Distance Education Course SB–101.3
Commercial Shipping

Unit 1 Overview of commercial shipping

Many industries own their own fleets to carry their cargo, but others prefer to hire vessels rather than invest in them. There are two basic types of commercial shipping: tramp shipping and liner shipping. In both types, shipowners charge clients fees for the use of their vessels, but they serve different markets. There are important differences in the way they operate.

The three lessons in this unit will cover the topics of:

- the place of tramp and liner services in commercial shipping
- bulk and general cargo
- tramp ships and cargo-liners.

Unit 1 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Differentiate between tramp shipping and liner shipping.
- Describe the predominant cargoes in commercial shipping and the types of vessels used to transport them.
- Identify the types of vessels used in commercial shipping.

Lesson 1..... Tramp and liner shipping

The commercial use of vessels includes a huge range of ships and services—from small independently-owned fishing vessels to elaborate oil-rig service vessels owned by international corporations. The term *merchant shipping* refers to the fleet of commercial ships in the ship's registry of a particular nation. This course, *Commercial Shipping,* is more specifically concerned with the businesses and vessels used in the carriage of cargoes (including passengers).

Many industries own and operate vessels that are specifically designed for the carriage of their particular cargo. Other industries use ships on a permanent contract from a shipowner. These specialized ships usually move on set routes.

Rather than own or contract vessels on a permanent basis, some shippers or shipping companies prefer to hire vessels according to their needs. This may be to cover cyclical peaks in demand for shipping capacity, to replace ships out-of-service, or simply as a matter of policy to hire rather than to own, thus conserving capital. The commercial shipping industry has two main segments, tramp shipping and liner shipping.

In terms of quantity, tramp shipping occupies the most important place in world shipping. Tramp shipping companies are much smaller than their cargo-liner counterparts, and their business demands an intimate knowledge of market conditions.

Development of commercial shipping in the Caribbean

In international trade, goods and services are exchanged among countries. People in particular areas export things that they can produce relatively cheaply or easily, and import things that are produced more efficiently elsewhere.

In the Caribbean Sea, the Caribs and Arawaks were expert sailors and, like other coastal peoples, likely developed trade using sea-going vessels long before the Europeans arrived in the area.

Later, the area was fought over by the major European maritime powers (France, Spain, Holland, and Great Britain) in their searches for trading routes and gold.

The triangle trade

The first African slaves were taken to Jamaica in 1517 by the Spanish after the Arawaks were annihilated. In the seventeenth century the infamous triangle trade developed. In this, British ships took trade goods to Africa where they were exchanged for slaves. These people then travelled the terrible "middle passage" and were delivered to plantations in the West Indies or in the English colonies in America. They were exchanged for agricultural products such as sugar, cocoa, and tobacco, which were taken back to Europe, often via New England ports where the sugar was used to make rum.

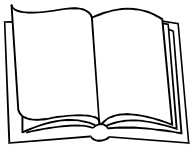
The importance of Caribbean shipping today

The Caribbean Sea is important in modern international shipping because of its:

- location on the route to and from the Panama Canal
- strategic location close to North, South, and Central America
- natural resources
- developing tourism industry.

Commercial shipping terms and their abbreviations

Commercial shipping uses some special terminology from shipping and international commerce. Frequently used terms are often abbreviated and sometimes there is more than one form of abbreviation for a single term, which can be confusing when reading different textbooks and documents.



Refer to the list of commercial shipping terms and abbreviations in your Student Reader as you study this course

Tramp shipping

Tramp ships carry mostly full shiploads of bulk cargo. They do not have fixed routes or schedules, but carry any legal cargo anywhere in the world. They contract to carry goods between two ports or *ranges*. They are privately-owned carriers hired or *chartered* for a particular period, voyage, or cargo, by clients who are called *charterers*.

The ships are usually individually contracted under negotiated terms. There is no advertised tariff of charges, although the terms of charter or *fixtures* are regularly published internationally. The negotiated terms are set down in a document called a *charter party* (C/P).

Tramp ships are mostly bulk carriers, although many are specially designed to be flexible in the type of cargo they can carry.

Liner shipping

Cargo-liners usually carry general cargo such as break-bulk and containers. Some also carry passengers. They ply between particular ports on fixed schedules charging fixed, advertised rates.

Cargo-liner companies issue documents called an *ocean bill of lading* (or simply *bill of lading*) and a *seaway bill*. The bill of lading is not a contract of carriage, but often carries details of the contract and may act as legal evidence of the contract's existence.

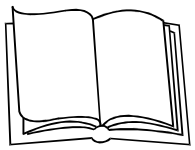
The ships serving as cargo-liners are mostly ro/ro (roll on/roll off) vessels, container vessels, and general cargo vessels that are flexible enough for a variety of cargoes.

Pooling

Sometimes, to achieve economies of scale, individual vessels, fleets, or parts of fleets are *pooled* to increase available tonnage and allow for bidding on larger contracts. Expenses and income are divided in various ways among the investors.

Contracts of affreightment

Sometimes operators of time-charter vessels or pools of vessels make a contract to carry a specified quantity of cargo on a particular route within a specified period, without further specifying what ships are to be used. The carrier is remunerated according to the amount of cargo, and maybe using agreed loading and discharge rates. The contracts are drawn up as they are needed between the concerned parties.



Read *Sea-Trading*
Volume 3, Chapters 3, 4, and 5.

Activity

Find out whether the vessels in the port nearest to you are tramp ships or cargo-liners. Try to identify their major characteristics.

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. Commercial shipping is concerned only with tramp ships. True or false?
   a. true
   b. false

2. What is the name of the legal document in which the agreement for hire of a cargo-liner is described?
   a. charter party
   b. bill of lading
   c. seaway bill
   d. contract of affreightment

3. Which type of commercial shipping has fixed, advertised freight rates?
   a. liner shipping
   b. tramp shipping

4. Which type of commercial shipping has regular schedules?
   a. liner shipping
   b. tramp shipping

5. Which type of commercial shipping has no set routes?
   a. liner shipping
   b. tramp shipping

Lesson 2 .....Bulk and general cargo

This lesson describes the predominant commercial cargoes carried by tramp ships and cargo-liners. The course *Seaborne Cargoes and Dangerous Goods* will describe cargoes further.

Bulk cargo is any cargo that is transported by sea in large consignments in order to reduce the unit cost. It may be carried in cargo-liners or in tramp ships. Most often only one bulk cargo is carried at a time, although some ships can carry various bulk cargoes in different holds or on different legs of a voyage.

General cargo is made up of smaller quantities of various cargoes. These are shipped together either in containers or on pallets, in bales, or some other method of assembly. It may include vehicles.

Characteristics of bulk cargo

Factors affecting whether cargo is suitable for bulk shipment are:

- volume and stocks
- handling and stowage characteristics
- regularity (seasonality).

Volume

There is no specific size at which a trade flow "goes bulk". In effect, the smallest practical bulk unit is the size of a single carrier hold. Many commodities travel partly in bulk and partly as general cargo. For example, 50 000 tonnes of wheat would certainly travel in a bulk carrier, but 500 tonnes of malting barley would travel by liner in bags or a container. To minimize stockholding, valuable cargo is usually shipped in small quantities.

Handling and stowage characteristics

The cargo must be physically suitable for bulk handling. Several aspects of the cargo are important:

- its handling characteristics for loading and unloading
- the ease with which it can be stowed within a hull
- its susceptibility to damage
- special requirements such as for low temperature, high pressure, or corrosion-resistant containment vessels.

Table 1–1 shows the way these factors might vary.

Commodity	Handling	Stowage
Liquids such as crude oil, oil products, vegetable oil, liquefied petroleum gas etc.	Rapid handling by pump	Integral tanks or parcel tanks, anti-corrosive linings, pressurization, refrigeration, or heating coils sometimes required
Homogeneous iron ore, coal, NFM ores, bulk materials such as grain	Conveyor, grab, or pneumatic	Loose in bulk carrier hold
Forest products; steel products; baled scrap; baled wool	Unit load by crane	Wide hatches an advantage
Vehicles and wheeled units	Drive or lift on	Cannot be stacked except on flats; special docks required
Refrigerated cargo	Lift on	Cannot be stacked unless palletized; requires refrigeration/temperature control

Table 1–1: Various cargo classifications

Packaging cargoes for carriage

Cargoes do not always travel only in only one form—they may be packaged for carriage in several possible ways. Table 1–2 contains a listing of minor bulk trades and general cargoes in 1982 & 1997 and identifies the ways they were packaged for carriage. These types of cargoes may also be packed in containers, or on pallets or flats for transport.

Reducing handling

Costs can be reduced by minimizing the number of times cargo is handled between its origin and destination, and by shipping in a form that allows the use of economical transportation during each leg. For example, importing cement in bags for onward shipment by rail involves several expensive manual-handling operations. In contrast bulk cement shipped loose can be discharged straight into an automatic handling system where it is stored in silos and loaded direct into bulk railcars.

Volumes (in millions of tonnes) of minor bulk trades and general cargoes and their packaging in 1997 (1982)

Commodity	Vol.	Cargo packages
Minerals		
non-ferrous ores	22 (26)	Bulk, bags, or drums
metal scrap	13 (15)	Loose or bales
gypsum & plaster	14 (18)	Bulk or bags
mineral sands	10 (5)	Bulk or bags
salt	24 (18)	Bulk, bags, or drums
asbestos	0 (1)	Bags or drums
other crude minerals	43 (37)	Bulk, bags, or drums
sulphur	10 (9)	Bulk or drums
Agriculture & forestry		
animal feedstuffs	82 (39)	Bulk or bags
forest products	83 (84)	Logs or packaged
sugar (raw & refined)	37 (28)	Bags or baskets
coffee & tea	6 (5)	Bags, chests, or containers
other foods (inc. flour)	82 (39)	Bags or cartons
beverages & tobacco	15 (9)	Bales, tanks, or cartons
rubber	8 (6)	Bales, cases, or drums
textile fibres	7 (8)	Pressed bales
other fibres	4 (3)	Bulk, bales, or bags
oils & fats	32 (15)	Cases, barrels, or drums
Semi-manufactures		
woodpulp	60 (17)	Pressed bales
non-ferrous metals	18 (12)	Ingots or coils
steel products	116 (99)	Ingots or coils
chemicals	87 (74)	Ingots, coils, pipes, etc.
manufactured fertilizer	43 (37)	Bulk or bags
cement	169 (58)	Bulk, bags, or drums
Manufactures		
non-energy petroleum products	29 (35)	Bulk or bags
paper	32 (24)	Rolls or bales
textiles	11 (7)	Bales or cartons
machinery	34 (16)	Crates, boxes, or loose
other simple manufactures	45 (39)	Crates, boxes, etc.
metal manufactures (inc. kits)	9 (24)	Crates, boxes, or loose
other manufactures	6 (10)	Various
woodpulp & paper waste	19 (16)	Pressed bales
Refrigerated cargoes		
meat & dairy	9 (7)	Cases, cartons, or kegs
fish	7 (4)	Boxes or cartons
fruit & vegetables	26 (20)	Cases, cartons, etc.

Table 1–2: Packaging of minor bulk trades and general cargoes

Effects of seasonality

The shipping operation for cargoes that appear on the market irregularly requires a different approach. For example, some grain shipments are seasonal—there is no regular pattern of trade since a great deal depends on each year's harvest. In this case the immediate requirement is not for an integrated shipping system, but for a chartering organization capable of obtaining the correct mix of vessels to meet a changing pattern of trade.

Liquid-bulk cargo

Liquid cargoes shipped by sea fall into three main groups:

- crude oil and oil products
- liquefied natural gas (LNG) and liquefied petroleum gas (LPG)
- vegetable oil and liquid chemicals such as ammonia and phosphoric acid (minor liquid bulks).

The liquid-bulk cargoes account for about 40% of the world seaborne trade, Table 1–3.

The liquid-bulk commodities shipped by sea in 1997 (millions of tonnes)

Commodity	Volume
Crude petroleum	1534
Petroleum products	326
Liquefied gas	220
Minor liquid bulks	14
Total	**2094**

Table 1–3: Liquid-bulk commodities

Crude oil

The oil trade depends on the location of crude oil reserves in relation to the major oil-consuming centres in the United States, Western Europe, Japan and, to an increasing extent, the developing countries. The largest source of crude oil outside the consuming areas is the Middle East (with 60% of reserves). The other major exporters are Venezuela, West and North Africa, Mexico, and Indonesia.

Oil transport

Crude oil is transported from the oil fields often via pipeline to terminals at the coast where it can be stored in a tank farm and shipped to refineries. The average shipping haul for crude oil is over 7000 miles.

Petroleum and fuel oil is transported from refineries to distribution centres and bunkering ports.

Oil products.

In both economic and shipping terms the oil products trade is very different from the crude oil trade. The trade consists of the products of the oil refining process, which are loosely classified as:

- clean products— the lighter distillates, principally kerosene and gasoline, which are usually shipped in vessels with coated tanks
- dirty products—the lower distillates and residual oil, which are generally shipped in conventional tankers, though they sometimes need steam heating coils in the cargo tanks.

