regime involves an initial inspection which will cover all the ship's documentation in particular statutory certificates. The adherence to STCW 95 checking the certificates of officers and crew. The compliance with ISPS¹¹ and ISM. This will be followed by an inspection of all parts of the ship looking for the overall condition of the structure and equipment on board. The inspector will also be gaining an impression of the standard of maintenance being carried out on board. If the PSCO is satisfied with the condition and operation of the ship, the appropriate notations and reports are completed. If during the inspection the inspector finds "clear grounds" that areas of the ship do not comply with the conventions, then a "more detailed inspection" will be carried out. This will involve as its name implies a very detailed inspection involving the area of concern. This could be any area from the documentation being inaccurate, safety equipment in poor condition or missing, cargo operations not being carried out safely or inadequate crew living quarters or facilities. In the United States the United States Coastguard conduct port state control inspections.



Two officers boarding a ship undergo identification and signing-in procedures as required by the International Ship and Port Facility Security Code.

STCW⁹ - Standards of Training Certification and Watchkeeping

ILO¹⁰ - International Labour Organisation

ISPS¹¹ International Ship and Port Facility Security Code

Chapter 6

6.0 Yacht and Small Craft Surveyors and Types of Surveys

Yacht and small craft surveyors come from a multitude of backgrounds all with different levels of knowledge and experience. Relatively few are from what is known as the “big ship” field as in the yacht and small craft sector lies a totally different world. The yacht surveyor will be dealing with different materials of construction, wood, GRP, steel, ferro concrete, aluminium and any manner of new composite materials that are being introduced into the yacht and small craft manufacturing process. Even within these categories there are numerous subdivisions as in the different types of wood used for construction which have differing properties that determines a particular woods use for a specific part of a build. The methods of construction are changing all the time and even vary from country to country. New designs, new machinery and new outfit equipment is constantly improving and changing. The range and value of the craft put forward for survey also varies from the small mass production sailing yacht of may be just a few thousand pounds (GBP) to the mega yachts of several millions of pounds (GBP) and everything in between. In this sector, as in other areas of marine surveying, the yacht and small craft surveyor will fall into a specific area of specialisation.

In the UK as an example there are surveyors who deal only with inland waters craft, another group will specialise in the mega yacht sector. Then there are those surveyors who specialise in a particular material, wood or aluminium, as an example. The majority of craft today are constructed of GRP so the largest surveying group will be in this sector. The one constant in the yacht and small craft sector of marine surveying is that there is no substitute for experience.

All this coupled with, in the main, having to deal with the general public as their biggest client base. This in itself creates its own problems which the professional yacht and small craft surveyor must be aware of and take account of if he is to succeed in this sector of marine surveying. In dealing with the first time buyer, the yacht broker or the over enthusiastic amateur, the surveyor’s skills have to extend to diplomacy and good communications.

Although the majority of surveys will be condition surveys for the sale and purchase market, other appointments can and will come from different clients for different reasons. The insurance underwriter will on many occasions require a condition survey before he is prepared to affect insurance and write a policy. As in all other walks of life accidents do happen and again the insurance company will be involved and require a damage survey to be carried out. If personal injury or a third party is involved as in a collision then a surveyor may be appointed to conduct an incident investigation. Finance companies and marine mortgage companies will also appoint a surveyor to carry out a valuation.



Yachts and small craft come in many varied shapes and sizes

6.1 Pre-purchase Surveys

The majority of craft in this sector are bought and sold through a yacht broker. There are situations where craft are sold by private treaty, whichever the case the first advice must be to have an independent survey carried out to confirm the actual condition of the craft. This may not be just for the peace of mind of the prospective buyer but you will find that any financial organisation or insurance provider may require a survey before agreeing a loan or mortgage or the insurance provider to take on cover.

It is the prospective buyer's responsibility to appoint and pay for the survey. This in itself creates the first problem as the costs involved in conducting a full and detailed pre-purchase survey can be quite costly especially if the craft has to be hauled out of the water for a complete hull inspection as should happen. In all cases good communications between both parties at the very beginning is imperative so that no surprises are revealed at a later date. The surveyor and the client must know exactly what is expected by and from each side. As an example the engines and other mechanical parts are not normally the domain of the average yacht and small craft surveyor. If the engines are to be part of the survey then a marine engineer must be brought in to do this part of the survey.

The engineer will also need to know to what extent the survey is to be taken.

If the hull is of steel construction then it will be prudent to have ultra sonic (UST) depth measurements taken over the whole hull area and this must be discussed and agreed at the outset by both parties. Once all these vagaries are sorted out then the surveyor can attend to the task in hand. The pre-purchase survey will involve a detailed appraisal of the overall condition of the craft including the following which are not in any priority order. Hull and external hull fittings including rudders, propellers and shafts, topside decks, openings and fittings, masts, sails and rigging, internal outfit and equipment including service systems, black and grey water systems, gas and/or electrical equipment and fittings, internal furnishings plus a full inventory of navigational and auxiliary equipment. The main engines would possibly be part of the survey depending on the contractual agreement between the surveyor and the appointing client.

Many surveying organisations e.g. International Institute of Marine Surveying (IIMS) (www.iims.org) or the Yacht Designers and Surveyors Association (YDSA) (www.ydsa.org.uk), have written codes of practice for conducting a pre-purchase survey. As a member of such an organisation you will be expected to comply with their code(s). A surveyor who is not a member of such an organisation, and there is no obligation to be a member, for legal reasons or otherwise, should consult with and be aware of these codes to make sure he is following what is seen as the industry norm.

6.2 Surveys for Insurance

Yachts and small craft are expensive assets which must be covered under a comprehensive insurance policy to protect the asset from all manner of risks. The water, be it a smooth canal to the ravages of the deep oceans is a dangerous place.

Insurance companies will often ask for a survey before underwriting a pre-owned craft. They may also require, as standard procedure under their terms and conditions to continue cover, that a survey is carried out every five or ten years. This survey is undertaken to confirm that the craft is in satisfactory condition and that the insured value is relatively accurate. This survey is done at the expense of the owner.

It is not the job of the surveyor to state whether the craft is an acceptable insurance risk, that is for the underwriter to decide. To reiterate, the role of a marine surveyor is to measure, inspect, examine and report on the craft based on the client's instructions. An important part of this task is the list of recommendations and remedial work required. It is worth pointing out to the client (the owner) that key recommendations will need to be completed to satisfy the insurer. There is much debate as to whether this type of survey is the same as a pre-purchase survey or whether it is less exhaustive. Cosmetic matters can be largely ignored as they do not significantly impact on the value of the craft. It is a pure business decision by the surveyor if he wishes to provide this type of survey, obviously at a reduced fee rate. The important point is, if you do offer this service, your terms and conditions adequately reflect the exact nature of the survey.

6.3 Valuation Surveys

The appointment to conduct a valuation may come from a number of directions. The prospective buyer looking to obtain an independent valuation, the insurance company looking to obtain a market value and the legal sector looking for a valuation for probate. The valuation survey is divided into two parts. The actual visual look at the craft. This will not be as extensive as a pre-purchase survey but enough detail to confirm that the craft is what it is supposed to be and its overall condition. A large part of ascertaining a market valuation is taken up with researching the craft in question. The design and designer, mass production or one off, material of construction, location, demand and interest in the market, other craft of the same type or similar size currently on the market. All these elements may and probably will have an effect on any valuation arrived at.

Even with careful study and research the prudent surveyor will often quote within a range or percentage either side of an acceptable average.



The ultimate aim for a yacht broker

6.4 Damage Surveys

As stated previously yachts and small craft are expensive assets such that any damage repairs will be a costly affair. This is of course why the prudent owner will have suitable and sufficient insurance in place to cover these unfortunate events. The primary role of the surveyor will be to make a detailed appraisal of the actual damage sustained. The secondary role will usually be to report on the extent, type and costs of any proposed repairs. The surveyor, in many cases, depending on the extent of any repairs, may be tasked to oversee the repairs to make sure they are carried out correctly and to an acceptable standard while costs remain at a level based on original estimate.



Hurricane damage. A surveyor's dream or nightmare?

6.5 New Build Surveys

The surveyor's role for new builds is very much that of a supervisory figure. The surveyor will have to work with designers, naval architects, if he is not one himself, the building yard personnel from shop floor to management and the owner. It is imperative that the surveyor is in attendance at all stages and levels to be able to fulfil his obligations to the client, the new owner. The surveyor must not only be competent in his work but confident enough to withstand the fickleness of the owner who will want changes made and the yard which will resist all changes as they are not covered under the contract of build. The surveyor must record both in writing and by good photography every stage of the build. This is not only for the benefit of the client but to act as evidence should any disputes occur during and after completion. Sea trials will be a part of the task and close cooperation with the yard personnel is paramount to achieving a successful trial. The surveyor must plan the trial in detail with the yard personnel to make sure all aspects of the operation of the craft are properly checked and tested in compliance with any governing regulation and within the original contractual building specification.

6.6 Incident Investigation

Depending on the nature of the incident any of the parties involved may appoint a surveyor to act on their behalf. If there has been personal injury or death then there will be many authorities involved from the police, marine accident investigation board (MAIB in the UK) health and safety, with lawyers representing different parties and insurance representation. The important point here is that all parties with a bona fide interest do actually work together. The collecting of evidence, the recording of evidence and the distribution of evidence are very important issues that must be agreed by all the parties. Interviewing witnesses near and far must be conducted under safe and secure conditions to protect the witness and the evidence. The party appointing the surveyor will determine the level of access to the incident site, the subject of the incident and the access to witnesses and evidence. The surveyor must be clear of his role otherwise he may jeopardise his client's position.



A situation that may need some investigation?

6.7 Machinery Surveys

Unless specifically asked for, a detailed invasive survey of engines and auxiliaries is not the domain of the yacht and small craft surveyor. The surveyor, where possible and safe to do so with approval, may run an engine and check pressures, temperatures and levels. Obviously if a sea trial is part of the survey then a comprehensive set of tests should be planned and careful records of the information gathered must be made showing the engine's performance under predetermined settings and conditions to show the engine's ability.

Under normal circumstances the surveyor will do a visual check of the engine and its mountings looking for signs of damage, leaks or missing parts like pipes or valves. A competent surveyor will take oil samples and have these analysed by an approved laboratory. The laboratory will produce a report stating if there are any signs of contamination which will indicate any problems with the engine.

6.8 Maritime Agency Coding Surveys

In this sector there are many small commercial craft which come under the domain of the yacht and small craft surveyor. Small commercial craft have in the UK and certainly in many other countries like New Zealand and the United States, to be surveyed and coded under a government agency regime. The maritime safety agencies of most countries will have a set of rules and regulations under which these craft have to operate. In the UK it is the Maritime & Coastguard Agency (MCA). The MCA approve responsible surveying organisations to conduct these surveys on their behalf. In the UK the various codes, the brown code, yellow code, and blue code for the different types of small commercial craft from pilot and police boats to sail training ships, have now been harmonised into one code, MGN 280. www.dft.gov.uk/mca/mgn_280-2.pdf. Surveyors involved in this type of work will have to be accepted and registered as competent to conduct these surveys. They will also have to attend regular training sessions to keep abreast of changes and developments in the codes or procedures for conducting the survey.



Typical pilot boat and river police boat that would be subject to a maritime agency coding survey

Chapter 7

7.0 The Marine Surveyor's Market and Client Base

As we have seen, the marine industry spans every aspect of marine transportation and is made up of every conceivable mode of floating object and transport from the humble mass produced sailing yacht in the leisure market, to the super tankers in the commercial market transporting hundreds of thousands of tonnes of crude oil around the world. Then we have the specialised craft of the offshore oil and gas and renewable energy industry through to the cruise industry where the passengers may be considered as the cargo to be looked after and cared for like any other cargo.

Ferries and fishing boats of all shapes and sizes ply their trade around the seas and inland waterways of the world transporting goods and commodities of every description.

To support all these ventures there has to be a vast network of companies providing the support services to keep these ventures moving, from brokers of every type, sale and purchase, insurance both ship and cargo, cargo brokers, agents of every description, ship agents, forwarding agents, bunker suppliers, chandlery suppliers, marine lawyers and underwriters to port operators and repair facilities. Any individual or company, small or large, who has a direct interest in a marine venture or service to the venture, could at some point have reason to appoint a surveyor with knowledge of ships, the sea, cargoes and all things associated with the marine industry to act on their behalf. The reason for the appointment may be just as a precaution to protect their investment or as the result of an incident that has led to an insurance claim and a report of the matter is required. It can be seen that there are any number of opportunities that a marine surveyor, depending on his area of knowledge and expertise, can explore for employment. The independent surveyor in particular will have to do a great deal of leg work in an attempt to attract potential clients to give them a try, in simple terms. The reputation of the independent surveyor in both the commercial and leisure markets is key to a long and successful business and working life.

7.1 The Commercial, Cargo and Classification Surveyor

As stated above any party involved in a marine venture may at one point require the services of a marine surveyor. This could be by direct appointment of the surveyor from the particular party or by third hand appointments through agents or P&I club correspondents. P&I clubs may have several hundred correspondents in every corner of the world. The majority of these correspondents are law firms e.g. DUPI, Antwerp Belgium (www.dupi.com), HWL Ebsworth Lawyers, Sydney Australia (www.hwlebsworth.com.au) and some are surveying companies. The emphasis here is to do market research in your local port or region to find out whom and what are the potential employers of your services. But it is equally important to remember that the marine industry is global and so by association the marine surveyor must also look for employers on a global basis. This may or may not mean overseas travel but the marine surveyor of today must be prepared to travel. This flexibility of your work ethic will have a considerable bearing on building up relationships with clients. The main thrust in many areas of the marine industry is that of trust. The marine surveyor is for the most part on his own possibly in remote even hostile working environments where your client is putting his full trust in your ability and integrity.

7.1.1 Ship Owners

The number of ship owners in the world runs into the thousands from the one ship owner to the complex multi conglomerate multi ship owner e.g. Teekay Shipping (www.teekay.com), and the Chinese Ocean Shipping Company COSCO (www.cosco.com). The appointment of a surveyor can therefore come from different levels depending on the size of the shipping company. The smaller companies will only have a small staff to run and operate the ship. The multi ship owner will have a number of departments dealing with specific areas of operating their ships. No matter what size of company, if you are making an approach for potential employment as part of your marketing strategy it is imperative that you research the company structure to find out who you need to address in your initial contact.

Ship owners will appoint a marine surveyor for many and varied reasons. They may require a ship structural survey following an incident, they may require supervision of repairs or conversions. These latter roles may be seen as acting as a marine superintendent, which it is, but this is an excellent way of proving yourself in the market and building up relationships. If the ship owner requires advice on marine issues, surveys regarding cargo damage or just acting to protect their interests in an insurance claim or dispute they are far more likely to remember your name if you have worked for them before in any capacity, as long as you have done a good job.

Pre-purchase surveys are an area where the ship owner will appoint an independent surveyor to report on the condition as well as, in many cases, the suitability for a particular ship to perform in a specific trade or geographical location.

7.1.2 Agents

Agents come in all shapes and sizes, port agents, ship agents, forwarding agents e.g. Multi-port Ship Agencies (www.multiport.org) and Gulf Agency Company (GAC) (www.gac.com). They deal with everything from looking after the ship, crew and their needs in a port to handling the cargoes involved. They are all acting as third party agents on behalf of a ship owner, ship charterer, ship management company or ship operator if for some reason the latter are not the same as the ship managers. In the case of any problems, damage claims against the ship, claims from third parties such as the port authority, a tug company, stevedores, cargo owners, and crew or, in fact, any party involved in the venture, the appropriate agent will, in the majority of cases, be approached for advice on appointing a local surveyor. The marine surveyor is therefore advised to make himself well known among the agents as to the services he can provide, in turn building up this new relationship. The critical point is to remember your independence, many agents, once they have appointed you, seem to think that you are working for them and them alone and that they may have some influence on your work.

One particular group of agents are the international network of Lloyd's agents who may be an individual or a company. As the name implies they represent the Corporation of Lloyd's, the main insurance underwriting market. They conduct mainly cargo surveys for claims and damage. They may have their own staff surveyors or appoint local surveyors. The Lloyd's agent is a very good source of work as well as good source of information, building up a relationship with the network of Lloyd's agents must be part of your marketing strategy.

7.1.3 P&I and Insurance

Protection and indemnity clubs (P&I) e.g. The London Steam-Ship Owners Mutual Insurance Association (www.londonpandi.com). The Standard Club (www.standard-club.com), are a major source of employment for surveyors. As third party insurers they require the services of marine surveyors for many reasons. These include club entry condition surveys, acting as a representative for the owner and the club in matters of ship damage claims, cargo claims such as damage or quality and quantity disputes, personal injury claims, and advice to masters in port matters. They also appoint surveyors to conduct pre-shipment cargo surveys which may include stowage and cargo lashing surveys. A P&I club will appoint a surveyor directly and most claims handlers within a club will have their own preferred list of surveyors. To become a surveyor on the claims handlers list can be a time consuming business. P&I clubs on the whole, and claims handlers in particular, prefer the personal contact and like to get to know their surveyors from a personal point of view. This process is one of building up the trust we have commented on in other chapters in this unit. It is also important that your relationship with other clubs or owners is intact as the clubs have a habit of talking to each other.

The clubs also have a network of correspondents around the world who, through their reputation, local knowledge and expertise, are considered well placed to represent the club in their area or region. Correspondents may be local lawyers, agents or even a local surveying company. They will appoint a surveyor based on the surveyor's local knowledge and expertise to carry out a specific survey or task. The P&I clubs publish a list of all their correspondents so this is a good source of information when developing a marketing strategy.

Hull and machinery underwriters will appoint surveyors, in particular, if the ship is in a remote location and they need a quick response to a situation to initially mitigate loss.

7.1.4 Financial and Legal

There are many small and large law firms involved in marine matters e.g. Clyde & Co (www.clydeco.com) and Norton Rose (www.nortonrose.com). They will on most occasions specialise in a particular field of the marine industry from cargo claims, hull and machinery, to chartering and contractual disputes. The larger firms will have departments that will each take on a particular area of expertise to enable them to offer a greater scope of service to their clients.

Examples of areas that these firms will be involved in are bunker disputes, charter party disputes, marine casualties, marine regulation, port and terminal representation, shipbuilding and repair contracts, and disputes and marine finance contracts.

Many of these firms have their own surveyors and consultants. The role of these surveyors is to help ensure that all evidential issues are anticipated to aid the presentation of the case. They become involved in groundings, explosions, piracy, onboard personal injury, and mechanical failure and performance issues.

Marine law firms will always be looking for advice on marine matters. To gain access to the lawyers you have to get yourself known through the law firm clubs and associations as well as personal contact. It may be a long process but once a relationship is established and the lawyer finds he can work with you, they will most likely use you all the time even for areas that you may not be particularly experienced or qualified he will trust you to seek assistance from the right quarter.

Many of these law firms hold seminars and may ask surveyors to give a short talk to a group of lawyers or these seminars may be open to interested parties in which case attendance is a very good idea. These law firms may approach professional surveying bodies to assist in finding a speaker or attracting attendees to a seminar.

Law firms will always be looking for good surveyors and consultants to act as expert witness in a court. This work can be extremely harrowing and requires a great deal of specialised training and preparation. If a marine surveyor has the right character, personality, resolve and of course experience and knowledge, this is a direction that should be considered.

In this section we have to bring in the judicial system. The courts will on many occasions appoint an advisor to assist the court in understanding the vagaries of the marine industry. This person will usually be an expert witness but not always. The courts may decide that the special issues involved in a case require the services and advice from a particular industry source. This person will act solely in an advisory capacity and will not be subject to the court procedure rules.

7.1.5 Flag States

There are at the moment 148 flag states recognised at IMO and at least a third have no marine administration of their own. The majority rely on the classification societies to carry out surveys and issue certificates on their behalf. The larger states such as Liberia (Liberian International Shipping and Corporate Register) (www.lisrc.com) and Panama (The Panamanian Registry) (www.segumar.com), have a network of representatives around the world who conduct surveys on their behalf. To become a local representative is a matter of making application to the appropriate flag state authority. If the authority is happy with you or your company and they see a requirement to have representation in your area or region, they will probably appoint you. The majority of the work involves annual certification when a vessel under the flag state enters your region and requires a certificate to be renewed. The flag states tend to work on a scale of fees for the type of survey carried out so there is no room for negotiation. The appointment as a flag state surveyor from a marketing point of view, is a very good move.

7.1.6 Cargo Shippers and Receivers

Cargo shippers and receivers will usually appoint a surveyor directly so it is important to research the local and regional market to see what type of businesses there are and who and what type of cargoes are being handled through the port to support these businesses. These shippers and receivers will usually be looking for quantity and quality load and outturn surveys as well as damage surveys. In the case of some bulk raw materials like coal or grains, it is important to have complete knowledge of the industry rules for the transportation of these cargoes before you start to approach potential clients. The majority of the individuals involved will not necessarily be from a marine background but they know their business.

7.1.7 Classification Societies

Classification societies on the whole have their own staff surveyors. The majority of these are trained within the society's own training system. These surveyors will be made up of those with a marine background and those with academic qualifications usually direct from a university.

On occasions there will be a need to appoint a local surveyor particularly in remote locations where a classification society surveyor is not immediately available. It had been the practice to appoint a local surveyor or local surveying company as a non-exclusive representative of the society. Today this is a rare occurrence as the classification societies, being commercial enterprises, have expanded and in many regions have actually taken over the local surveying companies. There are now thirteen full members of the International Association of Classification Societies (IACS) with the re-admission of Poland and acceptance of Croatia meeting IACS standards, Det Norsk Veritas (DNV) (www.dnv.com) and the American Bureau of Shipping (ABS) (www.eagle.org) are two of the members of IACS.

7.1.8 Average Adjusters

Although beyond the scope of this unit, it is important that we define what "average" is.

In the marine industry there are two distinct types of average. General average (GA) and particular average (PA).

Under the Marine Insurance Act 1906 a general average loss and particular loss are defined as:

General Average

"A general average loss is a loss caused by or directly consequential on a general average act".

"There is a general average act where any extraordinary sacrifice or expenditure is voluntarily and reasonably made or incurred in time of peril for the purpose of preserving the property imperilled in the common venture".

An example would be where deck cargo is jettisoned to preserve the vessel, this would be a GA act. The overriding principle is that where GA is declared, all the parties having an interest in the venture will contribute towards the loss on a proportional basis depending on their level of involvement.

Particular Average

"A particular average loss is a partial loss of the subject matter insured, caused by a peril insured against, and which is not a general average loss".

This would be a simple claim process between the insured and the insurer.

Average adjusters are individuals or employees of adjusting companies whose sole purpose is to resolve marine damage claims, general average (GA) claims. GA can be very complex and involve numerous parties. It is not unknown for GA claims to take many years to resolve.

The GA adjuster will appoint a marine surveyor to act as an overseer to the whole operation. The surveyor will record in detail all aspects of the claim(s), they work closely with the cargo interest surveyor(s). The remit of this surveyor may also involve advice on cargo handling operations.

Average adjusters are members of professional organisations, one such organisation being the Association of Average Adjusters (www.average-adjusters.com). As in many areas of the marine industry, the marine surveyor should be aware of these professional organisations. They hold seminars and meetings which will prove invaluable to building up the surveyors network of contacts.

7.2 The Yacht and Small Craft Surveyor

The very nature of the marine leisure sector means that there are less parties involved in the day to day management, operation and financial transactions that may give rise to the services of a marine surveyor.

7.2.1 The General Public

Members of the general public make up by far the majority of the client base for the independent yacht and small craft surveyor. This is where the yacht and small craft surveyor must have a good marketing strategy to attract these potential clients. Advertising in the marine magazine market is seen as one method, but this can prove to be very expensive and not always cost effective for the numbers of clients actually gained from this form of marketing. The personal approach and being known is probably the best way to establish yourself. Being a member of the local yacht club visiting marinas and boat repair yards is a must. Although this can be time consuming and will afford a certain amount of early rejection, it is usually worth the persistence.

The yacht and small craft surveyor must know all the local facilities available to, not only himself, but to be in a position to advise and give his clients good information as well as a good level of service. There is a great deal of “word of mouth” involved in the marine leisure market so you have to be out there to have any hope of gaining clients. There is a lot to be said for joining professional surveying organisations as this opens up a new way for advertising your services. They all have their web sites with all their member surveyors and usually their areas of expertise readily available to the public sector by the click of a computer key. These organisations also hold regular conferences and seminars as well as short training courses. This allows an opportunity to network with other surveyors, extend your knowledge base and keep up to date with any new developments in the industry. All marine surveyors should be involved with continuing professional development, CPD, which is a must to prove your “duty of care” to your client. The “area of expertise” is also an important avenue to pursue as this may give you a certain advantage over the competition. This may be specialising in a certain material of construction or in a specific design or class of craft.

7.2.2 Insurance Companies

There are many insurance underwriters, brokers and companies who specialise in the leisure marine industry e.g. Navigators & General (www.navandgen.co). Many will further specialise in a certain sector from the inland waterways canal boats to the other extreme of the large mega yachts. Regardless of what they are insuring they will all have a vested interest in the subject of insurance. The insurance company will, in the majority of cases, unless it is a relatively new build require a survey for insurance purposes. Some insurance companies will give guidance to the surveyor, stating whether they want an out-of-the-water inspection, or in the case of wooden vessels, fastenings to be removed and inspected. The aim being to gain an overall assessment of the condition of the craft being considered for insurance. This often requires a valuation but the surveyor must clarify this with the instructing party. The insurance company will have the need of the services of a marine surveyor in times of a claim. The form of the claim could be any area that the policy terms and conditions cover. This could be from a claim for theft of a piece of equipment to the total loss of the craft from the perils of the sea.

7.2.3 Legal Firms

There are many legal firms which may specialise in the marine leisure market or have a department within a larger organisation e.g. Hill Dickinson (www.hilldickinson.com). They may be involved in sale and purchase contractual requirements to personal injury claims and all manner of disputes between the different parties involved including those between marine surveyors and their clients.

The marine surveyor in many of these cases will take on the role of an investigative surveyor to collect evidence on behalf of the lawyer to put a case together to present in court. Collisions between craft or with third party property nearly always resort to the courts for resolution and a legal decision on apportionment of blame.

We have already considered the role of an expert witness (chapter 3 section 2.7). It is important to reiterate that yacht and small craft surveyors, and we have used this term specifically here, as in all other marine surveying fields can be called by the courts to act as advisors to the courts or as an expert witness by the parties involved in the case.

7.2.4 Finance Organisations

When purchasing a craft there will, in most cases, be a requirement to arrange funding to carry out the transaction. Depending on the quantum required this funding can be found from a number of different sources. If the funding is relatively low then a straight forward personal loan may suffice.

This can be obtained from the high street bank or specialised loan company. It will depend on the value of the craft as well as the age and construction material as to whether the lender requires a survey. The lending company will have a strict policy of their requirements before offering a loan.

In the majority of cases, due to the high asset value, a marine mortgage will be the preferred method of arranging the funding. There are many companies specialising in marine mortgages for the marine leisure market. These companies will in most cases require a survey report unless it is a new build.

Chapter 8

8.0 The Business Environment

The most important point to emphasise is that “surveying” is a business and that the purpose of any business is to make a profit whether this is to provide a dividend for shareholders in a large corporation or a living wage for the individual sole trader. To make any business successful you have to run it on sound business principles. These principles apply the same to any business, large or small.

These principles involve not only financial matters but your work ethic. The latter is particularly important to understand as the global business environment that surveyors find themselves working in lends itself to many different working practices which, for some, may seem unethical but for the local culture perfectly acceptable. The law protects us from outright crime or contractual disputes but, without the trust of the unwritten laws, the industry would grind to a halt. Marine surveyors must be aware of the business practices that they may come across in their specific business environment.

Managing the financial matters of the business is equally important not only for your own peace of mind but showing the client that he is working with a professional organisation. This may take the form of mandatory accounts under company law to simple book keeping for personal taxation purposes. Your trading Terms & Conditions, contracts and agreements including invoicing and payment terms must all be clearly defined and set out for the client to avoid any future disputes.

In this global business environment the marine surveyor must also demonstrate excellent communication skills. This does not mean being able to speak different languages although this ability may have an advantage in presenting your sales pitch to a prospective client. It is more a question of doing a spot of research into the client and gaining an understanding of them, their country and business culture and so forming an insight into their working practices.

Although English is the internationally accepted language of the marine industry, the marine surveyor’s business environment is full of words, terms and phrases specific to the global marine industry. The simple misinterpretation of any one of these words and terms can alone cause problems among the various parties involved. This is where the verbal and written skills play a significant part of the surveyor’s ability to, not only conduct his business properly, but to be able to actively participate in the type of business environment he is involved in.

The surveyor must realise that his client may be an ordinary member of the public wishing only to purchase a small yacht using his own savings, to the other extreme where the surveyor may be working with the senior executives of a multi million pound (GBP) ship owning conglomerate.

In each case the surveyor must act professionally and treat his potential client or actual client with equal respect. However, how the surveyor conducts himself to the different parties will differ depending on the client’s background and position. This is all part of understanding the business environment and what service the client wants and being able to deliver exactly that.

8.1 Business Structures

When starting out as a marine surveyor it is imperative that you actually understand the services that you can provide. Your areas of experience and knowledge will largely dictate this, which in turn, will dictate your potential client base and working field, as we have discussed in chapter 7. How you then sell your services in the market place has to be carefully considered as the structure you set up to provide the vehicle to run your business may have an impact on the number and type of clients you attract.

The individual independent marine surveyor may be perfectly acceptable to the person wishing to purchase a yacht but the major oil company may only wish to work with a limited company.

From the outset you have to decide your future or at least have a plan of where you want and expect to be in five or ten years time. The surveyor must write a business plan, not just a financial business plan that may be required by a bank, but a plan based on a SWOT analysis which we discuss later. It is important to think about what you expect from the business, in both monetary terms and in your life style. Marine surveying may be seen as offering an independent life style, however the reality is that the marine industry is a twenty four seven (24/7) business and you have to be committed to this scenario. In the early days of your business, work will be thin on the ground until you prove yourself and build up a reputation as a reliable and professional marine surveyor. You have to find the clients, find the work, the work will not come to you. This may sound slightly negative but it is the same for any business unless people know who you are, where you are, and what your services are then you have no business.

There are a number of business structures that not only apply to marine surveyors but businesses as a whole on an international basis, the names may be slightly different but the legal format will be the same.

8.1.1 The Sole Trader

As the name implies this is the “one man band” as it is commonly called. There are no formal requirements to setting up such a business except that a trading name may have to be registered or the type of business may require some form of licence. The sole trader is completely independent, personally providing the set up capital, working in the business and receiving the profits as his reward. He makes all the day to day and long terms decisions for the business and directly controls the financial and personal responsibilities of the business. The sole trader is only responsible to himself and, apart from declaring earnings for taxation purposes, he does not have to disclose anything about his business to anyone. This structure does not actually stop the sole trader from sub-contracting out survey work.

The main down side of this business structure is that it comes with the status of “unlimited liability” which means just that. The sole trader is personally responsible for the debts of the business. This means that, in the case of going insolvent, then all his wealth and assets would be vulnerable and possibly lead to the loss of all these assets to satisfy his creditors.

The independence of the sole trader is somewhat of a misnomer, he may be independent in his business dealings but his working hours will be dictated by his client’s requirements. This is certainly the case in the commercial world where, as we have stated before, this is very much a 24/7 industry to say that “time and tide wait for no man” can be applied to ships as well. In the case of the yacht and small craft surveyor there is a certain amount of leeway as the working day is very much controlled by the availability of daylight, seasonal conditions, location and to specifics as haul out facilities and availability. The yacht and small craft surveyor can usually agree dates, days and times to carry out a survey with the client, factoring in all these variables. The sole trader will also be restricted in his ability to expand the business if a business opportunity comes along. Taking on a partner or an employee, raising finances will change the position of the sole trader and he may have to look at a change to his business structure.

8.1.2 A Partnership

This is where a number of individuals decide to basically pool their resources. In particular their experience and knowledge as well as their financial resources. This enables them to be able to provide a more varied and better service to prospective clients. The partners buy into the business or “firm” as it is commonly known, as opposed to a company. The buy in capital, which is not always on an equal share basis, will dictate the level of return from the profits an individual partner receives. The partners are all responsible for the running of the business and its financial status which means all its debts. The partners have to agree not only on the day to day running of the business but also on the aims, objectives and working practices including overall policies of the partnership. This is one disadvantage of the partnership structure. If there is total disagreement on a particular issue with little possibility of resolving the dispute then this may lead to a forced breakup of the partnership. This situation is fraught with problems and a reason why partnerships are not that popular with marine surveyors. A partner cannot sell off his share of the business to another person. The partnership, as in the case of the sole trader, does not have to declare anything about the business except for statutory requirements as in the case of national taxation laws.

8.1.3 The Limited Liability Company

In the two previous business structures the emphasis was heavily on the point of “unlimited liability”. The significant difference with a “limited liability company” is that the company is owned by the shareholders and each shareholder is responsible only for the debts of the company up to the value of their individual shareholding. Company law is complex and differs from country to country although the actual business model is similar in all these countries. In the United Kingdom (UK) we have the Limited Liability Company abbreviated to Ltd or Public Limited Company abbreviated to Plc. The main difference is that shares in the Ltd company, which will be a private company, are not traded whereas the shares in a Plc are traded (bought and sold) on a regular basis with shareholders looking to make a profit by selling their shares at a higher price than they purchased them for or to increase their level of share holding and speculating that the company’s share will go up. This is the basis of stocks and shares and the reason behind the international stock markets. This does not mean a shareholder cannot sell his shares in a private Ltd company. The company formation documentation in the form of the Memorandum and Articles of Association will contain clauses stating the procedure for selling shares. In the majority of cases this states that these shares must first be offered to another share holder.

The setting up of a limited liability company is regulated by the Company Law of the country.

In the UK the setting up of a Ltd company is fairly simple and straight forward. After the name availability is checked then the relevant forms are completed and sent to Companies House for Registration (www.companieshouse.gov.uk). At this point a registration number is assigned to the company; this number should be printed on all official company documentation. A register of shareholders (known as members) is also drawn up and their level of holding listed. Once the company becomes operational there are strict rules for the production of accounts. These accounts must be properly audited by an authorised accounting company. These accounts have to be filed with Companies House as they form part of the records of the company. Any person with a bona fide interest in the company can apply, for a fee, to have a copy of these accounts. In this way the share holders have a measure of protection in that the financial situation of the company becomes transparent. This transparency also allows another company or individual planning to do business with this company to check the financial stability of the company before signing any contracts.

8.2 Business Best Practice and Ethics

Business practice can be simply divided into three main areas.

- A Business plan – Financial and business development – A strategy for the future
- Monitoring your business – SWOT analysis – Strengths Weaknesses Opportunities and Threats
- Running your business – The day to day practical element – Terms & Conditions (T&Cs)

1.2.1 The Business Plan

Any new business large or small must start with a sound business plan. This is not just to appease a bank manager or another entity that you are looking at to support your new enterprise. If you do not set out exactly what the objectives of your business are or what you want from your business now and in the future, this lack of direction can only lead to potential failure. The business plan does not have to be some onerous document, especially if you are a sole trader where time is a major factor to running the business. “There is never enough time” is the call of many surveyors, the prudent use of time management will be rewarded if you apply it from the beginning.

If you write a sound business plan and see it as an ongoing working document then the plan will help you:

identify possible problems before they arise
keep the finances under control
define areas for development
measure your success

There are a number of basic issues that must be addressed in a business plan, excluding any financial considerations, no matter what type of business venture you are embarking on. They may seem obvious but, unless you do consider them, your plan will not function as a tool towards a successful enterprise.

What type of business will it be?

What are the objectives of the business?

What are your personal objectives?

Where will the business be in the future?

There is no formal structure to a business plan but over time there has developed what is considered the acceptable norm for presenting a business plan and its contents. The following points would be the minimum required to satisfy a document as a sound business plan. The amount of content in each point will depend on the type, size and structure of the proposed business.

A Summary: This gives an overall view of the business and should include the main points from all the other elements.

A Description of the business and its purpose: Who you are, what you do, what you have to offer and to whom, including your vision for development in the future. This is to give you a focus otherwise all your energies will be wasted if you keep deviating. This does not mean never changing direction because of a good opportunity, this is what the business plan is all about, being able to identify these opportunities.

Management Processes: The organisation and so management of your business is important for efficiency and the smooth running of the business. Even if you are the sole entity in the business you still have to identify and consider some key areas and who will be responsible, you or a third person e.g. using a bookkeeper or a part time secretary.

Marketing

Finance and Accounts

Staff

Developing new services

Day to day management

Administration

Marketing: This is one of the most important elements to the success of any business. It should include areas such as, how you see your position in the market, who your clients will be, your pricing policy, how you intend to promote your business and how you will reach your clients, and a sales plan. If you do not have a marketing strategy, then your business will struggle to attract clients.

Marketing Strategy: It is paramount that you have a clear understanding of the potential target market. This will include the size of the market, location and the individual clients. It is also important to research your competitors, trends in the proposed market and anything that may have an influence on your potential market. From this you can include in your business plan:

What services you can provide

Your initial target market

Reasons for choosing these target markets first

Your Unique Selling Point USP (what can I offer that is better or different?)

Target achievement dates

Identify who will be your next target market and when.

Marketing plan: Once you have a clear marketing strategy, then you have to have a clear idea as to how to make it work. The marketing plan must explain how you will go about achieving the objectives of the marketing strategy. The plan should include all or some of the following points:

The marketing methods e.g. advertising, what will be the best form of advertising, if any, for your type of services? e.g. magazines, brochures, mail shots, local radio

What will be the best approach to the proposed target markets? e.g. phone calls, letters, direct calling, arranged meetings

Who will carry out these activities?

What time frame to achieve these targets?

How you will monitor progress?

What will be the costs involved?

How to handle any response generated by your marketing.

It is important that you manage the plan to make sure aspects like the marketing budget is under control and that any results are acted upon and changes made to the plan if that is what is identified as being necessary to achieve any targets. The marketing plan is part of the overall business plan which is a document that requires regular monitoring.

The Management & Staff: This will include not only your own background and skills but those of any other employee, director, partner, whoever will be directly involved in the business. In the service industry like marine surveying if you do not have the right experience, knowledge and skills for the sector you wish to work in, then it will be almost impossible to find clients.

Operations: This is where you look at the requirements of the day to day running of the business. Do you have or need an office? Is it, or will it be in the right location? Do you have adequate communications? Is the computer system up to the job? Is your transport reliable. Do you have the necessary tools and equipment to do the job?

Financial Planning & Forecasts: How much capital is required to set up the business? What levels of investment are required? What amount of working capital should there be available? There should be forecasts for the next two to three years with the first year to eighteen months being the most detailed. They must show how much revenue you expect to generate, your anticipated cash flow situation and profit and loss statements which give a view of the trading position of the business and the level of expected profit. A balance sheet forecast which gives a snapshot of your business situation sometime in the future.