Liquefied gas

A highly specialized latecomer to the liquid-bulk shipping business is the liquefied gas trade. The two most important liquefied gas products shipped by sea are:

- liquid natural gas (LNG) which is mainly produced from dedicated gas fields. LNG is liquefied at around –162°C at atmospheric pressure. It is loaded into ships with insulated cargo tanks
- liquid petroleum gas (LPG) which is produced as a by-product of oil wells (this gas is often flared off). Export is mainly from OPEC countries, with volumes linked to crude-oil output. LPG may be shipped at ambient temperature and pressure, but nowadays is most often shipped –50°C under pressure.

The transport of liquefied gas by sea is an expensive, complex, and politically sensitive operation. It requires a substantial investment in liquefaction and cargo handling facilities as well as the construction of specialist tonnage.

Dry-bulk trades

The major dry-bulk trades

The three largest major trades are the driving forces behind the dry-bulk carrier market. In 1997, the trade accounted for just under a quarter of total seaborne trade. See Table 1–4.

The major dry-bulk commodities shipped by sea in 1997 (millions of tonnes)

Commodity	Volume
Coal and coke	460
Iron ore	430
Grain	203
Bauxite and alumina	54
Phosphate rock	32
Total	**1179**

Table 1–4: Major dry-bulk commodities

The minor dry-bulk trades

The minor dry-bulk trades are important employers of bulk carriers, particularly for smaller vessels. Table 1–5 lists the significant minor bulk trades.

The minor dry-bulk trade is the most complex sector of the bulk shipping market. These commodities are shipped partly by liner and partly by tramp ship, depending on the circumstances. For example, steel products of various types might be shipped in chartered carriers of 30 000 tonnes deadweight (dwt.) or small coastal charters of 500 tonnes dwt. They might use container ships or ro/ro services.

Minor dry-bulk commodities shipped by sea in 1997 (millions of tonnes)	
Commodity	**Volume**
Steel products	116
Forest products	83
Cement	169
Manufactured fertilizers	43
Sugar	37
Non-ferrous metal (NFM) ores	22
Salt	24
Sulphur	10
Others	302
Total	**806**

Table 1–5: Minor dry-bulk commodities

Activities

1. Find out which commodities are most often shipped in bulk to or from your local port. Ask what their usual points of origin and final discharge destination are. Do they require any special conditions or equipment on board?
2. Find a vessel that is unloading bulk cargo and ask whether it will pick up a different cargo before leaving. Or find a vessel that is loading a bulk cargo and find out whether it previously unloaded a different cargo.

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. What are the five major dry-bulk trades in shipping?

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

2. The minor dry-bulk trades have no significant effect on tramp shipping. True or false?

   a. true
   b. false

3. The main tanker cargo is:

   a. iron ore
   b. LPG and LNG
   c. oil products
   d. crude oil

4. Some tramp shipping is affected by seasonal crops. True or false?

   a. true
   b. false

5. Classes of commodity such as grain always travel in one type of carrier, tramp or liner. True or false?

   a. true
   b. false

Lesson 3 .....Tramp ships and cargo-liners

Unit 3 of the course *General Ship Knowledge* describes in more detail the vessels used to transport cargoes.

Tramp ships are a type of general cargo ship that includes tankers and bulk carriers. General cargo ships that are custom-built to regularly serve particular routes and cargoes are called *cargo-liners*, whereas *tramp ships* are vessels that find cargo wherever they happen to be.

Container ships and ro/ro ships are more often used in the liner trades than tramp shipping, but may be chartered for specific projects. Specialized carriers such as reefers, self-unloaders (for ore and gypsum), and livestock carriers are also used.

General cargo ships

Deep-sea general cargo ships are usually in the range of 15 000 to 25 000 tonnes. Most are tweendeckers, giving flexibility in the types of cargoes that can be carried. For example, bulk cargo could be carried in the lower holds, with palletized or baled goods in the tweens. The tweendecks also help to spread the weight and stabilize the cargo. Older general cargo ships were also designed to carry about twelve passengers.

The major problem with many multipurpose ships is that, although they can handle a wide range of cargo, they are not operationally efficient in any of them.

Flexible bulk carriers

Some vessels are specially designed for fast cargo handling and more efficient cargo stowage. For example:

> One type of ship has 42 000 tonnes dwt. with wide hatches giving a container capacity of 1660 TEU and three holds with tweendecks for break-bulk cargo. Cargo-handling gear includes four jib cranes and a 41-tonne gantry crane making the vessel capable of loading heavy bulk cargo, grain, long timber, and cars in 400 m^2 of special garage space. The holds have hydraulic container supports rather than cell guides to speed up container handling, but they leave the holds clear when carrying bulk cargo. The hatch covers are hydraulic, and the ships have a design speed of 16.0 knots.

Another type of vessel is tailored to handle cargo previously carried by a mixed fleet of traditional liners and reefer ships. The forward holds are all insulated to carry refrigerated cargoes, with collapsible container cell guides and electrical points for refrigerated containers. Doors for banana conveyors are let into the tweendecks in each hold and side doors allow the tweendecks to be worked while work is proceeding in the lower hold. Hatch covers are strengthened to take containers, and a 35-tonne crane enables the ship to be fully self-sufficient with container loads in the smaller ports of the West Indies. Holds aft of the bridge are devoted to palletized or vehicle cargo on two decks, with access by a wide stern ramp or a side door if the port does not have facilities for stern-to-quay loading. Below are tanks for carrying bulk rum. All these features give the vessel maximum flexibility and very efficient cargo handling.

OBO carriers

One type of flexible carrier is the ore/bulk/oil (OBO) carrier, often called a *combined carrier*. This may carry a full load of dry-bulk cargo such as ore, coal, grain, or phosphates; or a liquid cargo such as crude oil.

Dry- and liquid-bulk carriers

Dry-bulk carriers have large, open hatches and deep, wide holds. Some have self-trimming features such as sloped bulkheads. They are usually gearless. Some geared tweendeckers may be adapted to dry-bulk shipment.

Liquid-bulk carriers are called tankers. They depend almost exclusively on oil for their cargo. The world's tanker fleet is divided between tramp ships that operate under a charter party and those owned by the oil companies. Most independently-owned tankers are on long-term charter to the oil companies.

Their sizes are roughly (AFRA scale):

- handy or small size: under 25 kilotonnes dwt.
- medium size: 25 to just under 50 kilotonnes dwt.
- large sizes: 50 to just under 160 kilotonnes dwt.
- VLCC: 160 to just under 320 kilotonnes dwt.
- ULCC: 320 kilotonnes dwt. and over.

Break-bulk carriers

These vessels can carry a wide range of cargo. They usually have their own shipboard cranes for loading and discharge. They are about 500 feet long. The cargoes are usually packaged and move as single parcels or assembled on pallets.

Container ships

More and more cargo is being transported in containers. These boxes are either 20 or 40 feet long (6.1 or 12.2 metres), and can be mounted on trucks, railcars, or ships as required, giving complete door-to-door transport without disturbing the cargo. This reduces handling costs a great deal. Some are refrigerated. Containers may be used for anything that will fit in them, from bicycles to lobster.

Specialized tonnage

Some ships are built with special facilities suited to the five main dry-bulk tramp ship trades. Naturally, the use of specialized ships occurs only where this investment can provide a significant cost reduction or quality improvement compared to general-purpose bulk tonnage.

Reefer vessels

Refrigerated cargo is carried in *reefer vessels* with insulated holds. Another part of this trade is shipped in *reefer containers* on liner services whose vessels are equipped to carry and control the temperature of reefer containers.

Ro/ro vessels

Any type of vehicle can roll on and roll off these vessels, including containers, heavy and large objects, trucks, railcars, buses, and cars. Because they are so flexible and useful in reducing port congestion, they are very productive despite their high cost. They are used on short and long hauls.

Auto carriers

These ro/ro vessels are like 600-foot long (183 m) floating garages and can hold 2000 to 4000 vehicles. They are mostly owned by Japanese companies.

Activities

1. Find out what cargo ships are currently in the port nearest to you.
2. Find out what types of vessels they are and whether they are operating as tramp ships or cargo-liners.
3. For a tramp ship, try to find out:
   - what cargo they are unloading
   - where the previous leg of their voyage started
   - what cargo they are loading
   - where they are going next.

Practice Exercise for Lesson 3

Test your understanding of Lesson 3 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. Tramp ships are:
   a. dry-bulk carriers
   b. tankers
   c. vessels that serve particular routes and cargoes
   d. vessels that serve various routes and cargoes

2. Only tramp ships carry bulk cargo. True or false?
   a. true
   b false

3. Most world shipping is carried on:
   a. cargo-liners
   b. tankers
   c. tramp ships
   d. container vessels

4. What are the three main features of most dry-bulk carriers?
   a. _____
   b. _____
   c. _____

5. What are the main advantage and the main disadvantage of most multipurpose vessels?

   Advantage:

   _____

   Disadvantage:

   _____

Answer keys

Lesson 1

1. b. false
2. d. contract of affreightment
3. a. liner shipping
4. a. liner shipping
5. b. tramp shipping.

Lesson 2

1. – iron ore
   – coal
   – grain
   – bauxite and alumina
   – phosphate rock
2. b. false
3. d. crude oil
4. a. true
5. b. false.

Lesson 3

1. d. vessels that serve various routes and cargoes
2. b. false
3. c. tramp ships
4. – large open hatches
   – deep, wide holds
   – they are usually gearless
5. Advantage: flexibility for loading a variety of cargoes

   Disadvantage: inefficiency for loading particular cargoes

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Commercial Shipping

Unit 2 Tramp ship chartering

When a tramp ship's owner receives money for it to be used to carry cargo, the ship is said to be chartered. The conditions under which the ship is chartered are set out in a document called the charter party, which is a legal agreement between the charterer and the owner. Chartering tramp ships is an important part of commercial shipping.

The three lessons in this unit will cover the topics of:

- the charter market and tramp shipping operation
- types of charters
- the charter party.

Unit 2..... Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Describe the charter market.
- Identify the operations of tramp shippers.
- Differentiate between the various types of charter.
- Describe the important clauses in a charter party
- Interpret charter party terms.

Lesson 1 .....The charter market and tramp shipping operation

The shipowner has a vessel for hire with a particular speed, cargo capacity, dimensions, and cargo handling gear. The vessel will probably have existing contractual commitments, which will determine the date and location at which it will become available. Similarly, there is a charterer with particular cargo to transport at a specified time. Their needs will be mutually met in the *charter market*.

Some shipowners may pursue contracts directly with a shipper and fix up a charter themselves. However, the majority of shipowners and shippers use brokers and agents who specialize in seeking out contacts to make an agreement to charter (or *fix*) the vessel.

An agent/broker puts the deal together, possibly with the involvement of an institution such as the Baltic Exchange to act as a clearing house. By tradition, any verbal agreement is binding, but the detail is set out in the written contract called a *charter party* (C/P). Once the pick-up and disposal of the freight are arranged and the charges agreed, the charter party is signed. At this point the arrangements are said to be *fixed*.

Efficient business depends upon the ability of shippers and shipowners to conclude the business quickly and fairly without resorting to legal disputes. Nowadays, they usually use an electronic data interchange (EDI) system of some sort to exchange what used to be paper documents.

Tramp shipowners

Shipowners may be private (possible family) companies with small fleets, or large corporations or consortiums with very large fleets. Some large industries operate their own cargo fleets and may charter their vessels to avoid return *ballast voyages* (voyages without cargo, that stabilize the ship using ballast).

It is in shipowners' interests to have their ships in use carrying cargo as much as possible. Unfortunately, world trade is not balanced since some regions receive large imports but have few exports. Sometimes owners are forced to leave a discharge port in ballast.

Tramp ship agents

Because it is not feasible for tramp ship owners to have branch offices in every port throughout the world, the services of ship's agents are required. Ship's agents are appointed as required at loading and discharging ports.

Ship's agents represent and protect shipowners' interests while the ships are in port. The agent acts on behalf of the shipowner under the authorization of the shipowner and/or master.

Ship's agents deal with local port authorities and must be aware of government regulations that apply during the vessel's visit. The agent performs whatever functions are required to operate and manage the vessel and assist the master of the vessel to comply with governmental regulations and charter party terms.

Charterers

The shipper or charterer has a volume of cargo to transport from one location to another or may be a liner company that needs an extra ship for a short period. The timing and the characteristics of the cargo will determine the type of shipping contract required.

Brokers and shipping centres

There are four types of brokers in the tramp industry:

- shipowners' brokers
- charterers' brokers
- tanker brokers (specializing in liquid bulk cargo and tankers)
- sale and purchase brokers (buying and selling ships and sometimes assisting in arranging financing of these sales).

A shipbroker can be an individual on his/her own or may be a company that employs several brokers. Brokers earn a commission based on a percentage of the charter rate.

Professional accreditation is usually not a requirement. However, there is a professional organization based in London which offers accreditation through a series of examinations. This recognizes the broker as an Associate or Fellow of the Institute of Chartered Shipbrokers (AICS or FICS).