8.2.2. Strengths Weaknesses Opportunities and Threats (SWOT) analysis

To help monitor and manage your business it is necessary to have business tools available to you that will in effect do the job for you. This is where the SWOT analysis comes into play and should be a part of your business planning. But remember a SWOT analysis must result in actions, it will not make your business successful on its own. You have written a business plan now you need to check how this plan, and so your business, is progressing. A SWOT analysis, if conducted properly, can give you valuable information to enable you to spot problems or make rational decisions about changes to your initial plan. The SWOT analysis should be done on a regular basis, the actual time frame will depend on the type of business you are in. The new marine surveyor may have to do this several times in the first year. Marine surveying can be a feast or famine business and so you have to constantly monitor what is happening in your area of expertise and your geographical area. By adding this information into a SWOT analysis will help to identify these strengths, weaknesses, opportunities and threats. It has to be remembered that a SWOT analysis is as much a practical exercise as an academic one. You have to conduct further SWOT analyses to check that any actions and decisions made from the previous one have actually had the desired effect.

We will look at a simplified example of the new marine surveyor starting out, just to get a feel of what SWOT analysis is all about.

Strengths: Years of marine industry experience, good academic background and qualifications, you are located in a major port, you are very flexible in your working routine, you have all the latest equipment and facilities.

Weaknesses: No formal marine qualifications, little experience of the type of ships and cargoes handled through the local port, work is very seasonal, poor financial management.

Opportunities: New container terminal opening up in your locality, local competition retiring, new equipment to provide a better and more diverse service.

Threats: Any existing surveyors or other new surveyors seeing the same opportunities, dwindling fee rates due to this new competition looking for a way into your market.

As stated above this is very much a simplified example and a great deal more information should be used in each element.

There then comes the point of how do you actually analyse this information to create actions? The key to this is extracting the obvious points in each element. If you have good strengths or a unique selling point (USP) e.g. a piece of special test equipment, in which case, does everyone know about them? If not, draw up a new marketing strategy.

Weaknesses need to be prioritised especially if they are financial, you may be working all hours but if you are not receiving payments when due and do not have a credit control system in place, your cash flow will suffer. If this is not addressed the situation could bring your business down even though, from a revenue point of view, things look good with plenty of work. Opportunities are only opportunities if you act on them immediately, there will always be a competitor waiting to move in. Threats can be difficult to deal with as they are not always under your control but being prepared even down to the correct insurance cover for you and your business, can mitigate a loss and help to protect you against some threats but not all.

8.2.3 Running Your Business

To run any business there has to be a number of processes and procedures to allow the business to function from the first contact with a client to the completion of the work. In the case of the marine surveyor this will be the presentation of their report. As an independent sole trader, control of the process is critical as you will be carrying out all the elements involved from receiving the call, agreeing the work, providing appropriate terms and conditions, to actually planning the work, travel and transport to and from the work site, including equipment provision to carry out the type of survey and any health and safety issues that have to be addressed. In larger organisations there may be personnel employed to carry out some or all of these functions. However, regardless of the size of the organisation, the same process and procedures will apply. It is important that every part of the process is properly recorded and checked. The best way to do this is in the form of a check list. The actual format you use will be to the individual's requirements to facilitate the type of work and information you may need. The elements contained in your check list will vary but on the whole they will all contain certain essential and common information. The overriding point to make is the importance of the understanding by both parties of the instructions being sent by the client and the instructions received by the surveyor. They will be the same document but it is the interpretation of the instruction that may be different. If there is the slightest doubt then the surveyor must communicate with the client before starting any survey to resolve the situation. It is good business practice to go over the instructions with the client as part of the process to avoid any problems at a later date.

The following are examples of the generic elements that should be included on a "Survey Job Sheet":

Survey reference number(s)

Date and time of call/contact

The client's details and all relevant information especially contact information

Type of survey required and reason for the survey

Details of the subject of survey, ship, cargo, yacht

Details of the location for the survey and accessibility including restrictions on times or tides

Details of any contacts at the survey site, agents, brokers, marina staff, managers

Details of any special requirements at the survey site, personal protective equipment (PPE), work permits, health & safety issues.

These may be seen as the practical elements, there should also be the office administration elements:

Fees, rates, time, any special costs to be covered (hire of equipment) (laboratory test costs)

Contracts and Terms & Conditions sent, received and signed.

Any relevant documentation that may be required in support, insurance, work permits.

There should always be space for further information as there will always be some element that is not covered but will be relevant to carrying out the survey e.g. other parties involved to make contact with in an incident investigation.

Terms and conditions (T&Cs) play a vital role in running a successful business as they protect you and your company against the possibility of disputes at a later date. As this is a legal document, it is imperative that your T & Cs are scrutinised by a lawyer. The following are examples of standard clause headings that a set of T & Cs may contain. We use the word “may” as the actual clauses that you wish to have in your T & Cs may vary and be subject to the advice given by your lawyer.

Incorporation	Safety
Prevailing conditions	Liability and indemnity
Associates	Data protection
Acceptance of terms	Confidentiality
Assignment	Reports and Intellectual Property rights
Insurance	Force Majeure
Payment	Waiver
V.A.T	Termination
Equipment	Law of the Contract

8.2.4 Ethics

The first point to make on the subject of ethics is that there is no exact definition of the term. The great philosophers of the world have given much time and thought to the matter and have expressed their findings as the differences between right and wrong, good and evil or virtue and vice, take your pick. Dictionaries define it as “relating to morals” or a “set of moral principles”.

One of the common terms most people will be aware of is “Do as you would be done by”. This is certainly a good ethical principle to follow.

As we have previously seen the multitude of different people involved in a marine venture, all with their own agenda, by definition, may lead to distrust between parties resulting in unethical practices ultimately resulting in fraud of some kind. Maritime fraud, involving insurance fraud and documentary fraud are still common to many areas of a marine venture fuelled by the potential of vast amounts of financial gain. The international nature of the marine industry relies upon the trust between all the parties involved to make the venture successful.

Although not defined as fraud but certainly illegal, there are areas that a marine surveyor must be aware of such as drug and goods smuggling, illegal immigrants and today the prevalence of piracy which affects commercial and leisure activities on a global basis.

The important point here is the ability to differentiate between what is unlawful and what is unethical. A simple example will help to clarify this situation.

A number of surveyors are tendering for work, one particular surveyor, in the name of good professional working relationships, decides to contact the other surveyors involved to gain information about the rates that should be charged for this particular type of surveying.

Then, armed with this information, approaches the client knowing that he can undercut the competition to obtain the work, this would be considered unethical. If the same surveyor had then taken this a stage further and slandered the other surveyors during the tendering process this would not only be unethical but unlawful.

We will look at a number of specific areas where ethics may play a part in how the surveyor conducts himself.

Trespass: a surveyor has no divine right of access when attending a survey. The surveyor must be invited and so have authority from the appropriate party, the land owner, site owner, marina owner, ship owner, warehouse owner or persons responsible and able to give that authority .

Representation: as a rule a surveyor should only represent one party. On occasions it may be acceptable to represent more than one party as long as the parties involved accept the situation and the surveyor.

Conflict: on occasions due to the circumstances of the situation a surveyor may find himself conflicted with another party due to a relationship with that party. It is paramount that, if a surveyor feels there is conflict of interest, he declares this at the outset. It will then be up to the parties involved if they wish to proceed or appoint another surveyor.

Inducements or perks: in some regions of the world this is still a common practice. A surveyor must never accept such an inducement which is only acting to influence a surveyor's judgment. This can be very difficult where the gift is just that and is offered as a show of kindness under local culture. Even in this situation the surveyor must decline and offer an explanation to his client.

Gathering information: part of a surveyor's work is gathering factual information. In the process of obtaining this information you have to act in an ethical manner e.g. when interviewing a person you must not resort to "trick" questions or "lead" the interviewee. Opportunities often arise where unauthorised access to log books or sensitive documentation just happens, a surveyor should not take advantage of this situation. Without authorisation any information gathered, if found out how it was obtained, may be rendered non-admissible say in a court scenario. The reputation of the surveyor would also be put into disrepute.

Client association: this is always a difficult situation where a long standing relationship with a client leads to the exchange of information, due to this close relationship, that may have a bearing on the surveyor's ability to act in an impartial way. Each survey must be treated in a completely impartial manner.

Report content: the surveyor's task is to report the facts, in some cases he may be specifically asked to make an opinion. This statement of opinion must only be based on the relevant facts that have been recorded and reported by the surveyor such that these facts support the opinion. On occasions the client may see the surveyor's report in a different light and question the content, even to the point of trying to persuade the surveyor to make changes to the report.

It is a good idea, although there is no legal or moral obligation, to join a professional marine surveying organisation. They all have a code of ethics with which members are expected to comply and are based around the following:

- Members must act in a manner to uphold the reputation of the profession
- Members must act in a manner so as to safeguard society and the environment
- Members must show professional integrity and skills to the best of their ability
- Members should not take on work that they are knowingly not experienced or sufficiently knowledgeable about
- Members must inform their principal if they believe there is a conflict of interest
- Members shall not take fees from any other party except his principal for the current work.

The organisations or associations may word their particular code differently but the principle behind them will be the same.

The marine surveyor must at all times maintain high ethical standards and integrity.

8.3 Insurance and Liabilities

It is prudent in any business to have insurance to protect your livelihood against a loss that could lead to financial hardship. This may take the form of cover for a physical loss as in the case of your office, facilities or your equipment used in carrying out your work or as a loss through a liability claim against you or your business by a third party. In many cases, by law, you will be required to cover certain liabilities through an insurance policy. If during the course of your business activities a person is injured or property is damaged the person or business responsible may be sued. If the legal liability is confirmed then the claimant will be awarded compensation to cover the injury or damage. This is the basis of liability insurance, it is to protect you and your business against these costs.

The securing of insurance to cover physical losses is fairly straight forward. A competent insurance broker will assist in arranging cover for your buildings, office, computers, surveying equipment, cash held in the office against theft, fire, accidents or any other cover you may feel appropriate to protect you and your business.

When we talk about liability insurance there are three main areas of insurance that a marine surveyor will need to consider. The type of cover and amount of cover will depend on the business structure he is working under, as some forms of liability insurance are, by law, compulsory.

It is important to point out here that a marine surveyor, as a professional person, has a “duty of care” when conducting his work. The definition of “duty of care” is:

“A duty to take reasonable care to avoid acts and omissions which you can reasonably foresee which would be likely to injure a person or persons close to you as a result of these acts or omissions”.

This basically means that the surveyor has to act in a reasonable manner with appropriate skill when performing his work. If this is not in accordance with the normal practices of the profession, he may be found negligent which may lead to a court action against him.

To limit the potential for negligence claims it is imperative that a marine surveyor keeps within his knowledge and experience levels. The consequences of a negligent claim not just from a financial point of view but the damage to a surveyor’s reputation can be almost beyond repair.

8.3.1 Public Liability Insurance

Public liability insurance although not compulsory is the minimum that any marine surveyor should cover, be they a sole trader or a limited company. If a member of the public or a client comes to your premises or area of work, or you go to the client’s, then the prudent action is to obtain Public Liability Insurance cover, this applies even if as a sole trader you work from home. Public liability insurance covers any award or compensation given to a member of the public as a result of an injury or damage to their property caused by you or your business. It will also provide cover for legal fees, costs, expenses and medical treatment. The cost of this type of insurance cover will depend on your business activities and in some cases the actual monetary turnover of your business. There are conditions, warranties, exclusions attached to this type of cover so it is important that sound advice is taken to make sure you have the correct and sufficient cover for your business.

8.3.2 Employer’s Liability Insurance

In the UK, by law, any business that employs people, be it one or one thousand, must have employer’s liability insurance. There are a number of exemptions to this. If you are not a limited company, say, a sole trader and only employ the services of a close family member, as an example your wife does some occasional secretarial work, then employer’s liability insurance is not compulsory. Even in the case of a limited company if there is only one employee and that employee is a 50% or more shareholder, employer’s liability insurance is not compulsory. This type of insurance is to cover the costs of any damage and legal fees for an employee who is injured or made ill through the fault of the employer. In the UK there is a minimum level of cover required which at present stands at £5 million (GBP) although most policies will automatically cover more, up to £10 million (GBP).

It is important to define who is an employee. In the UK the following are used as a basis to determine the status of an employee.

- They are under a contract of employment to you
- You deduct National Insurance and Income Tax from their wages
- You control when, where and how they work
- If they are unable to work, they cannot substitute a replacement.

8.3.3 Professional Indemnity Insurance

The basis behind being a marine surveyor is that you sell your knowledge, experience and skills as a service to the marine industry. PI insurance, as it is known, is compulsory in some professions e.g. architects, solicitors, accountants and financial advisors. In the marine industry as a surveyor there is no requirement to carry PI insurance. There are exceptions as in the case where a surveyor, as a member of a professional organisation, may be under their rules of membership criteria and is required to carry a minimum level of PI insurance. As a professional marine surveyor who is exposed to any manner of risks and so potential claims, it is always advisable to consider PI insurance. PI insurance will protect your business against claims by third parties or your clients if you make mistakes or are found negligent in the course of carrying out your services. If you run your business properly using good management skills you can minimise the possibility of claims by carefully documenting all your actions and having your Terms and Conditions, contracts and agreements drawn up by a legal person to lay out the specific responsibilities of your services to the client.

There is one peculiarity of PI insurance that anyone taking on this type of cover must be aware of. This is that PI insurance is on what is known as a claims-made basis. What this means is that a claim will only be considered if the policy is “live”. If, for whatever reason, you cancel your policy you have to arrange “run-off” cover for an extended period of time afterwards to keep the policy “live”.

8.4 Finance and Accounts

As was stated in section 1.0 the purpose of a business is to make a profit. The profit can be used in many ways, to reward yourself or your fellow directors, to provide a dividend for the shareholders, to use for capital expenditure to purchase assets or expand the business in other directions. It is easy to say that just by working and earning money that the business will actually make a profit; this is not the case as there are many financial elements to running even a small business.

Keeping a careful track of a business's financial situation on a very regular basis is paramount to its continued success. Cash flow, profit and loss and balance sheets are all terms we recognise.

The point here is that you must, as a minimum, have an understanding of what these financial elements of the running of your business are all about. As a sole trader you may only require a simple account ledger or a basic book keeping software programme (www.shop.sage.co.uk). This will suffice to allow you to keep a watching brief over your financial position. They will also be sufficient for extracting information to enable you to comply with the tax laws of the country. When you come to a limited company, the accounts you have to keep and file with Companies House are laid down by law with penalties imposed for failure to comply. The type of accounts are similar to those used by the sole trader, the company accounts are just in far more detail and have to be audited by a qualified accountant. By understanding the basic accounts that you require to run a business then you will be able to keep a track of the way your business is performing. You can check the cash flow situation at any time, this is very important as more businesses fail from cash flow problems than anything else.

You can see any possible problems with clients, check the profit and loss on a regular basis, make forward plans and lastly check your tax situation to make sure you only pay the correct amount.

Accounts and associated paperwork are the bane of any business but they can also be your saviour if kept properly up to date.

8.4.1 Cash Flow Statement

In its simplest form it is “money in, money out”. But unless the timing of the money going in and going out is not carefully planned and checked, then serious short falls may occur to the point that the business is unable to pay its bills and so continue to function. This may seem extreme, but even in a small business, if the electricity or telephone bills are not paid or in a larger business the salaries of the staff are not paid, then the business has serious problems. Even if the problem is short term if you default on a supplier then you and your company’s reputation will be seriously compromised. The purpose of a regular cash flow statement is to make sure this does not happen by forward planning and having credit and debit controls in place. In a large business there will always be an accounts person or even an accounts department to keep a careful check on the financial status of the business at any time.

8.4.2 Profit and Loss Statement

It is important that you know exactly how your business is performing, or not, as the case may be. This information is readily acquired from the profit and loss statement. This shows the balance of your business income and out goings which will show instantly if your business has made a profit or loss over a period of time.

8.4.3 Balance Sheet

The balance sheet provides a great deal of information about the assets of the company and how much the company owes as in loans or payments to suppliers plus any tax owed. As we stated in 1.4 these are documents that, as a limited company you must by law file with Companies House at the end of an agreed accounting period.

If you look at just these three documents and keep them up to date you can extract very useful information as follows, you can:

- See how your business is performing against the projections on your business plan
- Make changes to projections to see how they may affect your business financially
- Identify areas where cost savings can be made
- See your debt and credit situation at a glance
- Use the information to attract investors or raise capital.

8.5 Marketing

Marine surveying is often seen as something of an enigma when it comes to marketing your surveying business. All the basic marketing techniques are open to the marine surveyor as in any other business, a brand name, advertising, press, media, internet, and networking. However, the marine industry, although in volume of trade and monetary value is vast, the numbers of people involved is relatively small. This means that personal relationships built up over many years are very much the norm in the industry. This applies in particular to the marine surveying profession. This does not mean that the other techniques are not used, it is just a fact that to get ahead in the profession you have to be prepared to build up these close relationships with potential clients. The personal approach will pay off better than many of the other marketing methods.

8.5.1 Networking

Networking is probably one of the best and most productive ways of promoting your business. This does not mean attending every local or national business event but being selective to make sure the event will attract the sort of people that may require your services. There are many marine conferences which actually do this for you by taking sectors of the industry and building a conference around the subject. These are very commercially orientated and so attendance fees are expensive. However, attending a two day selective conference will be far more beneficial than running a small advert in a marine magazine. The important thing with networking is how you approach it and always keep an open mind, there are a number of points that you must consider before you set out on the networking trail.

You have to be prepared even to the extent of practicing what you are going to say to people you meet.

Make sure you have good quality well designed business cards and plenty of them, running out at an event is a poor show.

Make sure you receive a business card from everyone you talk to, or at the least listen to what they say and write down names, any relevant information and contact details at the earliest chance.

The important point to remember is that you are not going to get you or your company signed up with a client on the day. This is all part of building relationships so it is vitally important to follow up any contacts you make otherwise the effort and expense has been a waste of time.

The word “relationships” is the key here so how you present yourself and how you interact with others is also very important. Taking on an arrogant overbearing manner or to the other extreme of complete boredom with the whole event will definitely not do you or your business any good at all.

Although marine conferences have been singled out here, the networking approach applies to other events like boat shows, marina and yacht club events, professional organisation open events or, even better, join as many professional organisations and associations that you feel will be of benefit and attend as many of their gatherings as possible. Many of the organisations in the industry, legal firms and insurance companies, regularly put on short seminars and talks, so keeping you up to date with events locally and nationally is important. But to reiterate, you must be selective to make sure your potential client will attend the event. This does not detract from becoming involved with your local business support organisations as they too have their part to play. Marketing is all about getting your name known in the market place.

There is also networking on a more personal level although this means a great deal of knocking on doors, which does not mean in the modern parlance “cold calling”. If a professional approach is taken which means writing a letter, following this up and requesting a short, emphasis on the word short, meeting, the personal contact will give you an instant feel of the prospects for work. You may have to go through this process on several occasions but, as long as the relationship is building there will always be the potential of a new client. You have to remember that independent surveyors will very rarely have a long term contract with any client. The majority of instructions from clients are done on a survey by survey basis with the appointed surveyor being from the client’s list of preferred surveyors. This approach mainly applies to the commercial surveyor although in the yacht and small craft sector building relationships with brokers, insurance companies, financial institutions, yacht clubs, marinas and boatyards, is very important.

8.5.2 Internet

It is now accepted that on-line marketing has become an important marketing tool and marine surveyors can use this tool as well as any other business.

When developing a web-site it is important that professional advice and help is taken. A poorly presented web-site will do no good for your business. It may seem obvious but having the three basics stand out are what your web-site should be all about.

Who you or your company are (name and logo)

What you do (types of surveys)

How to contact you (telephone, land line and mobile, e-mail).

Many web-sites are so cluttered with superfluous information and meaningless animations to the extent that extracting the simple information a client requires can be off putting in which case the client will go elsewhere, as we have stated previously “Keep It Short & Simple”.