Brokers' functions

The shipowner contacts the owner's broker about the need for a charter. It is this broker's job to find suitable cargo by negotiating with charterers' brokers. When the charterer's broker finds a suitable vessel available on the right dates, he contacts the owner's broker with details of the cargo and quantity, dates, loading and discharge ports, and the freight rate the shipper is willing to pay.

Services provided by shipbrokers include:

- negotiating charter parties
- providing contacts to clients
- giving advice to principals
- preparing final charter party documents.

Brokers acting as port agents

Shipbrokers sometimes provide the service of port agency to their ship-owning clients. Port agents attend to owner's and ship's business of husbandry, port services, and assisting the master with operational aspects of cargo loading or discharge. As agents, they earn a commission.

Shipping centres

To carry out their function effectively, shippers' and shipowners' brokers need an extensive network of contacts. For this reason, there is an advantage in operating from an established shipping centre, though much is now arranged by Electronic Data Interchange (EDI).

The largest centre for brokerage activity is the Baltic Exchange in London. Membership (and rights to trade there) is by election. Members must hold the FICS designation. There are also important centres in New York, Tokyo, Hong Kong, Oslo, and Hamburg.

Freight charges and fixtures

Tramp freight rates are not published as a tariff (as they are in liner shipping). Supply and demand regulates the tramp freight market.

- An owner's (seller's) market exists when the demand for vessels to carry cargo from an area exceeds the supply of ships available to carry the cargo. An owner can then demand a higher price.
- A charterer's (buyer's) market exists when there are many ships positioned in an area with few cargoes available for carriage. Charterers can then "shop around" for the lowest rates.

The rates at which charters are fixed depend on market conditions, and shipowners and charterers take an active interest in the current rates. Freight fixtures for tramp charters are recorded daily in a variety of shipping publications such as *Lloyd's List* and there are also other quarterly publications. There are dry-cargo market reports as well as tanker chartering reports. The data in them may be used to measure the trends in the world tramp market.

The dry-cargo market report

This report consists of a commentary on market conditions followed by a list of reported charters under the heading grain, ores, pumice, and time charters. Not all charters will be reported. The report usually starts with general comments, such as: *"The market saw a smattering of grain fixtures reported in an otherwise exceptionally quiet day"*.

In the fixture report, the details of the charter are generally summarized in a specific order. [The following examples are from *Lloyd's List*, July 1986.]

Voyage charter report

A report on a voyage charter might be as follows:

> *US Gulf to Algeria – Scan Venture, 18 000 t (5%), heavy grains/sorghum/soya beans, $12.50, 4 days/1,000 t, July 23 - 25 (André)*

This means that the vessel *Scan Venture* has been chartered to load cargo in the US Gulf and transport it to Algeria. The cargo consists of 18 000 tonnes of heavy grains, sorghum, and soya beans at a freight rate of $12.50 per tonne. Four days are allowed for loading and 1000 tonnes per day rate allowed for discharging. The vessel must present itself ready to load between July 23 and July 25. The charterers are Messrs. André.

Time charter report

The layout for time charters is slightly different—the ship details are given in brackets after its name. For example:

Captain Sarantis (34 800 DWT, Greek, built 1982, 13 knots on 25 t ifo) delivery passing Cape Passero westbound, July 25-29, transatlantic round voyage, redelivery Skaw Cape Passero range, $2700 per day. (Italmare)

In this case, the vessel carries 34 800 tonnes dwt., is Greek registered, built in 1982, with a fuel consumption of 25 tonnes of intermediate fuel oil (IFO) per day when travelling at 13 knots. The vessel is to be delivered to charterers for a time charter trip passing Cape Passero, the southern tip of Sicily, between July 25 and July 29. The vessel is to undertake a transatlantic round voyage at a charter rate of $2700 per day, and is to be redelivered to the owners on returning to Cape Passero. The charterers are Messrs. Italmare. Note that this time charter is for a single voyage, not a long period.

Tanker charter reports

Tanker charter reports follow a similar pattern to the dry cargo market, though the main division in the reported charters is between "clean" and "dirty". Clean charters refer to tankers carrying clean oil products, while dirty charters refer to tankers carrying crude oil and black products.

Worldscale

Tanker fixtures are generally published in *Worldscale.* This is an index based on the cost of operating a standard tanker on the route. For example: An item reported in the commentary is the fixing of a 262 000 tonnes dwt. VLCC, which had recently come out of a lay-up at a rate of Worldscale 33. This charter rate is 40 to 50% higher than the vessel would have obtained six months earlier, reflecting the improvement in the shipping market that had brought it out of lay-up.

The details reported for a tanker charter follow a similar pattern to dry cargo. For example:

Caribbean Sea to US Atlantic Coast - Rover, part cargo 27,000 t, Worldscale 130, July 29. (C. Itoh, New York)

This means that the motorship *Rover* has been fixed for a voyage charter from the Caribbean to the US Atlantic Coast. The cargo is 27 000 tonnes and is a part cargo, which means that the *Rover* must carry more than 27 000 tonnes. (Checking in Clarkson's Tanker Register, we see that *Rover* is a 1977-built product tanker capable of carrying 35 000 tonnes dwt.). The charter rate is Worldscale 130

and commences on July 29. The charterer is C. Itoh, the Japanese trading house.

Note that the charter rate for the small-products tanker is substantially higher than for the VLCC, which reflects the smaller cargo size and shorter voyage of the product fixture.

Tramp ship operation

A tramp ship owner may be an individual or a company. Tramp operations require a smaller staff than that of a liner company. The operations include:

- crewing
- purchasing
- engineering and technical operations
- insurance and claims
- chartering.

Crewing

This department arranges hiring and deployment of crewmembers. Tramp owners often contract this work out to crewing agencies who often obtain low-cost crews from less developed countries.

Other crewing matters include:

- training of officers and crew
- scheduling of work and holiday periods
- transportation of crew to and from the vessels
- remuneration and benefits.

Purchasing

Ships require numerous supplies including food for crew, fuel (*bunkers*), and spare parts. Purchasing departments arrange contracts with ships' chandlers and suppliers as necessary. They may also arrange warehousing of spare parts in strategic locations to minimize ship downtime.

Engineering and technical operations

This department oversees maintenance programs and dry-docking for company vessels. It is normally headed by an engineering superintendent. In the event of a major ship breakdown, the

engineering superintendent will be dispatched to the ship to coordinate and supervise the repairs.

Tramp shipowners invest money in vessel maintenance programs to comply with flag and classification requirements. This also maintains and promotes their reputations as being capable and efficient carriers.

Insurance and claims department

This department does the following:

- arrangements for insurance for vessel–hull insurance and protection and indemnity (P&I) insurance
- dealing with claims against ship and owner

Chartering

This department does the following:

- chartering operations
- engagement of brokers
- appointment of port agents.

Controlling tramp ship routes and schedules

Tramp ships travel from one country to another depending on the requirements of the merchants and markets. For example:

> *A shipper in Brazil has a large quantity of ore to be shipped to Hamburg. Not owning vessels himself, he applies to a shipping company, which directs one of its vessels to the Brazilian ports. The ore is loaded and carried to Hamburg to discharge. In the meantime, owing to its extensive commercial relations, the shipping company has been charged to ship a lot of fertilizer from Rotterdam to Australia. The vessel sails to Rotterdam to load the fertilizer and carries it to Australia. Maybe, cargo for Hong Kong is waiting for her in the Australian port, and there may be further cargoes from Hong Kong for Yokohama, and so on.*

No particular schedule controls the sailing of a tramp ship; however, on each voyage, cargoes must be picked up and delivered within a particular timeframe at particular ports. Specialist bulk trades require precise timetables during each voyage, using ships with a

high cargo capacity and fast cargo handling. This requires close co-operation between the shipper and the shipowner.

BIMCO

Tramp shipping has its own organization–*The Baltic and International Maritime Conference* (BIMCO) with membership open to owners and brokers. The organization does not set freight charges (which are market-driven). It supplies general information to its members concerning such things as congestion and ice-movement. It also gives legal advice, and members can use BIMCO charter forms to avoid legally doubtful clauses.

Activities

1. Find out whether any shipper's or shipowner's brokers work at the port nearest to you. If so, try to talk to one about how they do their business. Ask them to show you a typical charter party. If not talk to a ship's agent and ask them about their dealings with brokers or the terms of charter parties.
2. If a tramp ship is in the nearest port currently, try to find out who the shipowner and shippers are. Talk to the ship's agent if you can, and find out as much as you can about the charter parties for this vessel's most recent leg and next legs of its voyage.

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. What is the name of the contract between a tramp shipowner and a shipper?
   a. charter party
   b. contract of carriage
   c. contract of affreightment
   d. all of the above

2. Whose job is it to find suitable cargo for tramp ship?
   a. shipowner's broker
   b. charterer's broker
   c. ship's agent
   d. all of the above

3. What is the Baltic Exchange?
   a. an organization representing tramp shipowners
   b. The Baltic and International Maritime Conference
   c. a clearing house where brokers work
   d. a large consortium operating tramp ship fleets

4. Cargo-liner companies never use tramp ships. True or false?
   a. true
   b. false

5. Ship's agents do not become involved with the terms of the charter party because they are administered entirely by the brokers. True or false?
   a. true
   b. false

Lesson 2..... Types of charters

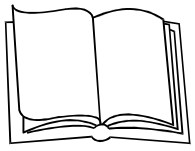
There are two broad categories of charter:

- *demise* or *bare-boat* charters in which the charterer provides the cargo and the crew, taking full responsibility for the operation of the vessel. These charters are for a period of time from a few weeks to several years.
- *non-demise* charters in which the shipowner provides the vessel and the crew. The charterer supplies only the cargo. These may be *voyage charters* (carrying specific cargoes between specific ports for a pre-arranged freight). Or they may be *time charters* for a stated period or voyage for pre-arranged *hire money*.

Voyage charters include the following variations:

- gross terms (owner pays all loading, unloading, and port charges)
- free in and out (f.i.o.) charter (charterer pays for loading and unloading)
- lump sum charter (owner guarantees a certain volume of cargo space–this is good for mixed cargo)
- liner terms (charterer pays loading, stowing, and unloading costs)
- berth terms (shipowner pays loading and unloading costs; lay time is indefinite).

The charter party contains all details of the vessel, cargo-handling equipment, voyage, time involved, and cargo.



Read *Elements of Shipping*
Chapter 15, pages 332–335.

Voyage charters

With a voyage charter the freight is agreed upon at a certain amount per ton of cargo or at a fixed amount. The freight level depends on supply and demand. Usually, except for the freight charges, all costs are paid by the shipowner. No charges are for the charterer's

account, unless otherwise agreed upon in the charter-party (for example loading and discharging expenses).

Demurrage and dispatch money

The freight agreed upon includes a fixed number of loading and discharging days. This is called *lay time.* If the charterer needs more days for loading or discharging, he will have to pay an additional amount called *demurrage*. If fewer days are required, the shipowner as a rule reimburses the charterer an amount called *dispatch money*. The rates for demurrage and dispatch are given in dollars per day in the charter party. If the voyage is not completed within the terms of charter party, then there will be a claim.

Time charters

In a time charter the shipowner charters the ship to the charterer at an agreed fee per day, per month, or per year.

- In a *time charter trip*, the vessel is hired for one particular voyage.
- In a *period time charter*, the ship is hired for a period during which it may travel anywhere.

The charter party clauses for a time charter are rather different from those for voyage charters although a number of clauses are common to both types. The charter party usually sets out certain conditions under which the charterer is entitled to terminate the arrangement. For example, if the owner fails to run the ship efficiently.

Hire

Hire is usually charged per tonne deadweight per calendar month. This rate depends on the market. During the time charter, the shipowner continues to pay the operating costs of the vessel (crew, maintenance and repair, stores, lubricants, insurance and administration). The shipowner has a clear basis for preparing the ship budget as he knows the ship operating costs from experience and is in receipt of a fixed daily or monthly charter rate

Charterer's costs

In a time charter, the charterer directs the commercial operations of the vessel and pays all voyage expenses and cargo handling costs. The owner must provide a warranty regarding the vessel's performance in terms of speed and fuel consumption. The term of hire will be adjusted if these margins are not met. The charter also

sets out the conditions under which the vessel is regarded as "off hire", when the charterer is not required to pay for the vessel. This may arise, for instance, owing to emergency repairs.

Trading limits

When fixing a vessel on time charter, the shipowner should consider the *trading limits* (the areas where the vessel will be trading). Many charters stipulate that the vessel shall trade within *Institute Warranty Limits*. These are the districts considered safe by the insurance authorities. If the vessel goes beyond these limits the question of who is to pay the extra insurance must be decided.

Effects of certain trades

The owner must also consider what trade his vessel is to be employed in. For example, regular employment in the ore trade is likely to cause heavy wear and tear on the vessel. Also, loading and discharging of ore is usually very quick and the vessel has little time in port in which to carry out maintenance.

Advantages and disadvantages of time charters

The advantages to the shipowner are:

- a regular income and minimum of risk
- no worries about the day-to-day trading of the vessel
- protection against a decline in freight rates.

The disadvantages to the shipowner are:

- loss of control of the vessel
- inability to take advantage of rising freight market
- vessel may not be in convenient locations to perform maintenance work during a long-term charter.

The advantages to the charterer are:

- the benefits of freight rises
- ability to trade the vessel almost as if it were his own;
- the longer the period of hire, the cheaper the rate at which he can assure tonnage.

The disadvantages to the charterer are:

- commitment to the payment of hire
- if trade diminishes, there may be a loss

Bareboat (demise) charters

Under this arrangements the shipowner purchases the vessel but hands it over to the charterer who manages the vessel. The owner is not active in the operation of the vessel and does not require any specific maritime skills. Sometimes the chief engineer acts as the shipowner's representative, providing experience of the vessel.

In a bareboat charter the shipowner pays only the depreciation and the insurance premium unless it has otherwise been agreed upon in the charter party. All other charges for the vessel's operation are for the charterer's account.

Activities

Imagine you are to be the owner of two tramp vessels operating chiefly in the Caribbean region.

1. Decide which types of vessels you would choose and explain why they would be a wise choice for the region and for your business. Include a discussion of the cargoes you would probably carry most of the time.
2. Decide which types of charters you would choose to operate under most of the time and explain why.

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. What is a demise charter?
   a. The shipowner provides the vessel and the crew.
   b. The shipowner provides the vessel but the charterer provides the cargo.
   c. The shipowner provides the vessel and the charterer provides the crew.
   d. The vessel is hired for a particular voyage.

2. What are liner terms?
   a. Charterer pays loading, stowing, and unloading costs.
   b. Shipowner pays loading and unloading costs.
   c. Charterer pays loading and unloading costs.
   d. Shipowner pays all loading and unloading costs, and port charges.

3. In a voyage charter, how can you ensure that some of the charges are paid by the charterer rather than the shipowner?
   a. In a voyage charter, most costs are already borne by the charterer. Nothing special need be done.
   b. By making sure that lay days are not exceeded.
   c. By reimbursement of demurrage.
   d. By agreement in the charter party.

4. In a time charter, the charterer pays all voyage expenses. True or false?
   a. true
   b. false

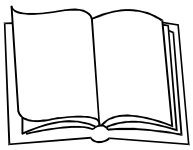
5. List the three advantages of time charters for shipowners.
   a. _____
   b. _____
   c. _____

Lesson 3 .....The charter party

If negotiations are successful, arrangements to carry the cargo are formalized in the *contract of carriage* or *contract of affreightment*. In tramp shipping, these are more often called a *charter party* (C/P). The term "party" comes from the old French term *parti*, meaning torn. The charter would be torn to give each signer a copy. Matching the shapes of the tear subsequently proved that the documents were the originals.

The terms of a charter are written out in the C/P. To avoid disputes over these terms, it is usual to specify the standard document to be used when the order is quoted. This is very important in a market where freight rates can change substantially over a short period and one of the contracting parties may look for a legal loophole.

Because there are so many variants, there is no definitive list of charter party clauses. However, the BIMCO *Gencon* charter party is a good example of the six major components.



Study the copy of a BIMCO *Gencon* charter party included in your Reader.

Details of the ship and the contracting parties.

The C/P specifies:

- names of the shipowner, charterer, and broker(s)
- details of the ship, including its name, size, and cargo capacity
- the ship's position
- the brokerage fee, stating who is to pay.

Details of the cargo and shipper

The C/P specifies:

- description of cargo to be carried, drawing attention to any special features
- name and address of the shipper, so that the shipowner knows whom to contact when he arrives at the port to load cargo.

Terms of carriage

The C/P specifies the terms on which the cargo is to be carried. This important part of the voyage charter party defines the commitments of the shipper and shipowner under the contract.

This covers:

- the dates on which the vessel will be available for loading
- the loading port or area
- the discharging port and details of multiport discharge where appropriate
- lay time (time allowed for loading and discharge of cargo)
- demurrage rate per day in US dollars
- payment of loading and discharge expenses.

Terms of payment

The terms of payment are important because very large sums of money are involved. The C/P specifies:

- the freight to be paid
- the timing of payments—payment may be made in advance, on discharge of cargo, or as instalments during the tenure of the contract
- currency and other details of the payment method.

Penalties for non-performance.

The notes in Part II of the charter party contain clauses setting out the terms on which penalties will be payable, in the event of either party failing to discharge its responsibilities.

Administrative clauses

These clauses cover other matters that may give rise to difficulties if not clarified in advance. These include such things as:

- appointment of agents and stevedores
- bills of lading
- provisions for dealing with unusual occurrences such as strikes, wars, ice, hurricanes, etc.

Special clauses for time charters

Time charter parties follow the same general principles as voyage charter parties. However, they may exclude the items dealing with the cargo and include items that specify the ship's expected performance. This includes:

- fuel consumption and speed.
- quantity and prices of bunkers on delivery and redelivery
- equipment.

Definitions of charter party terms

All purpose days — Days allowed for both loading and discharge

Always safely afloat — The vessel is to be berthed at a place that it can reach when loaded, and where it will at no time rest upon the bottom of the river or dock.

Bareboat or demise charter — The owner of the ship contracts (for a fee, usually long-term) to another party for its operation. The ship is then operated by the second party as if he or she owned it.

Berth terms or liner terms — If a vessel is chartered on berth terms or liner terms, this means that loading and discharge is to take place in the same way as in the liner trade. The loading and discharging expenses within board are for the carrier's account.

Cancelling date — The date on which the vessel must be ready to load at the latest, in default of which the charterer is entitled to cancel the charter.

Charterer — Individual or company who hires a ship.

Charter party (C/P) — Contract setting out the terms on which the shipper contracts for the transportation of cargo or the charterer contracts for the hire of a ship.

Cost, insurance, and freight (CIF) — The purchase price of the goods (by importer) including payment of insurance and freight, which are arranged by the exporter.

Contract of affreightment (COA) — Shipowner undertakes to carry quantities of a

specific cargo on a particular route or routes over a given period of time using ships of the shipowner's choice.

Deadfreight — The freight charged for space reserved but not used (the charterer fails to ship the whole quantity of cargo for which the charter-party has been drawn up).

Demurrage — Liquidated damages (compensation) payable to the shipowner for delay (for which he is not responsible) in loading and/or discharging beyond the lay time.

Dispatch money — Money that the owner agrees to repay if the ship is loaded or discharged in less than the lay time allowed in the charter party (customarily half of the demurrage).

Free discharge — All costs of discharging are for the consignee's account. [It's "free" for the shipowner.]

Free in and out (f.i.o.)
The cost of loading is for the shipper's account and the cost of discharging is similarly, for the consignee's account. This is the opposite of "gross terms" which means the shipowner pays.

Free in and... (condition)
The cost of loading is for the shipper's account, the attached condition specifying more precisely at what point the shipper's responsibilities end, and the consignee's begin. For example, free in and stowed; free in and stowed and trimmed.

Free on... (transport) ... (named place)
Specification of at what point the shipper's responsibilities end and the consignee's begin. For example, "free on truck (f.o.t.) Kingston", would mean the shipper pays all costs up until the cargo is loaded on the consignee's truck in Kingston. Other examples are free on wagon (f.o.w.), free alongside (f.a.s.), and free on board (f.o.b.). It is important that the place be named.

Geographic rotation
When a vessel has to load or to discharge in different ports in a certain range, the ports to be called at are in geographical order of succession, from north to south (or vice versa) or from east

	to west (or vice versa) to avoid unnecessary deviations in the voyage.
Gross terms (or gross charter)	The costs of loading, stowing, and discharging are for account of the vessel. (The term "gross charter" is American.) As a rule voyage charters come under this category. The opposite is "free in and out".
Lay time (lay days)	The period of time agreed between the parties in a voyage charter for loading and discharging the cargo. This may be expressed as a number of days or as specific dates.
Notice of readiness	The notice of readiness is a notice from or on behalf of the ship's master to the charterer or his agent that the vessel is ready.
Off hire	In a time charter, off hire means that the hire can be adjusted for a certain period when the vessel has not been ready for use. This may happen in case of engine breakdown, insufficient crew, etc.
Period time charter	Shipowner earns daily hire for a specified period, paid monthly or semi-monthly in advance. The shipowner retains possession and mans and operates the ship under instruction from the charterer. The charterer pays voyage costs.
Reversible lay days	If the lay days allowed for loading and discharge are not equally divided, under the reversible lay days clause, the time gained or lost at the loading can be compensated in discharge (and vice versa). Therefore, settlement of demurrage or dispatch money can take place only after completion of loading and discharge.
Shipper	Individual or company with cargo to transport by sea.
Shipowner	Individual or company with a ship for hire.
Time charters	The vessel is hired for a specified period of time for payment of a daily, monthly or annual fee.

Time charter trip	Shipowner earns hire per day for the period determined by a specified voyage for the carriage of a specific cargo.
Voyage charter	Ship earns freight per ton of cargo transported on terms set out in the charter party which specifies the precise nature and volume of cargo, the ports of loading and discharge and the lay time and demurrage. All costs paid by the shipowner.
Voyage costs	Costs of fuel consumption for the main engine and auxiliary engines (depends on fuel prices and speed), port charges, canal dues, tugs, etc.

Activities

1. If you have access to a tramp shipper or a charterer try to look at a copy of an agreed charter party. Note what the terms and conditions are.
2. Use the BIMCO charter party form in your reader to document a chartering agreement for one of the tramp ships in your imaginary tramp shipping company. Pay particular attention to the terms of carriage.

Practice Exercise for Lesson 3

Test your understanding of Lesson 3 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. List at least four of the issues that are covered in the terms of carriage in a charter party.

   a. _____

   b. _____

   c. _____

   d. _____

2. Where are the penalties for non-performance according to the contract set out?

   _____

3. What are three arrangements for the timing of payments that may be specified in the C/P?

   a. _____

   b. _____

   c. _____

4. Details of the cargo need not be specified in the charter party for a voyage charter. True or false?

   a. true
   b. false

5. Name three items that might be in a special clause in a charter party for a time charter.

   a. _____

   b. _____

   c. _____

Answer keys

Lesson 1

1. d. all of the above
2. a. shipowner's broker
3. c. a clearing house where brokers work
4. b. false
5. b. false.

Lesson 2

1. c. The shipowner provides the vessel and the charterer provides the crew
2. a. Charterer pays loading, stowing, and unloading costs
3. d. By agreement in the charter party
4. a. true
5. – regular income and minimum risk
   – no worries about day-to-day trading
   – protection against a decline in freight rates.

Lesson 3

1. Any four of the following:
   – the dates on which the vessel will be available for loading
   – the loading port or area
   – the discharging port and details of multiport discharge where appropriate
   – lay time (time allowed for loading and discharge of cargo)
   – demurrage rate per day in US dollars;
   – payment of loading and discharge expenses
2. They are set out in the notes in Part II of the charter party.

3. – in advance
   – on discharge of cargo
   – as instalments during the tenure of the contract

4. b. false

5. – fuel consumption and speed
   – quantity and prices of bunkers on delivery and redelivery
   – equipment.

Distance Education Course SB–101.3
Commercial Shipping

Unit 3 Lay time

In commercial shipping, it is important to meet agreed deadlines. Timeliness affects both the ship owner and the charterer, resulting in profits and rewards. Failure to meet deadlines can result in breach of contract, losses, and penalties. In addition to voyage time, a significant factor in meeting the timelines of a shipping contract is the time taken to load and discharge cargo. The time in port to do this is called *lay time*. The specification and calculation of lay time is crucial in commercial shipping.

The lessons in this unit will cover the topics of:

- the factors involved in specifying lay time
- methods used to calculate lay time.

Unit 3 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

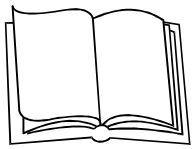
Learning outcomes

When you have completed this unit you will be able to:

- Describe what lay time is and what it is used for.
- Identify the factors including charter party terms that affect lay time for loading and discharge of cargo.
- Describe the use of the *statement of facts* and timesheet in keeping track of lay time allowed and used for loading and discharge.

Lesson 1..... Overview of lay time

Lay time is the time taken in port to load and unload a vessel. It is also called *lay days*. If the cargo takes longer than the allowed time to load or discharge, the shipper or charterer must pay a penalty to the ship owner to compensate for delaying the ship. The penalty is called *demurrage* and is usually specified in the charter party. When the cargo is loaded faster than the allowed lay time, that is to the advantage of the ship owner, who must then pay *dispatch* (or *despatch*) *money*. This is deductible from the shipper or charterer's payables. The rate is specified in the C/P and is usually half the demurrage rate.



Read *Sea-Trading*
Volume 3, pages 127–128.