Using e-mail as a promotional tool can also be useful in the surveyor’s marketing armoury. This again has to be done with a professional approach. Constantly sending meaningless e-mails to prospective clients will, in the majority of cases, just cause an irritation which can only have a negative effect towards you and your business. It is better to use a newsletter style e-mail with some useful information that a potential client will find of interest. This again should not be some lengthy tome that the client will get bored with but just a few lines or paragraphs about an interesting event or occurrence that the client will be drawn to and, of course, your name, company and logo are fully exposed. The drawback to this is that it does take time not only to write the newsletter but finding interesting stories is a big time consumer. The plus side is that it is very cost effective when you factor in the numbers involved who are all potential new clients.

8.5.3 Customer Service

This, at first glance, may not be seen as a marketing tool but it is an area that can be as influential to a client as all the other marketing methods put together. Once you have secured work from a client, do not file them away and forget about them until the next appointment, it may not come. It is imperative that you keep in regular contact with a client even if it has been some time from the last appointment. It is important to show an interest in your client's business as well as your own. If you show the client you have up to date knowledge and information about their business they are far more likely to come to you for help and advice which will lead to work. The only point to remember is that you and your company are a service business where your time and your experience are what you are selling. You have to be aware of this at all times.

8.5.4 Direct Mailing and Advertising

Producing a glossy brochure or a one off flyer may be a boost to the surveyor's ego but it has not been proven to be a particularly effective method of marketing in the marine surveying profession.

This can also be said of taking a regular advert in one or more of the many maritime magazines and journals available in the industry. This method of marketing has not got the success rate that many surveyors would expect if you consider the enormous costs involved. Commercial surveyors rarely if at all use this method of marketing.

The yacht and small craft sector has many full gloss magazines covering all areas of this sector from canal boats to mega yachts which allows a surveyor to target their specific area of expertise. However, the costs of advertising in these magazines is usually prohibitive for the average independent marine surveyor, although this may not be a bad thing, for as was said before, this method of marketing for the marine surveyor is not seen as very effective in acquiring new clients.

Chapter 9

9.0 The Working Environment

In this chapter we look at the marine surveyor's physical working environment which could be in the bottom of a ship's hold in the middle of winter, or negotiating repairs in the offices of a major ship repair yard to lying under a yacht on a marina hard attempting thickness measurements. There is no doubt that marine surveying is a physically and mentally demanding profession. The marine surveyor must be prepared in all respects to conduct a survey which also includes having a sound working knowledge of the health and safety rules and regulations which will affect the surveyor and his surrounding environment. In all these varied environments that a marine surveyor may find himself, he has by law responsibilities to himself, the environment and those around him that may be affected by the work the surveyor is carrying out. These laws apply equally to the self employed, the employer and the employee.

In the maritime countries of the world the legal responsibilities are governed by various government acts. Under these acts many other rules and regulations have been formulated which may in part, or at some time, affect the marine surveyor in the course of his work.

There are two important points to consider at this juncture:

a. Marine surveying is a global profession which means a surveyor may find himself working in another country. If this is the case then he will be governed by the health and safety legislation of that country. This may be the same or similar to the legislation of his own country. However, it is the responsibility of the surveyor to acquaint himself with any national or local laws and by laws that will dictate how he conducts himself in carrying out his work.

As examples:

In New Zealand they have the "Health and Safety in Employment Act" (HSE Act 1992) – amended in 2002

In Canada they have the "Occupational Health and Safety Act – amended 2011

In the UK and Europe there is the Health and Safety at Work Act 1974

b. Many surveyors will find themselves working on board ships of many different types with many different cargoes and for many different reasons. In all these cases once you step onboard a ship, then you as a surveyor are under the health and safety regime of the master of that ship and you will have to abide by the health and safety policies as laid down under the ship's safety management system (SMS).

It must be appreciated that health and safety law and legislation is vast and complex and far beyond the scope of this introductory unit to go into great detail. This chapter will provide the marine surveyor with an overview of the type of legislation and areas where it may affect him and his work.

Some of the following text, where appropriate, may have been extracted from a particular piece of legislation to avoid any misunderstanding or misinterpretation of any of the words, terms or phrases that have been used in writing this legislation.

9.1 Principles of Health and Safety Policy

The principles employed in national legislation regarding health and safety can be summed up in the following points:

"To take care of the health, safety and welfare of people at work".

"To protect peoples against risks to health or safety arising out of or in connection with the activities of people at work".

"To control dangerous substances hazardous to people at work".

“To control the emission into the atmosphere of noxious or offensive substances”.

There are three points that surveyors should be aware of which apply to all health and safety legislation:

It must be understood that self-employed people are by definition both employers and employees.

9.1.1 General duties of employers to their employees

“it is the responsibility of every employer to ensure the health, safety and welfare of all their employees”

“it is the responsibility of every employer to prepare a written statement of their policy with respect to health and safety at work of his employees”

9.1.2 General Duties of Employers and Self-employed to Persons other than their Employees

“It is the responsibility of every employer to conduct his business in such a manner to ensure, that people not in his employment, are not exposed to risks to their health and safety”.

Persons not in his employment could range from members of the general public to anyone who may be affected by the employer’s activities.

“It is the responsibility of every self-employed person to conduct his business in such a manner to ensure, that he, and other people (not being his employees), are not exposed to risks to their health and safety”.

This emphasises the situation that self-employed people are covered by this legislation.

9.1.3 General Duties of Employees at Work

It is the duty of every employee while at work to:

“To take care of the health and safety of himself and of other people who may be affected by his acts or omissions at work”.

This emphasises the point that the employee has legal responsibilities and he should not be negligent in his work.

“If any duty or requirement is imposed on his employer by any relevant statutory regulation, the employee must co-operate with the employer to make sure these duties and requirements are complied with”.

This emphasises that the employee should co-operate in implementing any legislation imposed on his employer by law.

9.2 Working in Docks, Ports, Harbours, Marinas, Boat and Shipyards

National regulations cover areas of work that are not found in most other industrial environments. They were specifically directed at the major ports and harbours handling cargoes but will have relevant regulations applying to marinas and boatyards. Marine surveyors spend a lot of time in and around these facilities and must have a working knowledge of these national and local regulations.

Within many of these national regulations there are often definitions peculiar to the marine industry inserted specifically for clarification. A number of examples are given here, they will be obvious to many but it gives an indication of how legislation works and the level of detail to avoid misunderstanding or misinterpretation of the regulation.

“Dock gate” means any lock gate or other gate which can close off the entrance to the dock or part of the dock from the sea or other waterway.

“Ship” means all vessels and hovercraft which operate on water or land and water.

“Vessel” means any description of craft used for the transport of goods or passengers or the storage of goods or the accommodation of passengers on water, whether used in navigation or not.

“Pleasure craft” means any description of vessel when used solely for sport or recreation other than for carrying fare paying passenger.

“Hatch” means a ship’s hatch.

“Dock operations” means loading or unloading of goods from a ship at dock premises operations including fuelling and provisioning of ships, the mooring of ships, storing, sorting, inspecting, checking, weighing or handling of goods.

These regulations cover such points as to who these regulations apply:

“employer”

“self-employed person”

“other persons on whom a duty is imposed by any regulation”.

The type and condition of any craft used in the facility to transport people to and from work.

The requirement for the facility to provide adequate and sufficient rescue and life-saving equipment, fire-fighting equipment or any other appropriate equipment deemed necessary to protect health and safety. All this equipment must be available at strategic places around the facility.

The regulations deal with confined/enclosed space entry.

9.3 Reporting of Injuries, Diseases and Dangerous Occurrences

All countries not just maritime countries have national regulations made under their own health and safety legislation which apply reporting requirements to all work activities. These will apply to the marine industry including any offshore activities. The main thrust of any regulation is to generate reports from events which arise out of or in connection with work activities covered by any national legislation.

These regulations will apply to “the loading and unloading of ships and the construction and repair of ships” so a marine surveyor will have responsibility to conform to any such legislation. Under these regulations the person whose responsibility it is to make these reports is clearly defined.

A responsible person may be the employer of the injured person, a self-employed person or someone in control of premises where the work is being carried out.

It is important that a marine surveyor consults the relevant national regulation for a complete breakdown of their particular requirements.

The following are produced as a guideline to what must be reported:

All deaths resulting from or in connection with work must be reported (this is usually by law).

Reportable Injuries

Fractures, amputation, dislocations, loss of sight, chemical or hot metal burns, injuries from electric shock, any other injury leading to hypothermia or unconsciousness, loss of consciousness due to asphyxia, acute illness from absorption of any substance and acute illness from exposure to a biological agent.

Reportable Occurrences

Collapse, overturning or failure of load-bearing parts of lifts and lifting machinery
 Explosion, collapse or bursting of any closed vessel or associated pipework
 Failure of any freight container in any of its load bearing parts
 Plant or equipment coming into contact with overhead power lines
 Electrical short circuit or overload causing fire or explosion
 Any unintentional explosion, misfire, failure of demolition to cause the intended collapse, projection of material beyond a site boundary, injury caused by an explosion
 Accidental release of a biological agent likely to cause severe human illness
 Failure of industrial radiography or irradiation equipment to de-energise or return to its safe position after the intended exposure period
 Malfunction of breathing apparatus while in use or during testing immediately before use
 Failure or endangering of diving equipment, the trapping of a diver

Reportable Diseases

Conditions due to physical agents or physical demands of work, ionising radiation, decompression sickness
 Infections due to biological agents, anthrax, brucellosis
 Conditions due to substances, poisoning by carbon disulphide, ethylene oxide, methyl bromide

9.4 Personal Protective Equipment

Personal Protective Equipment (PPE) can be defined as:

“Any equipment, including clothing giving protection against the weather, which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety e.g. safety helmets, gloves, eye protection, high-visibility clothing, safety footwear and safety harnesses.”

“As an employer you have a responsibility to your employees to provide suitable PPE if there is a risk to their health and safety”.

“If you are a self-employed person you have to provide suitable PPE for your own protection if there is a risk to your own health or safety while at work”.

Any regulation will require that all PPE is properly assessed before use to ensure it is suitable, it must be properly maintained and stored, provided with instructions on how to use it safely and is used correctly by the employees.

To help assess the correct PPE you must consider the different hazards in the work place and select the appropriate PPE to protect against the hazard and for the work to be done.

The following are a guide as to the hazards and types of PPE for protecting the different body parts:

Eyes

Chemical or metal splash, dust, projectiles, gas and vapour, radiation safety spectacles, goggles, face shields, visors.

Head

Impact from falling or flying objects, risk of head bumping, hair entanglement Helmets and bump caps.

Breathing

Dust, vapour, gas, oxygen-deficiency.

Disposable filter face piece or respirator, half or full respirators, air –fed helmets, breathing apparatus.

Protecting the Body

Temperature extremes, adverse weather, chemical or metal splash, spray from excessive pressure leaks or spray guns, impact or penetration, contaminated dust, excessive wear or entanglement of clothing, overalls, boiler suits, specialist protective clothing e.g. chain mail, high visibility clothing.

Hands and Arms

Abrasion, temperature extremes, cuts and punctures, impact, chemicals, electric shock, skin infection, disease or contamination, gloves, gauntlets, mitts, wrist cuffs, armllets.

Feet and Legs

Wet, electrostatic build up, slipping, cuts and punctures, falling objects, metal and chemical splash, abrasion, safety boots and shoes with protective toe caps, gaiters, leggings, spats .

Training is an important part of any health and safety policy which will state that you have to make sure anyone using PPE is aware of why it is needed, when it is to be used, repaired or replaced and of course its limitations.



Typical PPE found in the marine industry



More examples of typical marine PPE

9.5 Control of Substances Hazardous to Health

It is the responsibility of every employer to control substances that are hazardous to health.

Employers have a duty to protect employees and others from exposure to hazardous substances.

Any national regulation will state what are harmful substances and what are the potential health risks.

For example: dust or fume laden air can cause lung cancer, metal working fluids can grow bacteria and fungi which cause dermatitis and asthma, flowers, bulbs, fruit and vegetables can cause dermatitis, wet working as in catering can cause dermatitis, benzene in crude oil can cause leukaemia.

There are many other substances which can be harmful if not used or controlled properly e.g. paint, inks, glues, lubricants, detergent and cosmetics

There are a number of substances which may be exempt under the national regulations e.g. asbestos, lead, radioactive materials which will have their own regulations.

In complying with any regulation an employer must consider the following points:

“identify what the health hazards are and decide how to prevent harm to health”

“provide control measures and make sure these measures are used and in good working order”

“provide information, instruction and training”

“provide a monitoring system”

“have emergency plans in place”

9.6 Provision and Use of Work Equipment

As a marine surveyor, if you are an employer or a self-employed person providing equipment for use at work, or you have control of the use of the equipment any regulations covering this will apply to you.

National regulations will require risks to people’s health and safety from equipment that they use at work, to be prevented or controlled. These regulations will cover equipment provided for use at work and state that the following apply to all work equipment:

“it must be suitable for the intended use”

“it must be safe for use, maintained in a safe condition and where required inspected to ensure this remains the case”

“it must only be used by people who have received adequate information, instruction and training”

“any equipment must have appropriate safety measures. protective devices, markings, warnings”

These regulations will cover any equipment used by an employee at work, hammers, ladders, drilling machines, power saws, circular saws, photocopiers, lifting equipment, trucks and vehicles. If an employee provides his own equipment it is still the responsibility of the employer to see that this equipment complies with any regulation.

You must also ensure that any risks created by the equipment are eliminated or controlled by using guards, protection devices, markings and warning, PPE and following safe working practices.

9.7 Lifting Operations and Lifting Equipment

If as a marine surveyor you are an employer or self-employed person providing lifting equipment for use at work, or you have control of the use of lifting equipment, you will be responsible for the equipment and will have to comply with any national regulation.

Any national regulation will require that lifting equipment provided for use at work is:

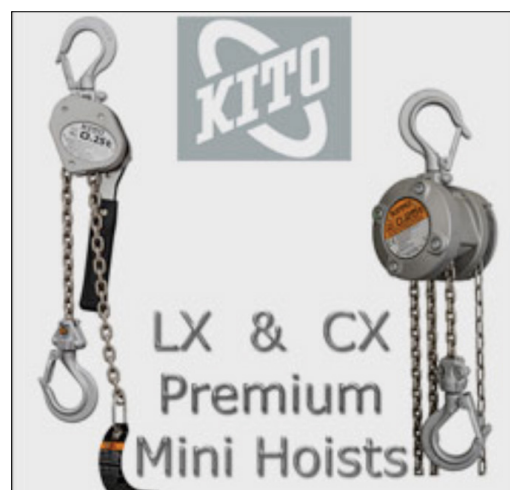
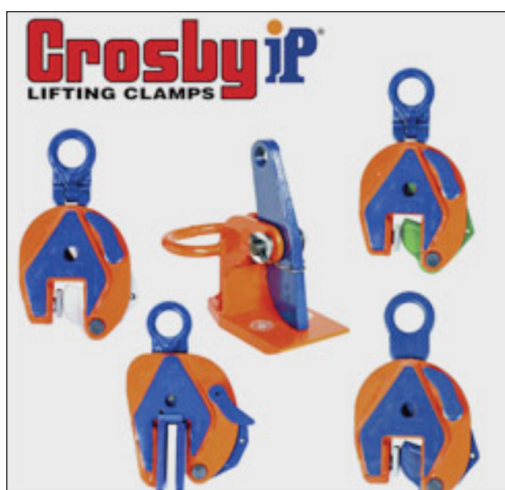
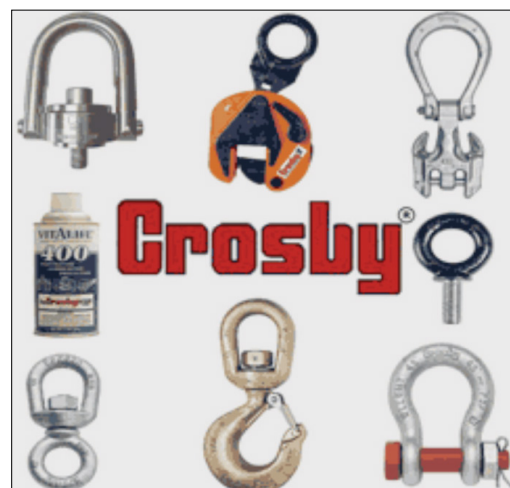
“strong and stable enough for the particular use and marked to indicate safe working loads”

“positioned and installed to minimise risks”

“used safely, i.e. the work is planned, organised and performed by competent people”

“all the equipment is subject to thorough examination and where appropriate inspected by a competent person”

Lifting equipment includes any equipment used at work for lifting or lowering loads, including attachments used for anchoring, fixing or supporting it. They include cranes, fork-lift trucks, lifts, hoists, elevating platforms. Lifting accessories are also included such as chains, slings, shackles, eyebolts.





A range of typical lifting equipment and accessories found in the marine industry

In addition to the above, to comply with any national regulations you must ensure:

- “lifting operations are planned, supervised and carried out in a safe manner by competent people”
- “equipment used for lifting people it is marked accordingly and should be safe for such a purpose”
- “where lifting equipment (including accessories) is used for the first time it is thoroughly examined by a competent person”
- “following an examination or inspection of any lifting equipment, a report is submitted by the competent person to the employer”

9.8 Managing Health and Safety

National legislation will require that health and safety policies are in place and enforced. This will involve the making of risk assessments prior to commencing any work.

An important point to make is that any regulation shall not apply to or in relation to the master or crew of a sea-going ship or to the employer of such persons, in respect of normal ship-board activities of a ship’s crew under the direction of the master. The ship, master, officers and crew are governed by their own safety management system as part of their compliance with the International Safety Management Code (ISM).

The regulations will have specific requirements for risk assessment stating that:

Every employer shall make a suitable and sufficient assessment of,:

“the risks to health and safety of his employees to which they are exposed whilst they are at work”

“the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct of him of his undertaking”

Every self-employed person shall make a suitable and sufficient risk assessment of:

“the risks to his own health and safety to which he is exposed whilst he is at work”

“the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him or his business”

The purpose of these assessments is to identify the measures needed to comply with any statutory provisions.

Any assessment shall be reviewed by the employer or self-employed person if,

“there is reason to suspect it is no longer valid”

“there has been a significant change to the matters to which it relates”

9.9 Safety Management Systems

It is obvious from all the above acts, rules and regulations that health and safety plays a significant role in the modern industrial world. As we have seen these apply as a whole or in part to marine surveyors. As the surveyor's environment is constantly changing he will be subject to many different regulations. The management of health and safety has become a complex industry in its own right.

Safety management systems can be costly and time consuming not only to set up but maintain. However, even as a sole trader or small business, it is a requirement to have a health and safety policy. The policy should cover three key areas:

“your commitment to managing health and safety and what you want to achieve”

“how you organise management and who is responsible”

“practical arrangements, such as safety procedures and staff training”

Although not a legal requirement, the policy should also cover environmental issues such as the disposal of waste. If you employ more than five people this policy must also be written down.

The basic safety management system that will be sufficient for the marine surveyor to demonstrate compliance is very much risk based. It consists of identifying hazards and putting in place plans, contingencies, controls or even physical barriers that will either eradicate or mitigate the risk.

The safety management system may appear to be an onerous paper exercise but, if implemented properly, it will form part of your work process. It will also ease situations where entry into others premises or workplaces may be prohibited through lack of such a policy and system.

Having an active system in place may, in the unfortunate position of having an accident happen to you or others under your control go a long way to providing evidence to help your defence.

9.10 The International Ship and Port Facility Security Code (ISPS Code)

The ISPS Code was developed in response to the perceived threats to ships and ports following the 9/11 attacks in the United States. The Code is implemented through chapter XI-2 (Special measures to enhance maritime security) in the International Convention for the Safety of Life at Sea (SOLAS). The purpose of the Code is to provide a standardised and consistent framework for evaluating risk and setting appropriate security levels both onboard ships and within port limits. The Code applies to all the 148 contracting parties to SOLAS. To determine what security measures are appropriate, it is the contracting government's responsibility to assess the threat and evaluate the risk of an unlawful act. To communicate that threat to ships or a port facility the contracting government must set the appropriate security level. The security level creates a link between the ship and the port facility, since it triggers the implementation of appropriate security measures for the ship and port facility. As marine surveyors working on ships and within port facilities, a knowledge of these security levels is essential as they may affect the surveyor's ability to continue his work or even start his work.