Definitions of lay time

Lay time may be expressed in several ways:

- by a number days or hours allowed for loading or unloading the vessel (for example, cargo to be loaded within 5 weather working days of 24 consecutive hours)
- by a specific date range within which the vessel must be ready for loading or unloading (for example: if a vessel is chartered with “lay days 10/28 June”, this implies that the charterer is not obliged to start loading before June 10 and that June 28 is the last date on which the vessel must be ready for loading. This last date is called the *cancelling date*
- indefinitely (for example, by custom of the port (COP), using customary dispatch (CD), or as fast as you can (FAC)
- by calculation using a variety of factors in the C/P clauses.

There are defined ways of judging when to start calculating lay time as well as ways of calculating its duration. These are usually expressed in the charter party.

Reversible lay days

Under the *reversible lay days* clause of a charter party, the times allowed for loading and unloading are not necessarily equal. Any

time gained or lost at the loading can be compensated in discharge time and vice versa. Therefore, settlement of demurrage or dispatch money can take place only after completion of loading and discharge.

All purpose lay days

If the lay days clause designates a number of days as *all-purpose*, this refers to time allowed for both loading and discharge.

Custom of the port (COP)

It is sometimes stipulated in charter-parties that the loading and discharging time will be calculated in accordance with the *custom of the port*. This means that cargo is to be loaded or unloaded according to local practices and customs. No specific rate of cargo handling is in the agreement. Such a clause can give rise to all sorts of disputes and is usually avoided if possible.

If the clause is accepted in a charter party, the principals should be sure that it meets the following requirements:

- the custom of the port must be generally known
- it must be certain
- it must be reasonable
- it may not be contrary to law.

Commencement of lay time

The commencement of lay time is triggered by:

- arrival of the ship
- readiness to load or discharge
- tendering of a valid *notice of readiness* (NOR)

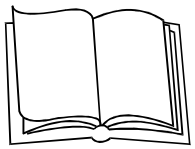
Arrival

If the C/P specifies a precise location within the port, such as a particular loading berth, this is simple. However, if only the port is specified, the area is larger, and there may be disagreement about what is “arrival”. Some C/P clauses are intended to trigger the running of lay time even when the ship is not at its loading place, such as “whether in berth or not”. There are berth, dock, and port C/Ps.

Arrival may be delayed by such things as ice, blockades, or strikes. If it is not reasonably possible for the ship to get safely to the specified place, there may be a clause in the C/P giving alternate destinations.

Readiness and NOR

The ship must be ready to load. This means readiness in both the legal and the physical sense. A *notice of readiness* (NOR) must be issued on behalf of the owner to the charterer. This notice implies that the vessel has arrived at the specified destination with all required documentation in order, and is ready to load or discharge.



Study the typical *notice of readiness* included in your Student Reader.

After tendering of the NOR, lay time commences in accordance with C/P specifications. For example, the C/P may specify that "lay time shall commence six hours after NOR". In some C/P forms, the NOR may not be tendered outside of normal working hours, which in effect can delay commencement of running time.

Delays to commencement

Circumstances that may delay commencement of lay time include:

- **free pratique not granted—**when a vessel enters a port, before it can be entered in by Customs, a m*aritime declaration of health* must be submitted and health clearance granted. It is then said that *free pratique* is granted. If it is not, delays in commencement of lay time may occur
- **failed hold inspections—**holds are inspected for some cargoes such as grain. Certificates of fitness are issued by port wardens for seaworthiness and agricultural authorities for cleanliness
- **customs not cleared—**customs documentation must be in order before the ship can load or unload cargo
- **port turn around time and lack of berths—**if turn-around time in port is not good, no berth may be available. Unless there is a clause in the C/P, this may delay the running of lay time
- **strikes—**delay caused by strikes at the port are a risk to the charterer unless there is a protective clause in the C/P. Some clauses allow for cancellation of the C/P in the event of strikes.

Duration of lay time

Once lay time has begun it runs continuously against the charterers unless custom or express words in the C/P provide to the contrary. This is so even where the delays have been caused by circumstances beyond their control, such as bad weather, congestion, strikes, or shortage of cargo, provided that the ship owners were not responsible for any of those circumstances.

Interruptions to lay time

A number of common C/P clauses specify whether or not certain conditions or happenings will affect the calculation of lay time.

Shifting in port

Time spent shifting between berths or between berth and anchorage in port counts as lay time unless the C/P says it does not. This is so even if the shifting is ordered by the port authority rather than the charterer.

Weekends and holidays

The test of what is a holiday is whether the day in question is customarily regarded as a holiday at the port in question. The fact that work is sometimes done on that day is not a factor. Several abbreviations are used in this regard:

SHEX	Sundays and holidays do not count as lay time
SHINC	Sundays and holidays do count as lay time
SHEX unless used	Sundays and holidays do not count unless they are used for cargo operations
FHEX	Fridays and holidays do not count (used in countries where Friday is an observed religious holiday).

Strikes

Strikes are a risk that can interrupt lay time unless a C/P clause explicitly protects the charterer.

Bad weather

Unless there is a protection clause, bad weather does not interrupt the counting of lay time. The extent to which a suspension is allowed due to bad weather depends on the wording of the clause about *working time*. There are two main types of clauses:

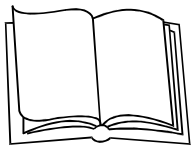
- **weather working**–lay time is not counted during weather bad enough to suspend cargo operations. Note that this may be in effect even though cargo operations are stopped for some other reason
- **weather permitting**–lay time is suspended *only* when cargo operations are suspended due to bad weather.

Statement of facts (SOF)

The *statement of facts* (SOF) is a summary of events at the loading or discharging port. It is signed by (or on behalf of) the ship owner and the charterer. It includes any information that is relevant to the calculation of lay time. This includes

- vessel readiness to load or discharge
- time and date of tendering of the *notice of readiness*
- start and finish of cargo operations
- details of interruptions of cargo operations.

Where there is disagreement over the contents of the SOF, it may be signed "under protest" to indicate that it may be challenged later on.



Study the typical statement of fact (long form) included in your Student Reader.

Examples of SOFs

Suppose that a vessel carrying ore from India to the Northern Range has a timesheet based on reversible lay days. The SOF for Bombay and Baltimore might contain the information shown in Table 3–1 and Table 3–2. They will, of course, also have information about the agents, documentation, and the C/P.

Statement of Facts

m /s Bombay to Baltimore
Cargo: 11 350 tonnes of Iron ore

	Day	Date	Time
Vessel arrived Bombay (roads)	Wednesday	Jan 4	1730
Vessel berthed at Bombay	Saturday	Jan 7	1615
Notice of readiness tendered	Monday	Jan 9	0900
Notice of readiness accepted	Monday	Jan 9	0900
Time commenced to count from	Tuesday	Jan 10	0700
Commenced loading	Saturday	Jan 7	1745
Completed loading	Thursday	Jan 12	1900

Time allowed for loading at the rate of 1000 tonnes per weather working day as per C/P: 11 days 8 hours 24 minutes.

Lay days to be reversible

Table 3–1: Statement of facts loading in Bombay

Statement of Facts

m /s Bombay to Baltimore
Cargo: 11 245 tonnes of Iron ore (delivered weight)

	Day	Date	Time
Vessel arrived at Baltimore	Sunday	Feb 12	1430
Vessel berthed at Baltimore	Sunday	Feb 12	1730
Notice of readiness tendered	Tuesday	Feb 14	0900
Notice of readiness accepted	Tuesday	Feb 14	0900
Time commenced to count from	Wednesday	Feb 15	0800
Commenced discharging	Tuesday	Feb 14	0800
Completed discharging	Friday	Feb 17	2130

Time allowed for discharging at the rate of 1000 tonnes per weather working day as per C/P: 11 days 5 hours 53 minutes.

Time saved at Bombay 8 days 20 hours 24 minutes (see timesheet)

Extra time required a/c stowed in difficult place 0 days 4 hours 0 minutes

Time available for discharge 20 days 6 hours 17 minutes

Holidays:

Lincoln's birthday Monday February 13: Notice of Readiness could not be tendered before Tuesday February 14 at 9 am

Washington's birthday Wednesday February 22.

Table 3–2: Statement of facts discharging in Baltimore

Lay days and hours

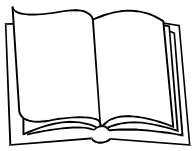
For the purposes of calculating lay time, the term "day" refers to the number of normal and overtime working hours in a 24-hour period. Where a ship is worked around the clock, a working day is 24 hours. But if only 12 hours are officially worked every 24 hours, then a working day is 12 hours. Different ports have different arrangements for their work forces.

When specifying how long work should take, C/P clauses about lay time use several different measurements:

- days or lay days with no reference to 24 hours
- running days or consecutive days with no reference to 24 hours
- working days with no reference to 24 hours
- days of 24 hours
- any 24 consecutive hours
- weather working days with no reference to 24 hours
- colliery working days
- running hours.

A sample C/P clause about lay time might state: "at the average rate of 500 tonnes per hatch per weather working day".

Activity



Re-read the list of commercial shipping terms and their abbreviations in the first section of your Student Reader.

Pick out those terms in the list that are likely to be used in charter party clauses or other documents used for the calculation of lay time.

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. What is the purpose of calculating lay time?
   a. to calculate for how many days the workers are to be paid
   b. to calculate the time for which berth dues are payable
   c. to calculate demurrage or dispatch due
   d. to make sure specifications of the C/P are followed

2. Explain in one brief sentence what reversible lay days are.

   _____

   _____

3. As soon as a ship is berthed and physically ready to load, lay time commences. True or false?
   a. true
   b. false

4. When does stoppage due to rain interrupt the counting of lay time?
   a. always
   b. never
   c. when there is either a *weather working* or a *weather-permitting* clause in the C/P
   d. only when there is a *weather-permitting* clause in the C/P

5. What is the *statement of facts*?
   a. the agreement between owner and charterer about loading and discharging rates
   b. the notice that must be accepted to indicate that the ship is ready to load or discharge
   c. a document on which the owner and charterer state their differences about C/P interpretation
   d. a summary of what happened during loading and discharging

Lesson 2..... How lay time is calculated

The purpose of calculating lay time is to determine whether any demurrage or dispatch is due. The lay time calculation form is called the *lay time statement*. An example of this form is included in your Reader.

Calculating allowed lay time

Charter party clauses may specify how the lay time is to be calculated. For example, the C/P may specify loading at so many tonnes per day. The allowed lay time is calculated from the measured amount loaded or discharged using the rate agreed in the C/P. Usually the answer comes out with a decimal fraction of a day, which must then be converted, to hours and minutes.

Example 1: Time allowed in the *statement of facts* shown in Lesson 1 for loading at Bombay is calculated as follows:

Loading rate from the C/P is 1000 tonnes/day

Measured load = 11 350 tonnes

This takes $\frac{11350}{1000} = 11.35$ days

0.35 of 24 hours is 8.4 hours

0.4 of 60 minutes is 24 minutes

Therefore, allowed lay time is:
11 days 8 hours 24 minutes.

Example 2: Time allowed in the *statement of facts* shown in Lesson 1 for discharging at Baltimore is calculated as follows:

Measured discharged cargo = 11 245 tonnes

Rate of discharge (C/P) = 1000 tonnes/day

Allowed lay time = 11.245 days

0.245 of 24 hours is 5.88 hours

0.88 of 60 minutes is 53 minutes

Therefore, allowed lay time is:
11 days 5 hours 53 minutes

This is very straightforward, but the C/P may also specify *tonnes per hatch per day*, which is calculated as follows:

Example 3: Vessel required to discharge at a rate of 175 tonnes/hatch/day (assuming hatch loads are approximately equal).

Cargo load = 7000 tonnes

Number of hatches = 5

$$\text{Cargo load} = \frac{7000}{5} = 1400 \text{ tonnes / hatch}$$

$$\text{Lay days} = \frac{1400}{175} = 8 \text{ days}$$

Calculating prorated suspension periods

Hours lost due to poor weather are deducted directly from a 24-hour workday. Where the actual working day is *less* than 24 hours, the suspension period due to weather is pro-rated.

Example 1: If the working day is 12 hours, the time deducted from lay time is pro-rated by a factor of two (24/12). For example, if cargo handling is suspended due to rain for one hour:

Time deducted from lay time is

$$1 \times \frac{24}{12} = 2 \text{ hours}$$

Example 2: If the working day is 8 hours, the time deducted from lay time is pro-rated by a factor of three (24/8). For example, if cargo handling is suspended due to rain for five hours:

Time deducted from lay time is

$$5 \times \frac{24}{8} = 15 \text{ hours}$$

Lay time statements and timesheets

During the processes of loading and discharge, a detailed timesheet is filled in to keep track of all occurrences that affect the hours worked. Actual hours worked each day are recorded, together with any stoppages that suspend the counting of lay time under the charter party. This timesheet is used to calculate any demurrage or dispatch due.

When the operation is complete, a lay time statement is completed by the charterer summarizing the information and stating what payments are due to the charterer or owner.

A timesheet includes the date and hour of the following:

- arrival in the roads or in port
- arrival at the loading or discharging berth
- the ship being ready to commence loading or discharge, as evidenced by the notice of readiness
- notice of readiness tendered
- notice of readiness accepted by charterers, consignees, or their agents
- loading or discharge commenced
- loading or discharge was carried out
- commenced to count lay time according to C/P
- rate of loading or discharge according to the C/P
- days on which no work could be done including such things as Sundays and Holidays, strike, weather conditions (if weather working days have been agreed upon)
- when the loading and discharging operations were completed.

In addition, there is a statement of:

- the quantities loaded or discharged per day as well as the total quantity of cargo loaded or discharged;
- time allowed for loading or discharge according to C/P

The timesheets and lay time statement are signed by the master, charterers/consignees, or their agents. If it is impossible for the master and charterers/consignees to reach an agreement concerning the timesheet, the master can sign this document “under protest”, stating the points of controversy; or he can execute this document “subject to owner’s approval”, leaving it to the ship owner to re-open any controversial points.

Lay time statement sample 1

A charterer's lay time statement based on an eight-hour working day with stoppages due to rain and equipment malfunction might look as shown in Table 3–3:

Lay time statement 1

Lay time begins at 1300 hours, October 1.

Time allowed for loading : 5 days 3 hours 38 minutes based on an 8-hour day

Date	Day		Time not used	Lay time used
October 1	Monday	Lay time begins 1300		
	(1300 to 1700)	Rain stoppage	40 min	3 hr 20 min
October 2	Tuesday	Rain stoppage	15 min	7 hr 45 min
October 3	Wednesday	Winch and rain stoppage	1 hr 48 min	6 hr 12 min
October 4	Thursday	Winch and rain stoppage	38 min	7 hr 22 min
October 5	Friday	Winch stoppage	2 min	7 hr 58 min
October 6	Saturday			4 hr
October 7	Sunday	Time not counting		0 hr
October 8	Monday	Rain stoppage	15 min	
		Lay time expires 1616		7 hr 01 min
		Loading completed 1645		

October 8 from 1616 to 1645 = 29 min

Demurrage: 29 min @ $1000 per day or pro rata = $20.14

Table 3–3: Lay time statement, Sample 1

In this example, no work is done on Sunday, and only 4 hours on Saturday. From Monday to Friday, the 8-hour workday runs from 0800 to 1200 and from 1300 to 1700.

Starting at 1300 on October 1, allowing for the stoppages for the rain and winch, the specified lay time (43 hr 38 min, based on an 8-hour day) expires at 1616 on October 8.

Work had to continue for nearly half an hour after expiry to complete loading, so that demurrage was due.

$$\text{Calculation of demurrage} = \frac{\$1000 \times \frac{29}{60}}{24} = \$20.14$$

Note that if there were no weather clause in the C/P, then only the malfunction of equipment would cause suspension of the counting of lay time.

Lay time statement sample 2

A similar statement, based on a 24-hour working day with stoppages due to rain and equipment malfunction, is shown in Table 3–4:

Lay time statement 2

Lay time begins at 1100 hours, October 1.

Time allowed for loading : 5 days 10 hours 55 minutes based on a 24-hour day

Date	Day		Hours lost	Lay time used
October 1	Monday	Lay time begins 1300		
	(1100 to 2400)	Rain stoppage	40 min	12 hr 20 min
October 2	Tuesday	Rain stoppage	15 min	23 hr 45 min
October 3	Wednesday	Winch and rain stoppage	1 hr 48 min	22 hr 12 min
October 4	Thursday	Winch and rain stoppage	38 min	23 hr 22 min
October 5	Friday	Winch stoppage	2 min	23 hr 58 min
October 6	Saturday			12 hr
October 7	Sunday	Time not counting		0 hr
October 8	Monday	Lay time expires 1318		13 hr 18 min
		Loading completed 1645		

October 8 from 1318 to 1645 = 3 hr 27 min

Demurrage: 3 hr 27 min @ \$1000 per day or pro rata = \$143.75

Table 3–4: Lay time statement, Sample 2

In this example, no work is done on Sunday and only 12 hours on Saturday. From Monday to Friday, there is a 24-hour workday.

Starting at 1100 on October 1, allowing for the stoppages for the rain and winch, the specified lay time (130 hr 55 min, based on a 24-hour day) expires at 1318 on October 8.

Work had to continue for nearly three and a half hours after expiry to complete loading, so that demurrage was due.

$$\text{Calculation of demurrage} = \frac{\$1000 \times (3\frac{27}{60})}{24} = \$143.75$$

Activity

Decide on a type of ship, a voyage, and a cargo. Try to decide what conditions you would want specified or omitted in the charter party in order to maximize revenues and minimize costs during loading and discharge. Do this from the points of view of both the ship owner and the charterer (shipper).

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. If the measured amount of cargo to be discharged is 3480 tonnes and the rate of discharge is 800 tonnes per day, how much lay time is allowed for discharge?

2. If work is suspended due to rain for 3 hours 20 minutes during an eight-hour workday. How much time is deducted from lay time? (Assume the C/P specifies that rain stoppages are deductible from lay time.)

3. The C/P specifies that any demurrage is payable at $1500 per day; and dispatch is payable at half the demurrage rate. During discharge of a cargo, lay time was exceeded by 2 hours and 45 minutes.

   Is dispatch or demurrage due?

   _____

   How much?

   _____

4. If it took 4 hours and 15 minutes *less* than allowed lay time to load this same cargo,

   Is dispatch or demurrage due?

   _____

   How much?

   _____

Answer keys

Lesson 1

1. c. to calculate demurrage or dispatch due

2. Time lost or gained during loading may be compensated during discharge or vice versa.

3. b. false

4. c. when there is either a weather working or a weather permitting clause in the C/P

5. d a summary of what happened during loading and discharging.

Lesson 2

1. Allowed lay time:

$$\frac{3480}{800} = 4.35 \text{ days}$$

0.35 of 24 hours is 8.4 hours

0.4 of 60 minutes is 24 minutes

Therefore, allowed lay time is 4 days 8 hours 24 minutes

2. Three hours 20 minutes from the eight-hour workday is pro-rated over a 24 hour period, so that

Time deducted is $3\frac{20}{60} \times \frac{24}{8} = 3.33 \times 3 = 10 \text{hours}$

3. Lay time was exceeded by 2 hours 45 minutes

$$\text{Demurrage due} = \frac{\$1500 \times (2\frac{45}{60})}{24} = \$171.88$$

4. Time saved was 4 hours 15 minutes

$$\text{Dispatch payable} = \frac{\$750 \times (4\frac{15}{60})}{24} = \$132.81$$

Distance Education Course SB–101.3
Commercial Shipping

Unit 4 Lay time calculations

In Unit 3 you learned what factors are involved in the calculation of lay time and why lay time calculations are made. This unit uses some sample calculations to illustrate the process and to show the effects of various charter party specifications on the results.

The lessons in this unit will cover the topic of:

- sample calculations of lay time
- effects of various charter party clauses on lay time calculations.

Unit 4..... Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Calculate lay time for loading and discharge.
- Take account of various charter party specifications during lay time calculation.

Lesson 1 .....Sample lay time calculations

On the next few pages are some examples of timesheets used to record loading and discharge operations under different conditions for a vessel (the ss *Jenni*) fixed for a full cargo of 8636 tonnes (8500 long tons) of iron ore.

In each case, the conditions for the voyage are described on the lefthand page, and the timesheet and calculations are on the righthand page.

Sample 1

The charter party contains the following conditions for loading:

> *The cargo to be loaded at a rate of 1500 tonnes per weather working day, Sundays and holidays excepted. Time shall not count between 1 p.m. on Saturday and 7 a.m. on Monday, nor between 1 p.m. on the last working day preceding a legal holiday and 7 a.m. on the first working day thereafter. Time for loading shall commence to count 24 hours after written notice has been given by the master or agents on any day (Sundays and holidays excepted) between 9 a.m. and 5 p.m. to the charterers or their agents that the vessel is ready to receive cargo, whether in berth or not.*
>
> - *Demurrage $840.00 per day and pro-rated for part of a day.*
> - *Dispatch money $420.00 per day and pro-rated, for all time saved in loading.*

In this sample, we see how the timesheet looks if ss *Jenni* finishes loading on March 19, several days after the expiry of the agreed lay time. In this case, demurrage is due to the shipowners to compensate them for the delay. The amount to be paid by the charterers is calculated as shown in Table 4–1.

Note that unless the legal phrase "per like day" is included in the demurrage condition, once a vessel is on demurrage, Sundays and holidays count regardless of whether or not they are excepted in the loading rate condition.

Timesheet 1

ss *Jenni*: Timesheet port of loading	**Date**	**Time**
Arrived in port	March 5	1600
Ready to load	March 5	1640
Notice of readiness tendered and accepted	March 5	1640
Berthed	March 7	2300
Loading commenced	March 7	2330
Time commenced to count	March 6	1640
Loaded according to B/L 8636 tonnes		
Rate of loading: 1500 tonnes per weather working day SHEX		
Lay time allowed 5 days 18 hours 10 minutes		
Completed loading	March 19	0930
Completed trimming	March 19	1150

Date	**Day**		**Lay time allowed**	**Time delayed**
March 5, Tuesday		Arrived 1600; NOR given 1640		
March 6, Wednesday		Lay time begins 1640	0 day 07 hr 20 min	
March 7, Thursday		Berthed 1100 Started loading 1130	1 day	
March 8, Friday		Delay by rain 2 hr 10 min	0 day 21 hr 50 min	
March 9, Saturday		Time not counted after 1300	0 day 13 hr 00 min	
March 10, Sunday		Time not counted	–	
March 11, Monday		Time not counted before 0700	0 day 17 hr 00 min	
March 12, Tuesday			1 day	
March 13, Wednesday		Delay by rain 5 hr 30 min	0 day 18 hr 30 min	
March 14, Thursday		Time expired 1230	0 day 12 hr 30 min	0 day 11 hr 30 min
March 15, Friday				1 day
March 16, Saturday				1 day
March 17, Sunday				1 day
March 18, Monday				1 day
March 19, Tuesday		Loading & trimming completed 1150		0 day 11 hr 50 min
			5 days 18 hr 10 min	**4 days 23 hr 20 min**
Demurrage 4 days 23 hr 20 min @ 840.00 per day = $4176.67				

Table 4–1: Timesheet and lay time calculation for Sample 1

Sample 2

The charter party conditions for loading are identical to those for Sample 1, but in this sample, we see how the timesheet looks if ss *Jenni* finishes loading on March 9, several days before the expiry of the agreed lay time. In this case, dispatch money is payable by the shipowners to the charterers, as calculated in Table 4–2.

Timesheet 2

ss *Jenni*: Timesheet port of loading	**Date**	**Time**
Arrived in port	March 5	1600
Ready to load	March 5	1640
Notice of readiness tendered and accepted	March 5	1640
Berthed	March 7	2300
Loading commenced	March 7	2330
Time commenced to count	March 6	1640
Loaded according to B/L 8636 tonnes		
Rate of loading: 1500 tonnes per weather working day SHEX		
Lay time allowed 5 days 18 hours 10 minutes		
Completed loading	March 9	0930
Completed trimming	March 9	1150

Date **Day**		**Lay time allowed**	**Time saved**
March 5, Tuesday	Arrived 1600; NOR given 1640		
March 6, Wednesday	Lay time begins 1640	0 day 07 hr 20 min	
March 7, Thursday	Berthed 1100 Started loading 1130	1 day	
March 8, Friday	Delay by rain 2 hr 10 min	0 day 21 hr 50 min	
March 9, Saturday	Loading and trimming completed 1150		0 day 12 hr 10 min
	Time not counted after 1300	0 day 13 hr 00 min	
March 10, Sunday	Time not counted	–	1 day
March 11, Monday	Time not counted before 0700	0 day 17 hr 00 min	1 day
March 12, Tuesday		1 day	1 day
March 13, Wednesday		1 day	1 day
March 14, Thursday	Time expired 0700	0 day 07 hr	0 day 07 hr
		5 days 18 hr 10 min	**4 days 19 hr 10 min**
Dispatch 4 days 19 hr 10 min @ 420.00 per day = $2015.42			

Table 4–2: Timesheet and lay time calculation for Sample 2

Sample 3

Note that in Timesheets 1 and 2, the charter party states that the dispatch rate is *for all time saved in loading*. The calculation would change if the clause had said instead *for all working time saved in loading.*

Table 4–3 shows how Timesheet 2 would have looked had the charter party clause stated that dispatch is payable *for all working time saved in loading.*

Together, Timesheets 2 and 3 show how important it is to write charter party clauses carefully—a lot of money can be saved. The time for which dispatch money is due can sometimes exceed the time allowed for loading.