Security level 1.

Normal: The level at which the ship or port facility normally operates.

This means the level for which minimum appropriate protective security measures shall be maintained at all times.

Security level 2.

Heightened: The level applying for as long as there is a heightened risk of a security incident.

This means the level for which appropriate additional protective security measures shall be maintained for a period of time as a result of heightened risk of a security incident.

Security level 3.

Exceptional: The level applying for the period of time when there is the probable or imminent risk of a security incident.

This means the level for which further specific protective security measures shall be maintained for a limited period when a security incident is probable or imminent, although it may not be possible to identify the target.

9.1.1 Entering Enclosed or Confined Spaces

Surveyors very often find themselves in situations where entry into enclosed spaces is part of the survey. This may be from the necessity to inspect the condition of a ballast tank on a commercial vessel to opening up the interior of a small yacht that has been closed up for a long period of time.

Both these situations carry a level of risk that must be evaluated prior to entry. The ballast tank may be oxygen deficient, the yacht could be full of fumes from chemicals stored on board. There are obviously many more situations where entry into a space may have a risk attached. On all occasions a risk assessment must be done and appropriate precautions taken. In the case of the yacht it may be appropriate to just open up every possible opening and thoroughly ventilate for a period of time. In the case of the ballast tank, testing of the atmosphere for oxygen deficiency and testing for the presence of toxic fumes would be a minimum precaution, however in this case, stricter procedures apply which we will look at.

It is important to note that no one should ever enter any dangerous space to attempt to rescue a person without taking all precautions including wearing full breathing apparatus. Failure to understand this will not only put the injured party's life at risk but inevitably your own life will be at risk.

In the UK, the Maritime and Coastguard Agency (MCA) have introduced, under a safety alert, the acronym S.A.V.E: This is an attempt to bring to notice the understanding of what makes a space unsafe.

Other maritime countries will have their own versions but all the content processes and procedures to be carried out for enclosed space entry will be the same save to say that some of the wording may be different. It is imperative that a marine surveyor wherever he is working has access to and understands the appropriate publication if he is involved in any confined or dangerous space entry.

Marine surveyors should obtain and familiarise themselves with any documentation produced by the national maritime agency appertaining to safety issues that may affect his work.

The typical characteristics of an unsafe space are given as follows:

- Space that is not designated for continuous occupancy
- The space has a capacity to Accumulate a hazardous atmosphere
- The space has a severely limited natural Ventilation
- The space has Exits that are not readily accessible

Tanks, cargo spaces, bilges, containers, pump rooms, chain lockers and void spaces are the obvious types of spaces. However, all spaces should be carefully considered by marine surveyors in the course of their work.

A number of examples to emphasise the situation:

A surveyor was witnessing the testing of an emergency fire pump when he found that the levels of CO became dangerously high in a space housing the pump due to a previously undetected leak in the pump exhaust system.

A surveyor carrying out a routine inspection of a totally enclosed lifeboat found high levels of hydrogen sulphide even when the hatch had been open for some time, the gas had built up due to battery charging.

If a potentially dangerous space is to be entered, then there are a number of precautions that must be taken and adhered to:

“there should be a competent person to make the assessment and a responsible person in charge of the operation”

A competent person is someone capable of making an informed assessment of the likelihood of a dangerous atmosphere being present or arising subsequently in the space.

A responsible person is a person appointed to take charge of the operations when entering a dangerous enclosed space. The competent person and responsible person may be the same person and they could be from the ships' crew or shore based personnel. The responsible person will decide the procedures to be followed depending on what the assessment shows regarding the level of risk to life: minimal, no immediate risk, but risk could develop, immediate risk to life.

“the potential hazards must be identified”

Oxygen deficiency is a major problem especially if a tank or space has been closed for some time. This is due to a number of causes, rust, absorbing chemicals, oxygen absorbing cargoes, hydrogen or the oxygen being displaced from the use of carbon dioxide as a fire extinguisher or even inert gas.

Toxic gases from oil cargoes like hydrocarbon gases may be present in fuel or cargo tanks, pump rooms, cofferdams and duct keels. Component parts of some oil cargoes like benzene are very toxic.

Cargoes carried in chemical tankers or gas carriers may be toxic, leakage from drums that have split through mishandling or rusted through from time may cause toxic fumes to accumulate in an enclosed space.

Flammable gases may still be present in cargo spaces, tanks or any enclosed space where oil products or chemicals have been carried or stored such as cofferdams or other spaces adjacent to these tanks and cargo spaces through leakage.

Although inhalation is the most common route for substances to enter the body absorption through the skin is a possibility and other cargoes may be corrosive or an irritant to the skin.

The space should be prepared and secured for entry.

Some spaces may be pressurised and lead to a sudden release of gas.

The space should be isolated to prevent the ingress of any dangerous substances.

Any sludge or deposits should be removed.

The space must be thoroughly ventilated by natural or mechanical means, compressed oxygen should not be used to ventilate a space

The atmosphere must be tested.

Testing of a space should only be carried out by persons trained in the use of the equipment. Testing must be done prior to entry and at different levels in the space, then continually at regular intervals during the operation.

When testing for oxygen deficiency, a steady reading of at least 20% oxygen by volume on an oxygen content meter should be obtained before entry is permitted.



Examples of single gas detectors found in the marine industry

When testing for flammable gases and vapours a combustible gas indicator or explosimeter is used. This detects the amount of flammable gas or vapour in the air. It can be used in the immediate vicinity or with sampling lines and probes it can draw samples from remote areas. In deciding whether the atmosphere is safe to work in, a “nil” reading is desirable, but where the readings have been steady for some time a reading of up to 1% of lower flammable limit may be acceptable.

The presence of certain gases and vapours on chemical tankers and gas carriers is detected by fixed or portable gas or vapour detectors. The readings obtained are compared with occupational exposure limits for the contaminant given in health and safety guides. These guides give the occupational exposure limits which should not be exceeded.



Typical combustible gas meter (explosimeter) found in the marine industry

“A permit to work should be used”

It is important that entry into a dangerous space must be planned in advance using a “permit to work system”. The permit to work system consists of an organised and predefined safety procedure.

The following principles apply:

“The permit should be relevant and as accurate as possible, stating the exact location and details of the work to be carried out, the work to be done, the results of any tests carried out, the measures taken to make the work safe and any safe guards required during the operation”

“The permit should state the period of validity” (not to exceed 24 hours)

“Only work specified on the permit should be undertaken”

“Before signing the permit, the authorising person must check that all measures specified have been taken”

“the authorising person remains responsible for the work until it is completed and signed off, unless it is cancelled or officially transferred to another authorised person”

“The person carrying out the specified work must countersign the permit and, when the work is complete that person should inform the authorised person and get the permit cancelled or signed off”

A typical permit to work for entry into enclosed or confined space will contain four sections.

Section A: Location, any plant to be used, work to be done, to whom the permit is issued (the person carrying out the specified work)

Section B: Check list and isolation data:

Space thoroughly ventilated

Atmosphere tested and found safe

Space secure for entry

Rescue and resuscitation equipment available at the entrance

Test equipment available for regular checks

Responsible person in attendance at the entrance

Communications arrangements agreed between the person at the entrance and those entering the space

Access and illumination adequate

All equipment to be used is of appropriate type

Appropriate PPE is being used

When breathing apparatus being used

i is the user familiar with the apparatus?

ii the apparatus has been tested and found to be satisfactory.

Section C: Certificate of Checks

A statement saying that the authorised person in charge is satisfied that all precautions have been taken and that safety arrangements will be maintained for the duration of the work. This is to be signed by the authorised person with the time and date.

Section D: Cancellation of Certificate

A statement saying that the work has been completed or cancelled and all persons under their supervision, materials and equipment have been withdrawn. This is signed by the authorised person with the time and date.

“Procedures before and during the entry should be instituted”

Access to and within the space should be adequate and properly illuminated

No source of ignition should be taken to or put in the space

Rescue and resuscitation equipment must be available at all times

The numbers entering the space should be limited to only those actually required in the space, rescue harnesses should be worn

At least one person should be present at the entrance at all times

An agreed system of communications must be established between all parties

Consideration must be given to the use of breathing apparatus in the space, will it fit through the entrance

Lifelines on harnesses should be long enough for the purpose but easily detachable should it become entangled

Ventilation should be continuous during the time the space is occupied

The atmosphere must be tested regularly

If any unforeseen difficulties or hazards arise then work should stop immediately and the space evacuated and the permit withdrawn

If any person in the space feels that they are being affected they must immediately leave the space

If an emergency should occur then the alarm must be raised to allow back up to attend

“Procedures on completion”

On completion of the work or at the expiry of the permit all persons must leave the space and the entrance closed or secured or, if the space is no longer a dangerous space, then it can be declared safe for normal entry.

“Additional requirements for entry into a space where the atmosphere is suspected or unknown to be safe”

This section considers the situation where entry into a dangerous space has to be undertaken for the safety of life or a ship or the working of a ship. In all these situations, full breathing apparatus must be worn. The number of persons entering the space must be the minimum required.

Harnesses and lifelines must be used and all lighting and equipment must be of an approved type for working in a flammable atmosphere. There is heavy emphasis on training and instruction.

Employers should provide all the necessary training, instruction and information to employees who will be involved in the use of breathing apparatus. This should include:

recognition of the circumstances and activities likely to lead to the presence of a dangerous atmosphere

the hazards associated with entry into dangerous spaces and the precautions to be taken

the use and maintenance of equipment and clothing required for entry into dangerous spaces

instruction and drills in rescue from dangerous spaces

Breathing equipment used under any national regulation must conform to an approved type and standard.

It is important that all breathing equipment including harnesses, life-lines, resuscitators and any other equipment used in connection with enclosed space entry and /or rescue is properly stored and maintained. All equipment must be inspected on a regular basis by a competent person. This person must maintain a record of these inspections to include any faults found, actions taken, repairs, additions or changes that may affect the operation of the equipment. These inspections are in addition to the inspections and checks which must be done before and after using the equipment.



Typical standard marine compressed air breathing apparatus (CABA)



Example of an Emergency Evacuation Hood



BA Storage



Spare BA bottles

9.12 Risk Assessment

Under the management of health and safety there is a duty for every employer to make an assessment to identify the risks that may affect his employees and other persons due to his conduct or, as it says in the regulations, his “undertaking”. This will enable the employer to put in place the measures required to comply with any relevant statutory provisions.

As we know from section 1.1.1 of this Chapter, “General Duties of Employers to their Employees”, self-employed people are by definition both employers and employees.

This means that even the sole trader has to comply with the requirements of carrying out a risk assessment. It has to be noted that, in an organisation that employs a certain number of people, then the risk assessment(s) have to be recorded. Marine surveyors due to the nature of their work and constantly changing work environment would be well advised to make a recording of any risk assessment. Doing so will assist greatly and possibly provide valuable facts and evidence should an incident take place. Regardless of what is actually recorded, good or bad, this also shows a measure of professionalism to your work ethic. The assessment can be in an electronic format and as today the laptop computer is an active tool carried everywhere, a generic format can be used and stored as the risk assessment is completed on site.

It is beyond the scope of this unit to go into the details of carrying out a risks assessment or interpreting the results. However, it is important that a basic understanding is in place at this early stage.

There are many definitions of risk. A typical dictionary definition is

“Hazard, chance of, or of bad consequences, loss, etc, exposure to mischance”

Others include:

“effect of uncertainty on objectives”

“the probability that an event will occur”

Equally there are different definitions of risk assessment.

In its simplest form:

“risk assessment is a thorough look at the work place to identify things, situations, processes that may cause harm, in particular to people. You then evaluate the severity of the risk and put in place measures to mitigate or eradicate the risk”.

Under health and safety regulations, risk assessments have to be carried out for all tasks that have to be done and for which hazards have been identified and there are a number of stages for risk assessment.

Specify the scope of work to be carried out

In most cases this will be detailed in the contract document drawn up between the surveyor and the client. From this document you can draw up a list of the tasks required to perform the work which will aid in identifying the hazards.

Identify the hazards

To most surveyors the tasks to be performed will be well known and the hazards involved equally well known. In these situations where the tasks have been performed many times to the point of repetitiveness, then a generic list can be drawn up. This must not detract the surveyor from undertaking a thorough assessment but it will help the process. There are a number of what can be termed “formalised” hazard identification techniques. These are usually only possible and required in large organisations where a team will carry out the assessment. In the marine surveyor’s position his experience and knowledge of the situation coupled with common sense will greatly help him complete an assessment.

These formalised methods are:

Hazard and Operability Studies (HAZOP)
Failure Mode and Effects Analysis (FMEA)
Structured What-If Techniques (SWIFT)

Carry out a risk assessment

This is a four stage process:

Identify the risks
Measurement of the risks associated with the hazard
Evaluate the risks
Implement measures to eliminate or mitigate the risks

The risk industry has developed risk assessment probability matrixes to help in assessing identified hazards for severity and probability.

Decide if the risks are tolerable

Using an assessment probability matrix will greatly help this part of the process. However, it is down to the individual or group who are to carry out the task to make the final decision.

The term “tolerable risk” simply means that any risk has been reduced to the lowest level that is considered reasonably practicable.

Introduce mitigating procedures

If the risks are found to be “intolerable” then mitigating procedures have to be put in place to bring that risk within “tolerable levels” by reducing the risk or eradicating the risk.

In the case of a marine surveyor this could be by the simple use of the correct intrinsically safe equipment or by removing an obstructing object from the work site.

Review the assessment

It is imperative that a risk assessment continues to be effective, remembering that in the case of a marine surveyor his environment can change radically, even in the course of completing a single task. It is therefore important that risk assessments are kept under constant review. This does not mean constantly looking over your shoulder. But should some obvious change to your local environment take place, then a few minutes thought to consider the possible effect this change may have to your personal safety or the safety of others around you or in your charge, may avoid considerable problems at a later time.

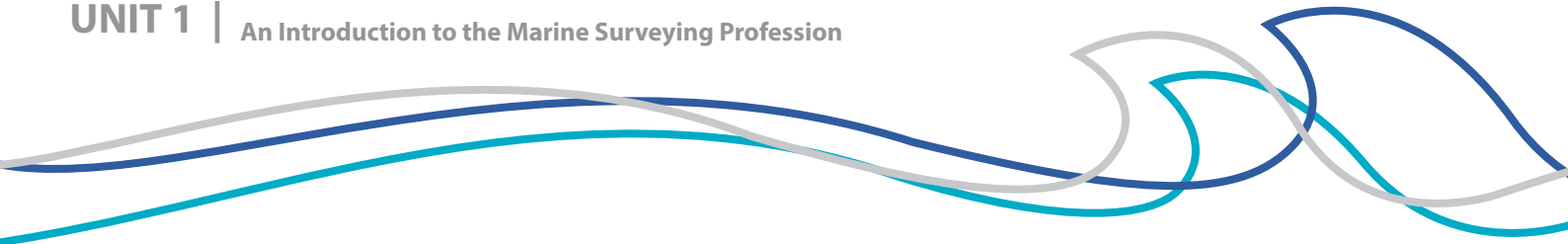
Appendix I. Glossary of Common Marine Terms

A

ABANDONMENT	Giving up the proprietary rights in insured property to the underwriter in exchange for payment of a constructive total loss.
ACTUAL TOTAL LOSS	This occurs when:- the insured property is completely destroyed . the assured is irretrievably deprived of the insured property. cargo changes in character so that it is no longer the thing that was insured e.g. cement, water damaged becomes concrete a ship is posted “missing” at Lloyd’s.
ADVENTURE	The exposure of property to risk.
AFT	Toward, at, or near the stern.
ASSIGNMENT	The passing of beneficial rights from one party to another.
ASSURED	Party indemnified against loss by means of insurance.
ARBITRATION	Methods of settling disputes which is usually binding on the parties concerned.
AIR PIPE	Fitted to water ballast and oil tanks and led to the upper deck to allow the escape of air when the tanks are being filled.
AMIDSHIPS	The portion of the ship at half its length.
APPROVED	An “approved” vessel is one which the underwriters deem adequate to carry the insured cargo, at the agreed rate of premium.
AUXILIARY BOILER	Used for duties other than main propulsion but may still be very large boilers as found on tankers when cargo discharge is done using cargo pumps driven by steam turbines.
AVERAGE	A marine partial loss.
AVOIDANCE	The right of an underwriter, in the event of a breach of good faith or delay in commencement of an insured voyage, to step aside from the insurance contract and to treat it as though he never accepted the risk.

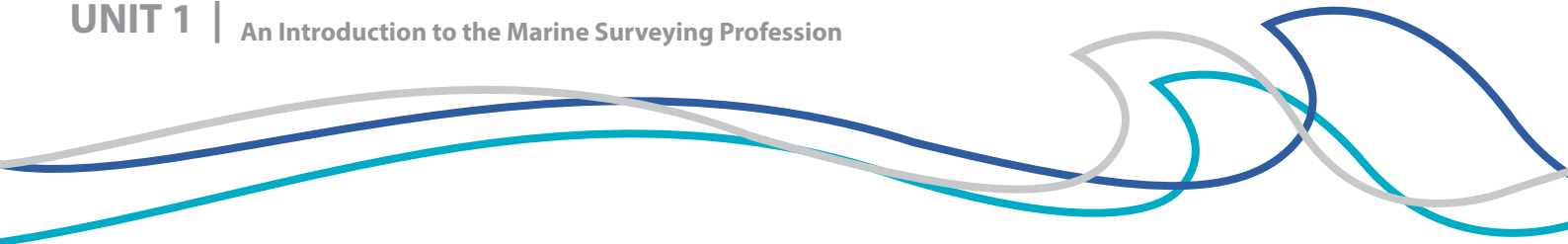
B

BALLAST	Any solid or liquid weight placed in a ship to increase the draught, to change the trim or to regulate the stability.
BALLAST TANK	A watertight compartment to hold water to improve the ship’s stability
BANK GUARANTEE	An undertaking given by a bank to pay a claim sometime in the future should the Member be found liable and the undertaking is provided by the bank for the Association.
BARGE	A flat bottomed vessel for carrying cargo.



BATTEN	To “batten down” is to secure the hatchway tarpaulin.
BEAM	Fitted in the fore part of a ship to prevent vibration.
BERTH	Where a ship is tied up or docked or a place to sleep on board.
BILGE	Curved portion between the bottom and the side shell plating, drainage space within the ship.
BILL OF LADING	A receipt for the cargo received into the care of the carrier must be issued to the shipper by the carrier. 1. Evidence of the contract of carriage . 2. Title to the goods 3. Receipt for the goods
BOLLARD	Fitted for the purpose of securing ropes.
BONA FIDE	In good faith, without fraud or deceit.
BOWTHRUSTER	An additional motor driven propulsion unit to provide transverse movement.
BROKER	A person who transacts the business of negotiating between merchants and shipowners respecting cargoes and clearances, or one who effects insurances with underwriters.
BULBOUS BOW	A ship which has a bulbous profile which improves the speed and efficiency/ characteristics of the vessel.
BULKHEAD	A crosswise/longitudinal division of a ship.
BULWARK	The plating fitted for protection at the sides of a ship on and above the weather deck.
BUNKER	Ship’s fuel.
C	
CALL	The premium charged by a P & I Club.
CARGO INTERESTS	Parties having an interest in the cargo.
CARRIER	Operator or charterer of a ship, usually a shipowner.
CENTRIFUGAL SEPARATORS	Used on ships to treat fuels and lubricating oils. They spin at very high speeds, typically 6000 rpm and separate out water and solids.
CERTIFICATE OF ENTRY	A document issued by the Association which records the names of Members interested in, and is evidence of a contract of insurance in respect of, an entered ship.
CESSER	When a term comes to an end.