Timesheet 3

ss *Jenni*: Timesheet port of loading	**Date**	**Time**
Arrived in port	March 5	1600
Ready to load	March 5	1640
Notice of readiness tendered and accepted	March 5	1640
Berthed	March 7	2300
Loading commenced	March 7	2330
Time commenced to count	March 6	1640
Loaded according to B/L 8636 tonnes		
Rate of loading: 1500 tonnes per weather working day SHEX		
Lay time allowed 5 days 18 hours 10 minutes		
Completed loading	March 9	0930
Completed trimming	March 9	1150

Date **Day**		**Lay time allowed**	**Time saved**
March 5, Tuesday	Arrived 1600; NOR given 1640		
March 6, Wednesday	Lay time begins 1640	0 day 7 hr 20 min	
March 7, Thursday	Berthed 1100 Started loading 1130	1 day	
March 8, Friday	Delay by rain 2 hr 10 min	0 day 21 hr 50 min	
March 9, Saturday	Loading and trimming completed 1150 Time not counted after 1300	0 day 13 hr 00 min	0 day 01 hr 10 min
March 10, Sunday	Time not counted	–	–
March 11, Monday	Time not counted before 0700	0 day 17 hr 00 min	0 day 17 hr 00 min
March 12, Tuesday		1 day	1 day
March 13, Wednesday		1 day	1 day
March 14, Thursday	Time expired 0700	0 day 07 hr	0 day 07 hr
		5 days 18 hr 10 min	**3 days 01 hr 10 min**
Dispatch 3 days 01 hr 10 min @ 420.00 per day = $1280.42			

Table 4–3: Timesheet and lay time calculation for Sample 3

Sample 4

Sometimes, lay time is a little more complicated because of delays specified in the charter party, or because of holidays.

For Timesheet 4:

- *The charter party states that time commences to count 48 hours after the NOR is tendered and accepted.*
- *In the port of loading, the dates March 7, 11, and 14 are official holidays.*

In Table 4–4, notice that the time saved in loading is more than double the time allowed for loading. This demonstrates what can happen in practice if charter terms are unreasonable. The 48-hour delay after the NOR might have been saved by using the phrase "unless used" in the charter party clause.

Timesheet 4

ss *Jenni*: Timesheet port of loading	**Date**	**Time**
Arrived in port	March 5	1600
Ready to load	March 5	1640
Berthed	March 7	1100
Loading commenced	March 7	1130
Notice of readiness tendered and accepted	March 8	0900
Time commenced to count	March 12	0700
Loaded according to B/L 8636 tonnes		
Rate of loading: 1500 tonnes per weather working day SHEX		
Lay time allowed 5 days 18 hours 10 minutes		
Completed loading	March 9	0930
Completed trimming	March 9	1150

Date	**Day**		**Lay time allowed**	**Time saved**
March 5,	Tuesday	Arrived 1600		
March 6,	Wednesday			
March 7,	Thursday	Holiday. Berthed 1100 Started loading 1130	–	
March 8,	Friday	NOR given 0900	–	
March 9,	Saturday	Loading completed 1150	–	0 day 12 hr 10 min
March 10,	Sunday		–	1 day
March 11,	Monday	Holiday	–	1 day
March 12,	Tuesday	Time commenced 0700	0 day 17 hr 00 min	1 day
March 13,	Wednesday	Time not counted after 1300	0 day 13 hr 00 min	1 day
March 14,	Thursday	Holiday	–	1 day
March 15,	Friday	Time not counted before 0700	0 day 17 hr 00 min	1 day
March 16,	Saturday	Time not counted after 1300	0 day 13 hr 00 min	1 day
March 17,	Sunday	Time not counted	–	1 day
March 18,	Monday	Time not counted before 0700	0 day 17 hr 00 min	1 day
March 19,	Tuesday		1 day	1 day
March 20,	Wednesday		1 day	1 day
March 21,	Thursday	Time expired 1310	0 day 13 hr 10 min	0 day 13 hr 10 min
			5 days 18 hr 10 min	**12 days 01 hr 20 min**

Dispatch 12 days 01 hr 20 min @ 420.00 per day = $5063.33

Table 4–4: Timesheet and lay time calculation for Sample 4

Sample 5

These first four timesheets apply to the *loading* of ss *Jenni*. Suppose now that various conditions are applied to the *discharge* as agreed in the charter party:

For Timesheet 5, the charter party states:

- *Cargo to be discharged at the rate of 1000 tonnes per running day, Sundays and holidays included.*
- *Time commences to count when vessel is in berth and notice of readiness has been tendered and accepted during office hours from 0900–1700.*
- *If the discharging commences before the notice is accepted, time begins to count when discharging commences.*
- *Demurrage $840.00 per day and pro-rated for part of a day.*
- *Dispatch money $420.00 per day and pro-rated, for all time saved.*

See the timesheet and lay time calculation in Table 4–5.

Timesheet 5

ss *Jenni*: Timesheet port of discharge	**Date**	**Time**
Arrived in port	April 11	1800
Ready to discharge	April 11	1800
Berthed	April 11	2000
Discharge commenced	April 11	2030
Notice of readiness dated	April 11	2000
Notice of readiness tendered and accepted	April 12	0900
Time commenced to count	April 11	2030
Discharged 8636 tonnes out-turn weight		
Rate of discharge: 1000 tonnes per running day SHINC		
Lay time allowed 8 days 15 hours 15 minutes		
Completed discharge	April 22	1420

Date	**Day**	**Lay time allowed**	**Time delayed**
April 11, Thursday	Discharge commenced 2030	0 day 03 hr 30 min	
April 12, Friday		1 day	
April 13, Saturday		1 day	
April 14, Sunday		1 day	
April 15, Monday	Holiday	1 day	
April 16, Tuesday		1 day	
April 17, Wednesday		1 day	
April 18, Thursday		1 day	
April 19, Friday		1 day	
April 20, Saturday	Time expired 1145	0 day 11 hr 45 min	0 day 12 hr 15 min
April 21, Sunday		–	1 day
April 22, Monday	Discharge completed 1420	–	0 day 14 hr 20 min
		8 days 15 hr 15 min	**2 days 02 hr 35 min**
Demurrage = 2 days 02 hr 35 min @ 840.00 per day = $1770.42			

Table 4–5: Timesheet and lay time calculation for Sample 5

Sample 6

For Timesheet 6, the charter party is the same as for Sample 5, except that discharge is per weather working day, Sundays and holidays excepted, rather than per running day, Sundays and holidays included. See the timesheet and lay time calculation in Table 4–6.

Note that in Sample 6, the shipowners must pay the charterers dispatch money, rather than receive demurrage as in Sample 5.

Timesheet 6

ss *Jenni*: Timesheet port of discharge	**Date**	**Time**
Arrived in port	April 11	1800
Ready to discharge	April 11	1800
Berthed	April 11	2000
Discharge commenced	April 11	2030
Notice of readiness tendered and accepted	April 12	0900
Time commenced to count	April 12	0900
Discharged 8636 tonnes out-turn weight		
Rate of discharge: 1000 tonnes per weather working day SHEX		
Lay time allowed 8 days 15 hours 15 minutes		
Completed discharge	April 22	1420

Date	**Day**	**Lay time allowed**	**Time saved**
April 11, Thursday	Discharge commenced 2030		
		–	
April 12, Friday	Notice of readiness 0900	0 day 15 hr 00 min	
April 13, Saturday		1 day	
April 14, Sunday		–	
April 15, Monday	Holiday	–	
April 16, Tuesday		1 day	
April 17, Wednesday	Delay by rain 04 hr 30 min	0 day 19 hr 30 min	
April 18, Thursday		1 day	
April 19, Friday		1 day	
April 20, Saturday		1 day	
April 21, Sunday		–	
April 22, Monday	Discharge completed 1420	1 day	0 day 09 hr 40 min
April 23, Tuesday		1 day	1 day
April 24, Wednesday	Time expired 0445	0 day 04 hr 45 min	0 day 04 hr 45 min
		8 days 15 hr 15 min	**1 day 14 hr 25 min**
Dispatch = 1 day 14 hr 25 min @ 420.00 per day = $672.29			

Table 4–6: Timesheet and lay time calculation for Sample 6

Activity and Practice Exercise

The Activity and Practice Exercise for this lesson are combined with those for Lesson 2.

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Lesson 2..... More sample calculations

Sample 7—reversible lay days based on Timesheet 1

In Timesheet 7, we see what happens to Timesheet 6 if reversible lay days are allowed. This means that any time saved at loading can be deducted from discharge time (and vice versa).

Timesheet 1 is taken as the basic loading timesheet, but it first must be adjusted for Sundays and holidays. Remember that unless the phrase "per like day" is included in the demurrage condition, once a vessel is on demurrage, Sundays and holidays count regardless of whether or not they are excepted in the loading rate condition. If we want to use "days saved" during discharge to offset "days delayed" on loading, we have to recalculate the loading demurrage taking into account any Sunday and holiday exception conditions in the C/P.

Thus, time delayed between 1300 on March 16 and 0700 on March 18 (the weekend) must be deducted from the demurrage on Timesheet 1 as follows:

time delayed	4 days	23 hours 20 mins
less	1 day	18 hours
demurrage	3 days	05 hours 20 mins.

With reversible lay days, this amount may be deducted from the time allowed for discharge. That is:

time allowed	8 days	15 hours 15 mins
less demurrage	3 days	05 hours 20 mins
time for discharge	5 days	09 hours 55 mins.

Table 4–7 shows the timesheet and lay time calculation for Sample 7.

Timesheet 7

ss *Jenni*: Timesheet port of discharge	**Date**	**Time**
Arrived in port	April 11	1800
Ready to discharge	April 11	1800
Berthed	April 11	2000
Discharge commenced	April 11	2030
Notice of readiness tendered and accepted	April 12	0900
Time commenced to count	April 12	0900
Discharged 8636 tonnes out-turn weight		
Rate of discharge: 1000 tonnes per weather working day SHEX		
Lay time allowed 5 days 09 hours 55 minutes (including adjusted reversible lay time from Timesheet 1)		
Completed discharge	April 22	1420

Date	**Day**		**Lay time allowed**	**Time delayed**
April 11, Thursday		Discharge commenced 2030	–	
April 12, Friday		Notice of readiness 0900	0 day 15 hr 00 min	
April 13, Saturday			1 day	
April 14, Sunday			–	
April 15, Monday		Holiday	–	
April 16, Tuesday			1 day	
April 17, Wednesday		Delay by rain 04 hr 30 min	0 day 19 hr 30 min	
April 18, Thursday			1 day	
April 19, Friday		Time expired 2325	0 day 23 hr 25 min	0 day 00 hr 35 min
April 20, Saturday			–	1 day
April 21, Sunday			–	1 day
April 22, Monday		Discharge completed 1420	–	0 day 14 hr 20 min
			5 days 09 hr 55 min	**2 days 14 hr 55 min**
Demurrage = 2 days 14 hr 55 min @ 840.00 per day = $2202.08				

Table 4–7: Timesheet and lay time calculation for Sample 7 (reversible lay days)

Samples 8—reversible lay days based on Timesheet 2

Timesheet 8 looks at what happens to Timesheet 6 if reversible lay days are allowed, using Timesheet 2 as a basis for loading.

Just as we had to revise Table 1 for use in Table 7, so we have to revise Table 2 for use in Table 8. Sunday and holiday exceptions in the C/P have to be observed in calculating the allowable time saved during loading.

Thus, time saved between 1300 on March 19 and 0700 on March 11 (the weekend) must be deducted from the dispatch on Timesheet 2 as follows:

time saved	4 days	19 hours 10 mins
less	1 day	18 hours
dispatch	3 days	01 hours 10 mins.

With reversible lay days, this amount may be added to the time allowed for discharge. That is:

time allowed	8 days	15 hours 15 mins
plus time saved on loading	3 days	01 hours 10 mins
time for discharge	11 days	16 hours 25 mins.

Discharging is then as in Timesheet 8. Table 4–8 shows this timesheet and the associated lay time calculations.

Timesheet 8

ss *Jenni*: Timesheet port of discharge	**Date**	**Time**
Arrived in port	April 11	1800
Ready to discharge	April 11	1800
Berthed	April 11	2000
Discharge commenced	April 11	2030
Notice of readiness tendered and accepted	April 12	0900
Time commenced to count	April 12	0900
Discharged 8636 tonnes out-turn weight		
Rate of discharge: 1000 tonnes per weather working day		
Lay time allowed 11 days 16 hours 25 minutes (including adjusted reversible lay time from Timesheet 2)		
Completed discharge	April 22	1420

Date	**Day**	**Lay time allowed**	**Time saved**
April 11, Thursday	Discharge commenced 2030		
April 12, Friday	Notice of readiness 0900		
		0 day 15 hr 00 min	
April 13, Saturday		1 day	
April 14, Sunday		–	
April 15, Monday	Holiday	–	
April 16, Tuesday		1 day	
April 17, Wednesday	Delay by rain		
	04 hr 30 min	0 day 19 hr 30 min	
April 18, Thursday		1 day	
April 19, Friday		1 day	
April 20, Saturday		1 day	
April 21, Sunday		–	
April 22, Monday	Discharge completed 1420	1 day	0 day 9 hr 40 min
April 23, Tuesday		1 day	1 day
April 24, Wednesday		1 day	1 day
April 25, Thursday		1 day	1 day
April 26, Friday		1 day	1 day
April 27, Saturday	Time expired 0555	0 day 05 hr 55 min	0 day 05 hr 55 min
		11 days 16 hr 25 min	**4 days 15 hr 35 min**

Dispatch = 4 days 15 hr 35 min @ 420.00 per day = $1953.00

Table 4–8: Adjusting Timesheet 6 for reversible lay time calculations in Sample 3

Sample 9—multiple ports of discharge

All of the timesheets looked at so far have had a single port of discharge. Timesheet 9 looks at the situation where discharge takes place in two ports.