CHARTERER	Person who hires a vessel either on a voyage or for a period of time.
CHARTERPARTY	A contract between a shipowner and a party who hires his ship for an agreed period of time, or for a specific voyage or a series of voyages.
CLASSIFICATION SOCIETY	Bodies approved by governments to ensure the practical enforcement of statute for the safety of life at sea.
CLEAT	A fitting having two horns around which ropes may be tied, a clip on the frames to hold the cargo battens in place.
COINSURANCE	Where two or more parties share the same insured risk.
COLLISION	Physical impact between two or more ships or vessels used for navigation.
COMPRESSOR	A means of producing air.
CONSTRUCTIVE TOTAL LOSS	Where the assured abandons the subject matter insured to the underwriter and claims a total loss.
CONTRACT OF AFFREIGHTMENT	Contract for the carriage of goods by sea in return for payment.
COOL DOWN SURVEY	The process by which the refrigeration equipment is checked to be operating within its designed parameters. It is used to identify the possible existence of insulation deficiencies.
CORRESPONDENT	Representatives of the Association who are based in all major and minor ports throughout the world. Correspondents can be maritime lawyers, ship's agents or in some cases surveyors.
COAMING	The vertical plating bounding a hatchway
COFFERDAM	Narrow space between two bulkheads or floors that prevents leakage between adjoining compartments.
D	
DAVITS	The supports under which the lifeboats are stowed and from which they are launched overboard.
DEADWEIGHT	The difference in displacement between the light and load waterlines.
DECK LOG	A book where records of the vessel's navigational progress and daily events are kept.
DEDUCTIBLE	Sometimes called an "excess" is the amount the Member agrees to pay or is required to pay in respect of a particular claim.
DEMURRAGE	Charge made by shipowner or wharf owner for delay in unloading or loading.
DEMISE CHARTER PARTY	A charter party under which the shipowner provides vessel, and charterer crew and cargo.



DERRICK	A wood spar or steel tube used for discharging or loading dry or packaged cargo.
DISCLOSURE	The duty of the assured and his broker to tell the underwriter every material circumstances before acceptance of the risk.
DISBURSEMENTS	Payments incurred for a variety of port expenses embracing fresh water, bunkers, customs fees etc.
DISPLACEMENT	The weight of water displaced by the ship.
DOLPHIN	A block or structure to which vessels secure.
DRAUGHT	The depth of water at which the ship floats
DUNNAGE	Materials of different types placed in the hold for the protection and separation of cargo.
E	
ENTERED SHIP	A ship which has been entered for insurance in any Class of the Association.
ESTIMATED TOTAL CALL (ETC)	The approximate level of premium which the Members will be advised how much to budget for the coming year.
F	
FACULTATIVE	The right of option. The right of an underwriter to decide whether or not to accept a risk.
FATHOM	A unit of measurement.
FENDERS	Rubbing pieces fitted on the sides of a ship as a means of protection.
FORECASTLE	The superstructure on the upper deck at the fore end of a ship.
FORE PEAK	The watertight compartment at the extreme forward end.
FREIGHT	The hire of a ship, the carriage of cargo, cargo.
G	
GANGWAY	A ladder used for boarding a ship.
GENERAL AVERAGE	An extraordinary sacrifice or expenditure is intentionally and reasonably made or incurred for the common safety for the purpose of preserving from peril the property involved in a common adventure.
GOOD FAITH	A basic principle of insurance. The assured and his broker must disclose and truly represent every material circumstance to the underwriter before acceptance of the risk. A breach of good faith entitles the underwriter to avoid the contract.

H

HAGUE RULES	Throughout the latter half of the 19th Century there was increasing dissatisfaction amongst cargo owners and their insurers with the law governing a carrier's liabilities for damage to goods in their custody. This was due to an increasing number of protection and other limitation clauses. There was a growing demand to establish a uniform code or rules for the carriage of goods by sea. After many years a conference was held at Brussels which resulted in a set of Rules known as the Hague Rules. The aim of the Rules was to establish a uniform code for the carriage of cargo shipped under Bills of Lading.
HAGUE VISBY RULES	In 1968 the Hague Rules were revised and amended in order to bring them into line with the needs of a modern shipping industry. The amended Rules are known as the Hague Visby Rules.
HAMBURG RULES	A further convention on the Carriage of Goods By Sea was held in Hamburg and the provisions agreed at this convention are known as the Hamburg Rules. The Hamburg Rules make the presumption that the carrier is responsible for any loss or damage unless it is proved that the carrier took all measures that could reasonable be required to avoid the occurrence.
HATCH COVER	Steel, wood or canvas covers for the openings to cargo compartments
HELD COVERED	A provisional acceptance of risk, subject to confirmation at a later date that the agreed cover is needed. Where applicable to an existing insurance, cover is conditional, in practice, on prompt advice to the underwriter as soon as the assured is aware of the circumstances to be held covered coming into effect.
HOLDS	Spaces below deck for stowage of cargo
HOSE TEST	The testing of hatch covers' weather tight integrity through the application of a jet of water (minimum 5 bar) to the hatch joints.
HULL	A ship's chassis/base frame.
I	
INDEMNITY	Security against damage or loss, exemption from penalties, compensation for damage.
INHERENT VICE	A defect or inherent quality of the goods or their packing which of itself may contribute to their deterioration, injury, wastage or final destruction without any negligence.
INSURABLE INTEREST	It is illegal for anyone to insure without an insurable interest or, in the case of marine insurance, a reasonable expectation of acquiring such interest. In general one has such interest when his relationship to the property at risk may expose him to loss or liability or where he stands to gain by the safety of such property.

J

JURISDICTION Administration of justice.

K

KEEL Longitudinal girder at the lowest point of a ship.

L

LAGGING Material used for insulation

LAI D UP RETURNS P & I insurance premium or call which is paid back to a Member when a vessel is temporarily taken out of service.

LETTER OF PROTEST A declaration by the Master holding another party responsible for some loss or damage that has already occurred or is likely to occur to the ship or cargo.

LIABLE/LIABILITY Legally bound, subject to, exposed to, answerable for/being liable for,

LIEN Retention of property until outstanding debit is discharged.

LINE The amount or percentage in a broker's slip or policy which establishes the extent of the underwriter's liability. The written line is written by the underwriter on the slip when he accepts the risk.

LIGHTER An open non-propelled barge.

LINER A merchant ship engaged on a scheduled direct regular service.

LIST Inclination of ship from the upright position.

LOG BOOK An official book containing the records of the voyage inserted by the Master of the ship.

M

MAIN BOILER Typically water tube boilers where the steam and water drums are interconnected with tubes which carry the water.

MANHOLE A hole in the tank top to provide access.

MANIFEST Inventory/list of cargo shipped.

MASTER A person in sole charge of a ship.

MATE'S RECEIPT An important document used in preparing Bills of Lading. It is a receipt, given and signed by the Mate, for goods actually received on board the ship. It must provide a description of the cargo, including the quantity, distinguishing marks, grade and any other relevant information.

MEMBER	A shipowner/charterer/time charterer or a person who hire ships for a specific voyage who has entered his vessels with the Association for insurance cover.
MIDSHIPS	Middle of the ship's length
MISREPRESENTATION	A mis-statement of fact made by the assured or his broker to the underwriter, before acceptance of the risk, which misleads the underwriter in assessing the risk.
MUTUAL INSURANCE	The sharing of liabilities on a non profit basis.
N	
NO CURE NO PAY	Salvage provision whereby no award is paid to a salvor if he is unsuccessful.
O	
OVERSPILL CALL	If a claim exceeds the Club's retention, the Pool's retention and excess loss reinsurance an overspill call will be required.
OWNER	A person who owns a ship (shortened version of shipowner)
P	
PILOTAGE	A charge raised on a vessel entering a river/port/estuary/canal where the services of a pilot are obligatory
PEAK TANKS	The compartments at the extreme ends of the ship which are normally used as ballast tanks.
PERIL	A term used in the Marine Insurance Act (1906) to denote a hazard.
PILOT	A person who aids the Master in ship navigation, usually in confined waters.
POLICY YEAR	Time period of insurance.
POOLING AGREEMENT	Means or method whereby claims are paid by various contributions from P & I Clubs collectively known as the London Group or International Group. A sharing arrangement.
PORT	Left hand side of the vessel when looking forward.
PREMIUM	Monies paid to the Association in respect of the entered ship.
PRIMA FACIE	At first glance.
PRIVITY	Knowledge actual or constructive.
PROPELLER	A revolving screw-like device that drives the ship through the water.
PUMP	A means of transporting liquids or gases from one area to another.

Q

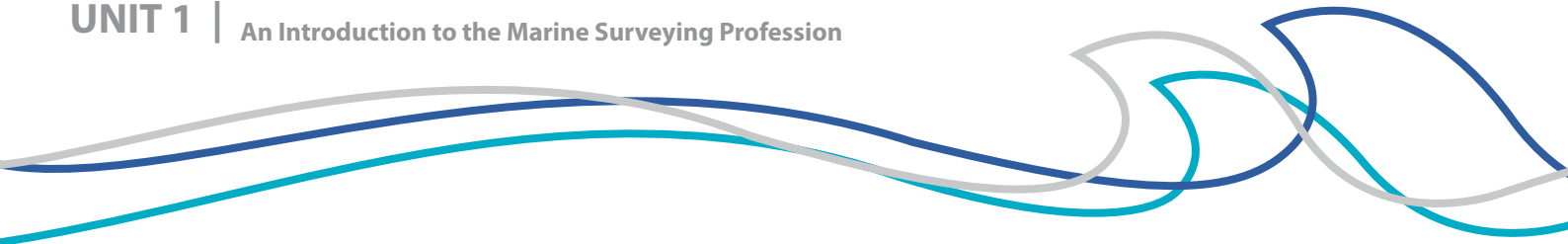
R

RATIFY/RATIFICATION	To confirm or accept by signature or other formality
RECOVERY	Amount recovered from a third party responsible for a loss on which a claim has been paid.
RELEASE CALL	Upon the cesser of insurance in respect of an Entered Ship for any reason, or at any time thereafter the Managers may at their sole discretion demand an amount to release the Member from liability for further contributions to Calls in respect of such ship.
RESERVE	When claims cannot be met out of the call income or reinsurance then there are always reserves. It is not however a policy of P & I Clubs to hold on to their Members' money unnecessarily and therefore reserves are maintained at an optimum level.
REINSURANCE	The procedure whereby an insurance company or P & I Club passes on all or part of the risk to another insurance company or P & I Club.
RIDER CLAUSE	The addition of type-written clauses to the standard Charter Party. These clauses can significantly alter the owner's responsibility for cargo claims.
RO-RO/ROLL ON/ROLL OFF	Ships capable of shipping vehicular traffic via a ramp
RULES	Comprise of P & I cover/H & M Cover/FD & D Cover afforded to the Members subject to the terms of entry.
RUNNING DOWN CLAUSE	The collision liability clause which appears in a policy covering the hull and machinery of a ship.
RUNNING DOWN CLAUSE/RDC COVER	Sometimes all or part of the third party liability cover for damage caused to other vessels through collision is included in a special clause in the Hull and Machinery insurance. This is normally the only third party cover provided within the traditional Hull and Machinery police.

S

SALVAGE SALVOR	Process of recovering a ship or cargo from a loss or damage due to maritime perils. The person claiming and receiving salvage for having saved a vessel and cargo or any part thereof from impending peril or recovered after actual loss.
SECURITY/GUARANTEE	A promise by the Association to make payment to the receiver of the guarantee should the Member be held liable for a claim.
SHELL PLATING	The plates forming the outer side of the hull.
SHIPPER	A person wishing to send his goods by sea.

SKYLIGHT	A framework over accommodation or engine with glass inserted to admit light and air to the space below.
SOUNDING PIPE	A pipe led from the upper deck to the bottom of a tank which is used to ascertain the depth of water or liquid therein.
STANCHION	Vertical column supporting decks or girders, also called a pillar
SUPERNUMERARY	A relative of a crew member, or any other person whom a Member has agreed to maintain or carry on board an entered ship (except a person or persons carried on board an entered ship pursuant to a passage contract) and including persons engaged under articles of agreement for nominal pay.
STARBOARD	The right hand side of a ship when looking forward.
STEERING GEAR	The gear which turns the rudder and thus steers the vessel.
STERN	The aftermost end of a ship.
STEVEDORE	Docker engaged on cargo/baggage shipment.
STOW	To put away, to stow cargo in a hold.
STRIKES INSURANCE	Insurance which reimburses the shipowner for his daily operating costs when his vessel is strike-bound as a result of either shore labour or crew disputes.
SUBROGATION	The right of the underwriter to step into the shoes of the assured following payment of a claim to recover the payment from another party who was responsible for the loss. Limited to the amount paid on the policy.
SUIT	Legal proceedings.
T	
TAILSHAFT	The aftermost length of shaft to which the propeller is attached
TALLY	The process of checking, or taking account of the goods placed into a ship or unloaded from a ship.
TANKER	A steamer or motor vessel in which oils or molasses are transported in bulk.
TARPAULIN	Waterproof canvas cover secured over non-watertight hatch covers.
TIME BAR	Expiry of suit time
TORT	An injury or wrong independent of the contract as by assault, malicious prosecution, negligence, slander or trespass.
TOVALOP	A voluntary agreement but legally binding between tanker owners which provides compensation to third parties for pollution damage and clean-up costs.



TRAMP	A merchant ship not confined to definite ports, but sails when cargo is available to and from any port.
TRANSHIPMENT	Process of transferring cargo, usually from one ship to another .
TRIM	The difference in draught forward and aft.
TURBOCHARGER	A performance enhancing device fitted to engines which use exhaust gases to drive gas turbines which force clean, cool air into the engine allowing increased power output from an engine.
TWEEN DECKS	The space between two adjacent decks.
U	
ULLAGE	The vertical distance between the surface of the liquid and the top or crown of the tank.
UNDERWRITER	Has responsibility for negotiating each Member's calls required by the Club and the terms of entry to apply to new or additional vessels as well as any other changes that a Member might require. He is also heavily involved in marketing and development.
UTMOST GOOD FAITH	Mutual trust in negotiating an insurance contract. A breach of good faith by one party entitles the other to avoid the contract.
V	
VENTURE	Term embracing the three elements of any commercial voyage - hull, cargo and freight/passengers.
W	
WARRANTY	An undertaking by the assured whereby he promises to comply with the terms of the warranty. Non-compliance constitutes breach of warranty and the underwriter is discharged from liability as from the date of the breach.
WASH DAMAGE	Created when a ship's speed is excessive in narrow and confined waters. Wash created erodes the banks and damages property on the banks.
WAYBILL	List of passengers or inventory of cargo shipped
WINCHES	Machinery with which a vessel can operate its mooring ropes and cargo wire which are drum driven by many means to tension/slack mooring ropes and wires.
WINDLASS	The machine used for raising the anchor and chain cable
WITHOUT PREJUDICE	Leaving the question open.

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Appendix 6. Sample of a Genco – Charter Party Form



1. Shipbroker	<p>RECOMMENDED THE BALTIC AND INTERNATIONAL MARITIME COUNCIL UNIFORM GENERAL CHARTER (AS REVISED 1922, 1976 and 1994) (To be used for trades for which no specially approved form is in force) CODE NAME: "GENCON"</p> <p style="text-align: right;">Part I</p>
3. Owners/Place of business (Cl. 1)	2. Place and date
4. Charterers/Place of business (Cl. 1)	5. Vessel's name (Cl. 1)
6. GT/NT (Cl. 1)	7. DWT all told on summer load line in metric tons (abt.) (Cl. 1)
8. Present position (Cl. 1)	9. Expected ready to load (abt.) (Cl. 1)
10. Loading port or place (Cl. 1)	11. Discharging port or place (Cl. 1)
12. Cargo (also state quantity and margin in Owners' option, if agreed; if full and complete cargo not agreed state "part cargo") (Cl. 1)	
13. Freight rate (also state whether freight prepaid or payable on delivery) (Cl. 4)	14. Freight payment (state currency and method of payment; also beneficiary and bank account) (Cl. 4)
15. State if vessel's cargo handling gear shall not be used (Cl. 5)	16. Laytime (if separate laytime for load. and disch. is agreed, fill in a) and b). If total laytime for load. and disch., fill in c) only) (Cl. 6)
17. Shippers/Place of business (Cl. 6)	a) Laytime for loading
18. Agents (loading) (Cl. 6)	b) Laytime for discharging
19. Agents (discharging) (Cl. 6)	c) Total laytime for loading and discharging
20. Demurrage rate and manner payable (loading and discharging) (Cl. 7)	21. Cancelling date (Cl. 9)
23. Freight Tax (state if for the Owners' account) (Cl. 13 (c))	22. General Average to be adjusted at (Cl. 12)
25. Law and Arbitration (state 19 (a), 19 (b) or 19 (c) of Cl. 19; if 19 (c) agreed also state Place of Arbitration) (if not filled in 19 (a) shall apply) (Cl. 19)	24. Brokerage commission and to whom payable (Cl. 15)
(a) State maximum amount for small claims/shortened arbitration (Cl. 19)	26. Additional clauses covering special provisions, if agreed

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It is mutually agreed that this Contract shall be performed subject to the conditions contained in this Charter Party which shall include Part I as well as Part II. In the event of a conflict of conditions, the provisions of Part I shall prevail over those of Part II to the extent of such conflict.

Signature (Owners)	Signature (Charterers)
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Appendix 6. Sample of a Genco – Charter Party Form

PART II

"Gencon" Charter (As Revised 1922, 1976 and 1994)

1. It is agreed between the party mentioned in Box 3 as the Owners of the Vessel named in Box 5, of the GT/NT indicated in Box 6 and carrying about the number of metric tons of deadweight capacity all told on summer loadline stated in Box 7, now in position as stated in Box 8 and expected ready to load under this Charter Party about the date indicated in Box 9, and the party mentioned as the Charterers in Box 4 that: The said Vessel shall, as soon as her prior commitments have been completed, proceed to the loading port(s) or place(s) stated in Box 10 or so near thereto as she may safely get and lie always afloat, and there load a full and complete cargo (if shipment of deck cargo agreed same to be at the Charterers' risk and responsibility) as stated in Box 12, which the Charterers bind themselves to ship, and being so loaded the Vessel shall proceed to the discharging port(s) or place(s) stated in Box 11 as ordered on signing Bills of Lading, or so near thereto as she may safely get and lie always afloat, and there deliver the cargo.	1 2 3 4 5 6 7 8 9 10 11 12 13 14	always work under the supervision of the Master. <i>(c) Stevedore Damage</i> The Charterers shall be responsible for damage (beyond ordinary wear and tear) to any part of the Vessel caused by Stevedores. Such damage shall be notified as soon as reasonably possible by the Master to the Charterers or their agents and to their Stevedores, failing which the Charterers shall not be held responsible. The Master shall endeavour to obtain the Stevedores' written acknowledgement of liability. The Charterers are obliged to repair any stevedore damage prior to completion of the voyage, but must repair stevedore damage affecting the Vessel's seaworthiness or class before the Vessel sails from the port where such damage was caused or found. All additional expenses incurred shall be for the account of the Charterers and any time lost shall be for the account of and shall be paid to the Owners by the Charterers at the demurrage rate.	75 76 77 78 79 80 81 82 83 84 85 86 87 88
2. Owners' Responsibility Clause The Owners are to be responsible for loss of or damage to the goods or for delay in delivery of the goods only in case the loss, damage or delay has been caused by personal want of due diligence on the part of the Owners or their Manager to make the Vessel in all respects seaworthy and to secure that she is properly manned, equipped and supplied, or by the personal act or default of the Owners or their Manager. And the Owners are not responsible for loss, damage or delay arising from any other cause whatsoever, even from the neglect or default of the Master or crew or some other person employed by the Owners on board or ashore for whose acts they would, but for this Clause, be responsible, or from unseaworthiness of the Vessel on loading or commencement of the voyage or at any time whatsoever.	15 16 17 18 19 20 21 22 23 24 25 26 27	6. Laytime <i>(a) Separate laytime for loading and discharging</i> The cargo shall be loaded within the number of running days/hours as indicated in Box 16, weather permitting, Sundays and holidays excepted, unless used, in which event time used shall count. The cargo shall be discharged within the number of running days/hours as indicated in Box 16, weather permitting, Sundays and holidays excepted, unless used, in which event time used shall count. <i>(b) Total laytime for loading and discharging</i> The cargo shall be loaded and discharged within the number of total running days/hours as indicated in Box 16, weather permitting, Sundays and holidays excepted, unless used, in which event time used shall count. <i>(c) Commencement of laytime (loading and discharging)</i> Laytime for loading and discharging shall commence at 13.00 hours, if notice of readiness is given up to and including 12.00 hours, and at 06.00 hours next working day if notice given during office hours after 12.00 hours. Notice of readiness at loading port to be given to the Shippers named in Box 17 or if not named, to the Charterers or their agents named in Box 18. Notice of readiness at the discharging port to be given to the Receivers or, if not known, to the Charterers or their agents named in Box 19. If the loading/discharging berth is not available on the Vessel's arrival at or off the port of loading/discharging, the Vessel shall be entitled to give notice of readiness within ordinary office hours on arrival there, whether in free pratique or not, whether customs cleared or not. Laytime or time on demurrage shall then count as if she were in berth and in all respects ready for loading/discharging provided that the Master warrants that she is in fact ready in all respects. Time used in moving from the place of waiting to the loading/discharging berth shall not count as laytime. If, after inspection, the Vessel is found not to be ready in all respects to load/dischARGE time lost after the discovery thereof until the Vessel is again ready to load/dischARGE shall not count as laytime. Time used before commencement of laytime shall count. <i>* Indicate alternative (a) or (b) as agreed, in Box 16.</i>	89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121
3. Deviation Clause The Vessel has liberty to call at any port or ports in any order, for any purpose, to sail without pilots, to tow and/or assist Vessels in all situations, and also to deviate for the purpose of saving life and/or property.	28 29 30 31	7. Demurrage Demurrage at the loading and discharging port is payable by the Charterers at the rate stated in Box 20 in the manner stated in Box 20 per day or pro rata for any part of a day. Demurrage shall fall due day by day and shall be payable upon receipt of the Owners' invoice. In the event the demurrage is not paid in accordance with the above, the Owners shall give the Charterers 96 running hours written notice to rectify the failure. If the demurrage is not paid at the expiration of this time limit and if the vessel is in or at the loading port, the Owners are entitled at any time to terminate the Charter Party and claim damages for any losses caused thereby.	122 123 124 125 126 127 128 129 130 131
4. Payment of Freight <i>(a)</i> The freight at the rate stated in Box 13 shall be paid in cash calculated on the intaken quantity of cargo. <i>(b) Prepaid.</i> If according to Box 13 freight is to be paid on shipment, it shall be deemed earned and non-returnable, Vessel and/or cargo lost or not lost. Neither the Owners nor their agents shall be required to sign or endorse bills of lading showing freight prepaid unless the freight due to the Owners has actually been paid. <i>(c) On delivery.</i> If according to Box 13 freight, or part thereof, is payable at destination it shall not be deemed earned until the cargo is thus delivered. Notwithstanding the provisions under (a), if freight or part thereof is payable on delivery of the cargo the Charterers shall have the option of paying the freight on delivered weight/quantity provided such option is declared before breaking bulk and the weight/quantity can be ascertained by official weighing machine, joint draft survey or tally. Cash for Vessel's ordinary disbursements at the port of loading to be advanced by the Charterers, if required, at highest current rate of exchange, subject to two (2) per cent to cover insurance and other expenses.	32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	8. Lien Clause The Owners shall have a lien on the cargo and on all sub-freights payable in respect of the cargo, for freight, deadfreight, demurrage, claims for damages and for all other amounts due under this Charter Party including costs of recovering same.	132 133 134 135 136
5. Loading/Discharging <i>(a) Costs/Risks</i> The cargo shall be brought into the holds, loaded, stowed and/or trimmed, tallied, lashed and/or secured and taken from the holds and discharged by the Charterers, free of any risk, liability and expense whatsoever to the Owners. The Charterers shall provide and lay all dunnage material as required for the proper stowage and protection of the cargo on board, the Owners allowing the use of all dunnage available on board. The Charterers shall be responsible for and pay the cost of removing their dunnage after discharge of the cargo under this Charter Party and time to count until dunnage has been removed. <i>(b) Cargo Handling Gear</i> Unless the Vessel is gearless or unless it has been agreed between the parties that the Vessel's gear shall not be used and stated as such in Box 15, the Owners shall throughout the duration of loading/discharging give free use of the Vessel's cargo handling gear and of sufficient motive power to operate all such cargo handling gear. All such equipment to be in good working order. Unless caused by negligence of the stevedores, time lost by breakdown of the Vessel's cargo handling gear or motive power - pro rata the total number of cranes/winchmen required at that time for the loading/discharging of cargo under this Charter Party - shall not count as laytime or time on demurrage. On request the Owners shall provide free of charge cranes/winchmen from the crew to operate the Vessel's cargo handling gear, unless local regulations prohibit this, in which latter event shore labourers shall be for the account of the Charterers. Cranes/winchmen shall be under the Charterers' risk and responsibility and as stevedores to be deemed as their servants but shall	50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74	9. Cancelling Clause <i>(a)</i> Should the Vessel not be ready to load (whether in berth or not) on the cancelling date indicated in Box 21, the Charterers shall have the option of cancelling this Charter Party. <i>(b)</i> Should the Owners anticipate that, despite the exercise of due diligence the Vessel will not be ready to load by the cancelling date, they shall notify the Charterers thereof without delay stating the expected date of the Vessel's readiness to load and asking whether the Charterers will exercise their option of cancelling the Charter Party, or agree to a new cancelling date. Such option must be declared by the Charterers within 48 running hours after the receipt of the Owners' notice. If the Charterers do not exercise their option of cancelling, then this Charter Party shall be deemed to be amended such that	137 138 139 140 141 142 143 144 145 146 147 148

Appendix 6. Sample of a Genco – Charter Party Form

PART II

"Gencon" Charter (As Revised 1922, 1976 and 1994)

the seventh day after the new readiness date stated in the Owners' notification	149	at any time during the voyage to the port or ports of loading or after her arrival	220
to the Charterers shall be the new cancelling date.	150	there, the Master or the Owners may ask the Charterers to declare, that they	221
The provisions of sub-clause (b) of this Clause shall operate only once, and in	151	agree to reckon the laydays as if there were no strike or lock-out. Unless the	222
case of the Vessel's further delay, the Charterers shall have the option of	152	Charterers have given such declaration in writing (by telegram, if necessary)	223
cancelling the Charter Party as per sub-clause (a) of this Clause.	153	within 24 hours, the Owners shall have the option of cancelling this Charter	224
10. Bills of Lading	154	Party. If part cargo has already been loaded, the Owners must proceed with	225
Bills of Lading shall be presented and signed by the Master as per the	155	same, (freight payable on loaded quantity only) having liberty to complete with	226
"Congenbill" Bill of Lading form, Edition 1994, without prejudice to this Charter	156	other cargo on the way for their own account.	227
Party, or by the Owners' agents provided written authority has been given by	157	(b) If there is a strike or lock-out affecting or preventing the actual discharging	228
Owners to the agents, a copy of which is to be furnished to the Charterers. The	158	of the cargo on or after the Vessel's arrival at or off port of discharge and same	229
Charterers shall indemnify the Owners against all consequences or liabilities	159	has not been settled within 48 hours, the Charterers shall have the option of	230
that may arise from the signing of bills of lading as presented to the extent that	160	keeping the Vessel waiting until such strike or lock-out is at an end against	231
the terms or contents of such bills of lading impose or result in the imposition of	161	paying half demurrage after expiration of the time provided for discharging	232
more onerous liabilities upon the Owners than those assumed by the Owners	162	until the strike or lock-out terminates and thereafter full demurrage shall be	233
under this Charter Party.	163	payable until the completion of discharging, or of ordering the Vessel to a safe	234
11. Both-to-Blame Collision Clause	164	port where she can safely discharge without risk of being detained by strike or	235
If the Vessel comes into collision with another vessel as a result of the	165	lock-out. Such orders to be given within 48 hours after the Master or the	236
negligence of the other vessel and any act, neglect or default of the Master,	166	Owners have given notice to the Charterers of the strike or lock-out affecting	237
Mariner, Pilot or the servants of the Owners in the navigation or in the	167	the discharge. On delivery of the cargo at such port, all conditions of this	238
management of the Vessel, the owners of the cargo carried hereunder will	168	Charter Party and of the Bill of Lading shall apply and the Vessel shall receive	239
indemnify the Owners against all loss or liability to the other or non-carrying	169	the same freight as if she had discharged at the original port of destination,	240
vessel or her owners in so far as such loss or liability represents loss of, or	170	except that if the distance to the substituted port exceeds 100 nautical miles,	241
damage to, or any claim whatsoever of the owners of said cargo, paid or	171	the freight on the cargo delivered at the substituted port to be increased in	242
payable by the other or non-carrying vessel or her owners to the owners of said	172	proportion.	243
cargo and set-off, recouped or recovered by the other or non-carrying vessel	173	(c) Except for the obligations described above, neither the Charterers nor the	244
or her owners as part of their claim against the carrying Vessel or the Owners.	174	Owners shall be responsible for the consequences of any strikes or lock-outs	245
The foregoing provisions shall also apply where the owners, operators or those	175	preventing or affecting the actual loading or discharging of the cargo.	246
in charge of any vessel or vessels or objects other than, or in addition to, the	176	17. War Risks ("Voywar 1993")	247
colliding vessels or objects are at fault in respect of a collision or contact.	177	(1) For the purpose of this Clause, the words:	248
12. General Average and New Jason Clause	178	(a) The "Owners" shall include the shipowners, bareboat charterers,	249
General Average shall be adjusted in London unless otherwise agreed in Box	179	disponent owners, managers or other operators who are charged with the	250
22 according to York-Antwerp Rules 1994 and any subsequent modification	180	management of the Vessel, and the Master; and	251
thereof. Proprietors of cargo to pay the cargo's share in the general expenses	181	(b) "War Risks" shall include any war (whether actual or threatened), act of	252
even if same have been necessitated through neglect or default of the Owners'	182	war, civil war, hostilities, revolution, rebellion, civil commotion, warfare	253
servants (see Clause 2).	183	operations, the laying of mines (whether actual or reported), acts of piracy,	254
If General Average is to be adjusted in accordance with the law and practice of	184	acts of terrorists, acts of hostility or malicious damage, blockades	255
the United States of America, the following Clause shall apply: "In the event of	185	(whether imposed against all Vessels or imposed selectively against	256
accident, danger, damage or disaster before or after the commencement of the	186	Vessels of certain flags or ownership, or against certain cargoes or crews	257
voyage, resulting from any cause whatsoever, whether due to negligence or	187	or otherwise howsoever), by any person, body, terrorist or political group,	258
not, for which, or for the consequence of which, the Owners are not	188	the Government of any state whatsoever, which, in the reasonable	259
responsible, by statute, contract or otherwise, the cargo shippers, consignees	189	judgement of the Master and/or the Owners, may be dangerous or are	260
or the owners of the cargo shall contribute with the Owners in General Average	190	likely to be or to become dangerous to the Vessel, her cargo, crew or other	261
to the payment of any sacrifices, losses or expenses of a General Average	191	persons on board the Vessel.	262
nature that may be made or incurred and shall pay salvage and special charges	192	(2) If at any time before the Vessel commences loading, it appears that, in the	263
incurred in respect of the cargo. If a salving vessel is owned or operated by the	193	reasonable judgement of the Master and/or the Owners, performance of	264
Owners, salvage shall be paid for as fully as if the said salving vessel or vessels	194	the Contract of Carriage, or any part of it, may expose, or is likely to expose,	265
belonged to strangers. Such deposit as the Owners, or their agents, may deem	195	the Vessel, her cargo, crew or other persons on board the Vessel to War	266
sufficient to cover the estimated contribution of the goods and any salvage and	196	Risks, the Owners may give notice to the Charterers cancelling this	267
special charges thereon shall, if required, be made by the cargo, shippers,	197	Contract of Carriage, or may refuse to perform such part of it as may	268
consignees or owners of the goods to the Owners before delivery."	198	expose, or may be likely to expose, the Vessel, her cargo, crew or other	269
13. Taxes and Dues Clause	199	persons on board the Vessel to War Risks; provided always that if this	270
(a) <i>On Vessel</i> -The Owners shall pay all dues, charges and taxes customarily	200	Contract of Carriage provides that loading or discharging is to take place	271
levied on the Vessel, howsoever the amount thereof may be assessed.	201	within a range of ports, and at the port or ports nominated by the Charterers	272
(b) <i>On cargo</i> -The Charterers shall pay all dues, charges, duties and taxes	202	the Vessel, her cargo, crew, or other persons onboard the Vessel may be	273
customarily levied on the cargo, howsoever the amount thereof may be	203	exposed, or may be likely to be exposed, to War Risks, the Owners shall	274
assessed.	204	first require the Charterers to nominate any other safe port which lies	275
(c) <i>On freight</i> -Unless otherwise agreed in Box 23, taxes levied on the freight	205	within the range for loading or discharging, and may only cancel this	276
shall be for the Charterers' account.	206	Contract of Carriage if the Charterers shall not have nominated such safe	277
14. Agency	207	port or ports within 48 hours of receipt of notice of such requirement.	278
In every case the Owners shall appoint their own Agent both at the port of	208	(3) The Owners shall not be required to continue to load cargo for any voyage,	279
loading and the port of discharge.	209	or to sign Bills of Lading for any port or place, or to proceed or continue on	280
15. Brokerage	210	any voyage, or on any part thereof, or to proceed through any canal or	281
A brokerage commission at the rate stated in Box 24 on the freight, dead-freight	211	waterway, or to proceed to or remain at any port or place whatsoever,	282
and demurrage earned is due to the party mentioned in Box 24.	212	where it appears, either after the loading of the cargo commences, or at	283
In case of non-execution 1/3 of the brokerage on the estimated amount of	213	any stage of the voyage thereafter before the discharge of the cargo is	284
freight to be paid by the party responsible for such non-execution to the	214	completed, that, in the reasonable judgement of the Master and/or the	285
Brokers as indemnity for the latter's expenses and work. In case of more	215	Owners, the Vessel, her cargo (or any part thereof), crew or other persons	286
voyages the amount of indemnity to be agreed.	216	on board the Vessel (or any one or more of them) may be, or are likely to be,	287
16. General Strike Clause	217	exposed to War Risks. If it should so appear, the Owners may by notice	288
(a) If there is a strike or lock-out affecting or preventing the actual loading of the	218	request the Charterers to nominate a safe port for the discharge of the	289
cargo, or any part of it, when the Vessel is ready to proceed from her last port	219	cargo or any part thereof, and if within 48 hours of the receipt of such	290
		notice, the Charterers shall not have nominated such a port, the Owners	291
		may discharge the cargo at any safe port of their choice (including the port	292
		of loading) in complete fulfilment of the Contract of Carriage. The Owners	293
		shall be entitled to recover from the Charterers the extra expenses of such	294
		discharge and, if the discharge takes place at any port other than the	295
		loading port, to receive the full freight as though the cargo had been	296

Appendix 6. Sample of a Genco – Charter Party Form

PART II

"Gencon" Charter (As Revised 1922, 1976 and 1994)

carried to the discharging port and if the extra distance exceeds 100 miles, 297	of destination.	373
to additional freight which shall be the same percentage of the freight 298	(b) If during discharging the Master for fear of the Vessel being frozen in deems 374	it advisable to leave, he has liberty to do so with what cargo he has on board and 375
contracted for as the percentage which the extra distance represents to 299	to proceed to the nearest accessible port where she can safely discharge. 376	
the distance of the normal and customary route, the Owners having a lien 300	(c) On delivery of the cargo at such port, all conditions of the Bill of Lading shall 377	apply and the Vessel shall receive the same freight as if she had discharged at 378
on the cargo for such expenses and freight. 301	the original port of destination, except that if the distance of the substituted port 379	exceeds 100 nautical miles, the freight on the cargo delivered at the substituted 380
(4) If at any stage of the voyage after the loading of the cargo commences, it 302	port to be increased in proportion. 381	
appears that, in the reasonable judgement of the Master and/or the 303		
Owners, the Vessel, her cargo, crew or other persons on board the Vessel 304		
may be, or are likely to be, exposed to War Risks on any part of the route 305		
(including any canal or waterway) which is normally and customarily used 306		
in a voyage of the nature contracted for, and there is another longer route 307		
to the discharging port, the Owners shall give notice to the Charterers that 308		
this route will be taken. In this event the Owners shall be entitled, if the total 309		
extra distance exceeds 100 miles, to additional freight which shall be the 310		
same percentage of the freight contracted for as the percentage which the 311		
extra distance represents to the distance of the normal and customary 312		
route. 313		
(5) The Vessel shall have liberty:- 314		
(a) to comply with all orders, directions, recommendations or advice as to 315		
departure, arrival, routes, sailing in convoy, ports of call, stoppages, 316		
destinations, discharge of cargo, delivery or in any way whatsoever which 317		
are given by the Government of the Nation under whose flag the Vessel 318		
sails, or other Government to whose laws the Owners are subject, or any 319		
other Government which so requires, or any body or group acting with the 320		
power to compel compliance with their orders or directions; 321		
(b) to comply with the orders, directions or recommendations of any war 322		
risks underwriters who have the authority to give the same under the terms 323		
of the war risks insurance; 324		
(c) to comply with the terms of any resolution of the Security Council of the 325		
United Nations, any directives of the European Community, the effective 326		
orders of any other Supranational body which has the right to issue and 327		
give the same, and with national laws aimed at enforcing the same to which 328		
the Owners are subject, and to obey the orders and directions of those who 329		
are charged with their enforcement; 330		
(d) to discharge at any other port any cargo or part thereof which may 331		
render the Vessel liable to confiscation as a contraband carrier; 332		
(e) to call at any other port to change the crew or any part thereof or other 333		
persons on board the Vessel when there is reason to believe that they may 334		
be subject to internment, imprisonment or other sanctions; 335		
(f) where cargo has not been loaded or has been discharged by the 336		
Owners under any provisions of this Clause, to load other cargo for the 337		
Owners' own benefit and carry it to any other port or ports whatsoever, 338		
whether backwards or forwards or in a contrary direction to the ordinary or 339		
customary route. 340		
(6) If in compliance with any of the provisions of sub-clauses (2) to (5) of this 341		
Clause anything is done or not done, such shall not be deemed to be a 342		
deviation, but shall be considered as due fulfilment of the Contract of 343		
Carriage. 344		
18. General Ice Clause 345		
<i>Port of loading</i> 346		
(a) In the event of the loading port being inaccessible by reason of ice when the 347		
Vessel is ready to proceed from her last port or at any time during the voyage or 348		
on the Vessel's arrival or in case frost sets in after the Vessel's arrival, the 349		
Master for fear of being frozen in is at liberty to leave without cargo, and this 350		
Charter Party shall be null and void. 351		
(b) If during loading the Master, for fear of the Vessel being frozen in, deems it 352		
advisable to leave, he has liberty to do so with what cargo he has on board and 353		
to proceed to any other port or ports with option of completing cargo for the 354		
Owners' benefit for any port or ports including port of discharge. Any part 355		
cargo thus loaded under this Charter Party to be forwarded to destination at the 356		
Vessel's expense but against payment of freight, provided that no extra 357		
expenses be thereby caused to the Charterers, freight being paid on quantity 358		
delivered (in proportion if lumpsum), all other conditions as per this Charter 359		
Party. 360		
(c) In case of more than one loading port, and if one or more of the ports are 361		
closed by ice, the Master or the Owners to be at liberty either to load the part 362		
cargo at the open port and fill up elsewhere for their own account as under 363		
section (b) or to declare the Charter Party null and void unless the Charterers 364		
agree to load full cargo at the open port. 365		
<i>Port of discharge</i> 366		
(a) Should ice prevent the Vessel from reaching port of discharge the 367		
Charterers shall have the option of keeping the Vessel waiting until the re- 368		
opening of navigation and paying demurrage or of ordering the Vessel to a safe 369		
and immediately accessible port where she can safely discharge without risk of 370		
detention by ice. Such orders to be given within 48 hours after the Master or the 371		
Owners have given notice to the Charterers of the impossibility of reaching port 372		
19. Law and Arbitration 382		
* (a) This Charter Party shall be governed by and construed in accordance with 383		
English law and any dispute arising out of this Charter Party shall be referred to 384		
arbitration in London in accordance with the Arbitration Acts 1950 and 1979 or 385		
any statutory modification or re-enactment thereof for the time being in force. 386		
Unless the parties agree upon a sole arbitrator, one arbitrator shall be 387		
appointed by each party and the arbitrators so appointed shall appoint a third 388		
arbitrator, the decision of the three-man tribunal thus constituted or any two of 389		
them, shall be final. On the receipt by one party of the nomination in writing of 390		
the other party's arbitrator, that party shall appoint their arbitrator within 391		
fourteen days, failing which the decision of the single arbitrator appointed shall 392		
be final. 393		
For disputes where the total amount claimed by either party does not exceed 394		
the amount stated in Box 25** the arbitration shall be conducted in accordance 395		
with the Small Claims Procedure of the London Maritime Arbitrators 396		
Association. 397		
* (b) This Charter Party shall be governed by and construed in accordance with 398		
Title 9 of the United States Code and the Maritime Law of the United States and 399		
should any dispute arise out of this Charter Party, the matter in dispute shall be 400		
referred to three persons at New York, one to be appointed by each of the 401		
parties hereto, and the third by the two so chosen; their decision or that of any 402		
two of them shall be final, and for purpose of enforcing any award, this 403		
agreement may be made a rule of the Court. The proceedings shall be 404		
conducted in accordance with the rules of the Society of Maritime Arbitrators, 405		
Inc.. 406		
For disputes where the total amount claimed by either party does not exceed 407		
the amount stated in Box 25** the arbitration shall be conducted in accordance 408		
with the Shortened Arbitration Procedure of the Society of Maritime Arbitrators, 409		
Inc.. 410		
* (c) Any dispute arising out of this Charter Party shall be referred to arbitration at 411		
the place indicated in Box 25, subject to the procedures applicable there. The 412		
laws of the place indicated in Box 25 shall govern this Charter Party. 413		
(d) If Box 25 in Part 1 is not filled in, sub-clause (a) of this Clause shall apply. 414		
* (a), (b) and (c) are alternatives; indicate alternative agreed in Box 25. 415		
** Where no figure is supplied in Box 25 in Part 1, this provision only shall be void but 416		
the other provisions of this Clause shall have full force and remain in effect. 417		

Appendix 7. Sample of a Shellvoy 6 – Charter Party Form

Issued March 2005

Code word for this Charter Party
"SHELLVOY 6"

VOYAGE CHARTER PARTY
LONDON, 20

	PREAMBLE	1
	IT IS THIS DAY AGREED between	2
	of (hereinafter referred to as "Owners"), being owners /disponent owners of the	3
	motor/steam tank vessel called with an IMO number of	4
	(hereinafter referred to as "the vessel")	5
	and of	6
	(hereinafter referred to as "Charterers"):	7
	that the service for which provision is herein made shall be subject to the terms and conditions of this Charter which includes Part I, Part II and Part III. In the event of any conflict between the provisions of Part I, Part II and Part III hereof, the provisions of Part I shall prevail.	8 9
	PART I	10
(A) Description of vessel	(I) Owners warrant that at the date hereof, and from the time when the obligation to proceed to the loadport(s) attaches, the vessel	11 12
	(i) Is classed	13
	(ii) (a) Has a deadweight of tonnes (1000 kg) on a salt-water draft on assigned summer freeboard of m. and if applicable,	14 15
	(b) Has on board documentation showing the following additional drafts and deadweights	16
	(iii) Has capacity for cargo of m ³	17
	(iv) Is fully fitted with heating systems for all cargo tanks capable of maintaining cargo at a temperature of up to degrees Celsius and can accept a cargo temperature on loading of up to a maximum of degrees Celcius.	18 19
	(v) Has tanks coated as follows:	20
	(vi) Is equipped with cranes/derricks capable of lifting to and supporting at the vessel's port and starboard manifolds submarine hoses of up to tonnes (1000 kg) in weight.	21 22
	(vii) Can discharge a full cargo (whether homogenous or multi grade) either within 24 hours, or can maintain a back pressure of 100 PSI at the vessel's manifold and Owners warrant such minimum performance provided receiving facilities permit and subject always to the obligation of utmost despatch set out in Part II, clause 3 (1). The discharge warranty shall only be applicable provided the kinematic viscosity does not exceed 600 centistokes at the discharge temperature required by Charterers. If the kinematic viscosity only exceeds 600 centistokes on part of the cargo or particular grade(s) then the discharge warranty shall continue to apply to all other cargo/grades.	23 24 25 26 27 28
	(viii) Has or will have carried, for the named Charterers, the following three cargoes (all grades to be identified) immediately prior to loading under this Charter:- Last Cargo/charterer 2 nd Last Cargo/charterer 3 rd Last Cargo/charterer	29 30 31 32 33
	(ix) Has a crude oil washing system complying with the requirements of the International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 ("MARPOL 73/78").	34 35
	(x) Has an operational inert gas system and is equipped for and able to carry out closed sampling/ullaging/loading and discharging operations in full compliance with the International Safety Guide for Oil Tankers and Terminals ("ISGOTT") guidelines current at the date of this Charter.	36 37 38
	(xi) Has on board all papers and certificates required by any applicable law, in force as at the date of this Charter, to enable the vessel to perform the charter service without any delay.	39 40

Appendix 7. Sample of a Shellvoy 6 – Charter Party Form

Issued March 2005

“SHELLVOY 6”

	(xii)	Is entered in the	P&I Club, being a member of the International Group of P&I Clubs.	41
	(xiii)	Has in full force and effect Hull and Machinery insurance placed through reputable Brokers on Institute Time Clauses-Hull dated	for the value of	42 43
	(xiv)	Complies with the latest edition of the Oil Companies International Marine Forum (“OCIMF”) standards for oil tankers’ manifolds and associated equipment applicable to its size for cargo manifolds and vapour recovery systems.		44 45
	(xv)	Is equipped to comply with, and is operated in accordance with, and has on board, the latest edition of the International Chamber of Shipping (“ICS”) and/or OCIMF guidelines / publications covering:		46 47
		(a) Ship to Ship Operations		48
		(b) ISGOTT		49
		(c) Clean Seas Guide for Oil Tankers		50
		(d) Bridge Procedure Guide		51
	(II)	Throughout the charter service, Owners shall ensure that the vessel shall be maintained, or that they take all steps necessary to promptly restore vessel to be, within the description in <u>Part I clause (A)(I)</u> and any questionnaires requested by Charterers or within information provided by Owners.		52 53 54
	(III)	Owners warrant that any information provided on any Questionnaire(s) requested by Charterers or any other vessel information/details provided by Owners to Charterers is always complete and correct as at the date hereof, and from the time when the obligation to proceed to the loadport attaches and throughout the charter service. This information is an integral part of this Charter but if there is any conflict between the contents of the Questionnaire(s), or information provided by Owners, and any other provisions of this Charter then such other provisions shall govern.		55 56 57 58 59
(B) Position/ Readiness	Now	Expected ready to load		60
		In addition to the above details on the position of the vessel Owners will advise Charterers of the known programme, including any contractual options available to the Charterers in <u>Part I clause (A)(I)</u> (viii) above between current position up to expected ready to load date at Charterers nominated or indicated first load port/area. Owners will not, unless with Charterers’ prior consent, negotiate or enter into any business or give current Charterers any further options that may affect or alter the programme of the vessel as given in this clause.		61 62 63 64 65
(C) Laydays	Commencing Noon Local Time on	(Commencement Date)		66
	Terminating Noon Local Time on	(Termination Date)		67
(D) Loading port(s)/ Range				68
(E) Discharging port(s)/ Range				69
(F) Cargo description	Charterers’ option			70
		Owners warrant that where different grades of cargo are carried pursuant to this Part I clause (F), they will be kept in complete segregation from each other during loading, transit, and discharge, to include the use of different pumps/lines for each grade. If, however, Charterers so require it, the vessel may be required to:		71 72 73
		(a) co-mingle different grades of cargo providing such grades fall within the cargo description set out in this Part I clause (F);		74
		(b) otherwise breach the vessel’s natural segregation;		75
		(c) add dye to the cargo after loading, and/or		76
		(d) carry out such other cargo operations as Charterers may reasonably require as long as the vessel is capable of such operations provided that the Charterers will indemnify Owners for any loss damage delay or expense caused by following Charterers’ instructions, except to the extent that such loss damage delay or expense could have been avoided by the exercise of due diligence by Owners.		77 78 79 80
(G) Freight rate	At	% of the rate for the voyage as provided for in the New Worldwide Tanker Nominal Freight Scale current at the date of commencement of loading (hereinafter referred to as “Worldscale”) per ton (2240 lbs)/tonne (1000 Kg) or, if agreed, the following lumpsum amount(s)/or freight per tonne for named load and discharge area(s)/port(s) combinations		81 82 83

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Appendix 7. Sample of a Shellvoy 6 – Charter Party Form

Issued March 2005

“SHELLVOY 6”

	(H) Freight payable to		84
	(I) Laytime	running hours	85
	(J) Demurrage per day (or pro rata)		86
	(K) ETAs	All radio/telex/e-mail messages sent by the master to Charterers shall be addressed to	87
		All telexes must begin with the vessel name at the start of the subject line (no inverted commas, or use of MT / SS preceding the vessel name)	88 89
	(L) Speed	The vessel shall perform the ballast passage with utmost despatch and the laden passage at knots weather and safe navigation permitting at a consumption of tonnes of Fueloil (state grade) per day.	90 91
		Charterers shall have the option to instruct the vessel to increase speed with Charterers reimbursing Owners for the additional bunkers consumed, at replacement cost.	92 93
		Charterers shall also have the option to instruct the vessel to reduce speed on laden passage. Additional voyage time caused by such instructions shall count against laytime or demurrage, if on demurrage, and the value of any bunkers saved shall be deducted from any demurrage claim Owners may have under this Charter with the value being calculated at original purchase price.	94 95 96
		Owners shall provide documentation to fully support the claims and calculations under this clause.	97
	(M) Worldscale	Worldscale Terms and Conditions <u>apply / do not apply</u> to this Charter. [delete as applicable]	98
	(N) Casualty/ Accident contacts	In the event of an accident / marine casualty involving the vessel, Owners’ technical managers can be contacted on a 24 hour basis as follows: Company Full Name: Contact Person: Full Address: Telephone Number: Fax Number: Telex Number: Email Address: 24 Hour Emergency Telephone number:	99 100 101 102 103 104 105 106 107 108
	(O) Special provisions		109
	Signatures	IN WITNESS WHEREOF, the parties have caused this Charter consisting of the Preamble, Parts I, II and III to be executed as of the day and year first above written.	110 111
		By	112
		By	113

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Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

Part C

Survey Questionnaire

Bulk, General Cargo, Container and Other

Ship name:

IMO No:

Date survey completed:

Survey port:

Surveyor's name:

Survey company:

Surveyor's ref. number:

Order club:

Club ref. no.:

This report, and any accompanying documentation or photographs, has been compiled for the sole use of the Association for insurance purposes only and should not be disclosed to third parties without prior written permission from the Association. The information contained in this report, and any accompanying documentation or photographs, is not exhaustive as to the general condition of the ship and should not be relied upon by members or by any other party as any assurance, representation or warranty as to the condition of the ship and nothing herein shall prejudice the Club's rights under the insurance policy in the event of a dispute between the Club and the member relating to the condition of the ship.

Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

5. Survey Questionnaire - Bulk, General Cargo Container and Other

5.1 Cargo spaces - General

		Y	N	NA	NI	Remarks
5.1.1	Are cargo hold coatings in satisfactory condition and free from defects which could impair cargoworthiness?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.2	Does the vessel have the necessary class and flag state certification for the intended cargo?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.3	If fitted, is the fixed fire fighting system in cargo spaces in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.4	Are bilge wells clean?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.5	Are bilges regularly sounded and proper logs maintained?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.6	Are bilges and water leakage alarms routinely function tested and results logged?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.7	Are bilge non-return valves routinely checked for operation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.8	Are manhole covers in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.1.9	Is the steel structure in the cargo spaces apparently free from defects which may impair cargoworthiness (e.g. cracks, fractures, mechanical damages, deep pits, localised corrosion, heavy dents, doublers, scale etc)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

5.1.10	Is the pipe work in the cargo spaces in apparent satisfactory condition and suitably protected against mechanical damages (e.g air pipes, sounding pipes, bunker and ballast lines, etc.)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.1.11	Is cargo spaces natural and forced ventilation in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.1.12	Are ladders and any permanent / temporary railings in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional information					

5.2 Lifting appliances

		Y	N	NA	NI	Remarks
5.2.1	Are cranes / derricks in apparent satisfactory structural condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.2.2	Is SWL clearly marked on crane / derrick jib and loose gear?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.2.3	Are crane wires and sheaves in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.2.4	Are crane / derrick safety devices apparently operational and regularly tested?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.2.5	Is there evidence that any of the crane pedestal holding down bolts have been withdrawn for testing (eg, evidence being unpainted bolts, bolts with reduced paint covering or comments in the ship's lifting gear maintenance records)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

5.2.6	Are the holding down bolts and slewing ring apparently free of significant corrosion?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.2.7	Is loose gear apparently free from excessive wear and corrosion?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.2.8	Are crane / derrick electrical / hydraulic systems free from apparent defects?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.2.9	Are crane access ladders and platforms in apparent satisfactory condition and allow for safe access?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.2.10	Are lifting appliance maintenance records kept?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional information					

5.3 Hatch covers and other closing appliances

		Y	N	NA	NI	Remarks
5.3.1	Are all cargo hatch covers and coamings, including landing pads, in apparent satisfactory structural condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.3.2	Are there any apparent indications of water or oil leaks in the cargo holds?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.3.3	Are access hatches and coamings in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.3.4	Are hatch cover panels correctly aligned?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

5.3.5	Are compression bars, landing pads, cleats and cross joint wedges in good condition and properly adjusted?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.6	Are rubber gaskets in good condition? Are any repairs correctly performed (paying particular attention to corner pieces)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.7	Are side and cross joint drain channels and non-return devices in good condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.8	Can hatch covers be closed / opened without undue delay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.9	Is chain pull / hydraulic system in satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.10	Are hatch cover hinges in apparent satisfactory condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.11	Can main and access hatch covers be safely secured in the open position?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3.12	Confirm cargoworthiness / weathertightness can be achieved without temporary means such as expanding foam, marine tape, tarpaulins, etc?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional information					

Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

5.4 Cargo securing		Y	N	NA	NI	Remarks
5.4.1	Are cell guides, if fitted, in apparent satisfactory structural condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.2	Are fixed lashing points and timber deck stanchions in apparent satisfactory condition and free from excessive wear / corrosion? (e.g twist lock sockets, D-rings, timber stanchions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.3	Is loose lashing and securing equipment including twist locks in apparent satisfactory condition and free of excessive wear / corrosion?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.4	Are the twist locks, lashing and securing equipment of the same type and number as specified in the approved Cargo Securing Manual?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.5	Are lashing maintenance records kept?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.6	Are electrical container sockets in apparent good condition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.7	Is electrical power supply permanently installed from the engine room?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.8	If reefer containers are carried, are spares carried on board?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.4.9	Is there an appropriate system for monitoring reefer container temperatures?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Additional information						

Appendix 8. Example of a P&I Club Vessel Entry Survey Form. Bulk, General Cargo and Container Vessels

5.5 Safety and Operational tests (Were the following tests carried out and found satisfactory?)

		Y	N	NA	NI	Remarks
5.5.1	Engine room bilge high level alarms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.2	Emergency fire pump with two fire hoses on separate hydrants.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.3	Emergency power sources and emergency lighting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.4	Engine room remote stops and shutdowns.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.5	Tightness test of hatch covers and other relevant closing appliances.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.6	Cargo hold bilge suction test.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.7	Hydro test of ballast spaces surrounding the cargo area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.5.8	Water ingress alarm unit for cargo spaces.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Additional information						

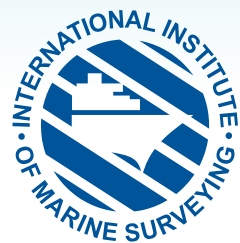
Appendix 9. Example of a Straight Bill of Lading

ADi ADI Data International Inc
 255 Old New Brunswick Rd STE 350S
 Piscataway NJ 08854
 Phone: 732-981-0444



Date: 5/23/2011		Straight Bill of Lading				B/L NO. 4477885		
SHIPPER (ORIGIN)			CONSIGNEE (DESTINATION)					
Shipper No. 101 Trailer No. Seal No.			Name: RITE AID DC #00081 Address: 553061 Ada Drive Beverly Hills, CA 90210					
Name: ADI Data International Inc Address: 255 Old New Brunswick Rd Suite S350 Piscataway, NJ 08854			P.O. NO. 52896					
BILL TO			SPECIAL INSTRUCTIONS:					
Name: Address:			<input type="checkbox"/> Master Bill of Lading Delivery Date: 5/31/2011 To be shipped on SECOND FLOOR					
Handling Units	HU Type	HM	Description of Articles, Special Marks and Exceptions	NMFC#	Class	Weight Subj to Correction	Rate	Charge
1	Pallets		CD-RW (20/pack)		120	700 lbs		
1	Pallets		DVD-VHS Media		150	500 lbs		
Total for All Pages (Weight in lbs)						1200 lbs		0.00
Hazardous Material Emergency Contact:			Freight Terms:		C.O.D. Amount			
			<input checked="" type="checkbox"/> Prepaid <input type="checkbox"/> Collect <input type="checkbox"/> Third Party		<input type="checkbox"/> Prepaid <input type="checkbox"/> Collect <input type="checkbox"/> Customer Check Acceptable			
<small>DECLARED VALUE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____.</small>				<small>The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. _____ Shipper Signature</small>				
<small>NOTE Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. - 14706(c)(1)(A) and (B). test data 1</small>								
<small>RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper on request. The property described above, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as shown above, which said carrier agrees to carry to destination, if on its route, or other wise deliver to another carrier on the route to destination. Every service to be performed hereunder shall be subject to all bill of lading terms and conditions in the governing classification on the date of the shipment. Shipper hereby certifies that he is hereby familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns. test 2</small>								
<small>This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.</small>								
SHIPPER COMPANY NAME			CARRIER		Trailer Loaded		Freight Counted	
ADi Data International Inc			YRC		<input checked="" type="checkbox"/> By Shipper <input type="checkbox"/> By Driver		<input checked="" type="checkbox"/> By Shipper <input type="checkbox"/> By Driver / pallets said to contain <input type="checkbox"/> By Driver/Pieces	
SHIPPER SIGNATURE/ DATE			DRIVER					





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