The ss *Jenni* has been fixed for a full cargo of grain under the following discharge conditions:

- *Rate of discharge is 2000 tonnes per working day, Sundays and holidays excepted.*
- *Time commences to count, at the first port of discharge only, 24 hours after the NOR is accepted during normal office hours whether in berth or not.*
- *Demurrage is $700.00 per day and pro-rated.*
- *Dispatch money is $350 per day and pro-rated for all time saved.*

Discharge is to be in Rotterdam and Hamburg.

Note that the quantities of grain discharged at each port has no bearing on the timesheet.

The timesheet and calculations for this situation are shown in Table 4–9.

Timesheet 9

ss *Jenni*: grain St. Lawrence to Rotterdam/Hamburg	**Date**	**Time**
Timesheet Rotterdam/Hamburg		
Arrived at Rotterdam	June 3	1010
In berth	June 3	1300
Notice of readiness tendered and accepted	June 3	1020
Discharge commenced at Rotterdam	June 3	1330
Time commenced to count	June 4	1020
Finished discharge at Rotterdam	June 6	0630
Sailed from Rotterdam	June 6	0800
Arrived Hamburg	June 8	0330
Ready to start discharge at Hamburg	June 8	0400
Start discharge at Hamburg	June 8	0800
Completed discharge at Hamburg	June 11	1100
Quantity discharged according to B/L 9000 tonnes		
Rate of discharge: 2000 tonnes per working day (SHEX)		
Lay time allowed 4 days 12 hours 00 minutes		

Date	**Day**		**Lay time allowed**	**Time saved**
June 3, Monday		NOR given 1020		
June 4, Tuesday		Lay time begins 1020	0 day 13 hr 40 min	
June 5, Wednesday			1 day	
June 6, Thursday		Completed discharge at Rotterdam 0630	0 day 06 hr 30 min	
June 7, Friday				
June 8, Saturday		Ready to discharge at Hamburg 0400	0 day 20 hr 00 min	
June 9, Sunday			–	
June 10, Monday			1 day	
June 11, Tuesday		Completed discharge at Hamburg 1100		0 day 08 hr 50 min
		Time expired at 1950	0 day 19 hr 50 min	
			4 days 12 hr 00 min	**0 days 08 hr 50 min**
Dispatch money 8 hr 50 min @ 350.00 per day = $128.82				

Table 4–9: Timesheet and lay time calculations for Sample 9 (multiple ports of discharge)

Activity and Practice Exercise for Lessons 1 and 2

This week the Activities and the Practice Exercises for Lessons 1 and 2 are combined. The best way to learn about calculating lay time is to try to do it. Use the information given in the following *charter party* requirements and *statement of facts* to construct a timesheet and calculate any dispatch money or demurrage due. Check your results in the answer key at the back of this unit.

M/v *Ocean Profit* Charter Party

Dated at Vancouver, Canada, June 13 1997

The cargo to be loaded, stowed and trimmed at the average rate of 4000 tonnes per working day, Sundays and holidays excepted.

The cargo to be discharged at the average rate of 5000 tonnes per working day, Saturdays, Sundays, and holidays excepted.

Notice of Readiness to be tendered in office hours and lay time will commence at 0800 on the next working day, whether in berth or not.

Demurrage shall be payable by the charterer for all time used in excess of allowed lay time at the rate of US$5000 per day or pro-rated.

Dispatch shall be payable by the owner at US$2500 per day or pro-rated of a day for lay time saved.

Activity 1 (working days)

Do lay time calculations for loading and for discharge based on this agreement and the statement of facts on the following two pages.

Activity 2 (weather working days)

Do lay time calculations for loading and for discharge based on this agreement and the statement of facts on the following two pages, but use *weather working days* at both loading and discharge.

Statement of Facts

M/v *Ocean Profit* at Vancouver, Canada
Charter Party dated Vancouver, Canada, June 13, 1997

Wednesday Aug 6, 1997	1030	Arrived and berthed at Vancouver
	1115	Notice of readiness tendered
	1300	Loading commenced with labour released from another operation
	1700	Shift change
	2100	Loading ceased for meal hour
	2130	Loading resumed
	2400	End of day, loading continuing
Thursday Aug 7, 1997	0000	Loading continuing
	0100	Loading ceased–end of shift
	0800	Loading resumed
	1200	Loading ceased for midday meal
	1300	Loading resumed
	1700	Shift change
	2100	Loading ceased for meal hour
	2130	Loading resumed
	2400	End of day, loading continuing
Friday Aug 8, 1997	0000	Loading continuing
	0100	Loading ceased–end of shift
	0800	Loading resumed
	1200	Loading ceased for midday meal
	1300	Loading resumed
	1700	Shift change
	2100	Loading ceased for meal hour
	2130	Loading resumed
	2400	End of day, loading continuing
Saturday Aug 9, 1997	0000	Loading continuing
	0100	Loading ceased–end of shift
	0800	Loading resumed
	1115	Loading ceased, awaiting railcars
	1545	Loading resumed
	1700	Shift change
	1730	Loading ceased to permit draft survey
	1800	Loading resumed
	1900	Loading ceased. All work completed. 16251 tonnes of Canadian Bright Yellow Sulphur on board as per draft survey.

Statement of Facts

M/v *Ocean Profit* at Sydney, Australia
Charter Party dated Vancouver, Canada, June 13, 1997

Tuesday Sep 2, 1997	1800	Vessel arrived and berthed at Balmain Bulk Berth
Wednesday Sep 3, 1997	0800	Notice of readiness tendered; discharging commenced
	1200	Discharging ceased for meal hour
	1300	Discharging resumed
	1700	Discharging ceased for meal hour
	1800	Discharging resumed
	1905	Discharging ceased due to rain
	1955	Discharging resumed
	2200	Discharging ceased for the day
Thursday Sep 4, 1997	0800	Discharging resumed
	0910	Discharging ceased–labour dispute
	1140	Discharging resumed–dispute settled
	1200	Discharging ceased for meal hour
	1300	Discharging resumed
	1700	Discharging ceased for meal hour
	1800	Discharging suspended–awaiting trucks
	1820	Rain shower
	1930	Rain ceased
	2030	Discharging resumed–trucks available
	2200	Discharging ceased for the day
Friday Sep 5, 1997	0800	Discharging resumed
	0945	Discharging ceased –awaiting trucks
	1300	Discharging resumed
	1320	Discharging ceased –labour dispute
	1450	Labour dispute settled–discharging resumed
	1625	Discharging ceased–no power on the ship's cranes
	1700	Discharging ceased for meal hour
	1800	Discharging resumed
	2200	Discharging ceased for the day
Saturday Sep 6, 1997	0800	Discharging resumed
	1200	Discharging ceased for meal hour
	1300	Discharging resumed
	1600	Discharging completed.
		Vessel proceeded to anchor to await orders.

LAY TIME STATEMENT 1 (working days)

M/V_____ **Loading/~~Discharging~~ at** _____

Charterers_____**C/P Dated**_____

Lay time allowed_____

Dispatch rate _____ **Demurrage rate**_____

DAY	DATE	Time worked		Remarks	Lay time allowed			Time saved or Time on demurrage		
		from	to		Days	Hrs	Mins	Days	Hrs	Mins
				Total lay time used						
				Dispatch/demurrage						

LAY TIME STATEMENT 2 (working days)

M/V_____ **~~Loading~~/Discharging at** _____

Charterers_____**C/P Dated**_____

Lay time allowed_____

Dispatch rate _____ **Demurrage rate**_____

DAY	DATE	**Time worked**		**Remarks**	**Lay time allowed**			**Time saved or Time on demurrage**		
		from	**to**		Days	Hrs	Mins	Days	Hrs	Mins
				Total lay time used						
				Dispatch/demurrage						

LAY TIME STATEMENT 3 (weather working days)

M/V_____ **Loading/~~Discharging~~ at** _____

Charterers_____**C/P Dated**_____

Lay time allowed_____

Dispatch rate _____ **Demurrage rate**_____

DAY	DATE	**Time worked**		**Remarks**	**Lay time allowed**			**Time saved or Time on demurrage**		
		from	**to**		Days	Hrs	Mins	Days	Hrs	Mins
				Total lay time used						
				Dispatch/demurrage						

LAY TIME STATEMENT 4 (weather working days)

M/V_____ **~~Loading~~/Discharging at** _____

Charterers_____**C/P Dated**_____

Lay time allowed_____

Dispatch rate _____ **Demurrage rate**_____

DAY	DATE	**Time worked**		**Remarks**	**Lay time allowed**			**Time saved or Time on demurrage**		
		from	**to**		Days	Hrs	Mins	Days	Hrs	Mins
				Total lay time used						
							Dispatch/demurrage			

Answer key

Lessons 1 and 2 Activity and Practice Exercise

Using the information given in the *charter party* requirements and the *statement of facts*, you may assume the following:

- Lay time starts counting:
  - in Canada at 0800 on Thursday August 7
  - in Australia at 0800 on Thursday September 4.
- In Vancouver, the workday is 24 hours.
- In Australia, the workday is 12 hours (0800 to 2200 less two hours for meals).
- Time lost due to rain is deducted from lay time for weather working days, but not for working days.
- Time lost due to strikes, power failures to the cranes, and waiting for trucks is not deducted from lay time because there are no clauses about them in the C/P.
- Dispatch is payable at $2500/day pro-rated.

Working days, loading

Amount loaded = 16 251 tonnes

Rate of loading = 4000 tonnes/day

Lay time allowed $= \frac{16251}{4000} = 4.06275$ days

= 4 days 1 hour 30 minutes

Total lay time used = 2 days 11 hours

0800 Aug 7, 1997 to 1900 Aug 9, 1997

Time saved = 1 day 14 hours 30 minutes
= 1.6042 days

Dispatch money = 1.6042 × $2500

= $4010.42

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Working days, discharging

Amount discharged = 16 251 tonnes

Rate of discharging = 5000 tonnes/day

Lay time allowed $= \frac{16251}{5000} = 3.25020$ days

= 3 days 6 hours

Lay time used = 1 day 16 hours

0800 Sep 4, 1997 to 2400 Sep 5, 1997

Lay time saved = 1 day 14 hours = 1.58333 days

Dispatch money = 1.58333 × $2500

= **$3958.33**

Weather working days, loading

No weather-related stoppages, so, as before:

Dispatch money = **$4010.42**

Weather working days, discharging

Amount discharged = 16251 tonnes

Rate of loading = 5000 tonnes/day

Lay time allowed $= \frac{16251}{5000} = 3.25020$ days

= 3 days 6 hours

Time lost (rain) from a 12-hour workday

= 1 hour 10 minutes

1820 Sep 4, 1997 to 1930 Sep 4, 1997

This must be pro-rated over a 24-hour lay day.

Pro-rated hours lost $= 1 \text{ hr } 10 \text{ min} \times \frac{24}{12} = 2\text{hr } 20 \text{ min}$

Lay time Thursday = 16 hours – 2 hours 20 minutes

= 13 hours 40 minutes

Lay time Friday = 1 day

Total lay time used = 1 day 13 hours 40 minutes

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Lay time saved	= 3 day 6 hours – 1 day 13 hours 40 minutes
	= 1 day 16 hours 20 minutes
	= 1. 68056 days
Dispatch money	= 1.68056 × $2500
	= **$4201.39**

Distance Education Course SB–101.3
Commercial Shipping

Unit 5 Liner shipping

Liner services provide transport for cargoes that are too small to fill a single ship and that need to be grouped with others for transportation. The ships operate regularly scheduled, advertised services between ports, carrying cargo at fixed prices for each commodity; though discounts may be offered to regular customers.

The two lessons in this unit will cover the topics of:

- liners
- liner shipping terminology
- liner operations
- bills of lading and other liner shipping documents.

Unit 5 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Define what is meant by a cargo-liner.
- Use liner shipping terminology accurately.
- Describe liner operations.
- Describe a bill of lading.
- Complete a bill of lading.
- Differentiate between bills of lading, seaway bills, and mates' receipts.

Lesson 1..... Cargo-liners and their terminology

Some shipping companies have vessels that regularly call at the same ports according to a fixed schedule to load or discharge goods. These companies are called *liner companies*. Their services are called *liner services* and their vessels *cargo-liners* or simply *liners*.

Cargo-liners operate a regularly scheduled, advertised service between ports, carrying cargo at fixed prices for each commodity. They offer cargo space to all shippers who require it, though discounts may be offered to regular customers. They sail on their scheduled dates, whether they are full or not.

Cargo-liners

It is the fact that liner vessels provide a regularly scheduled service between groups of ports that defines the liner, not the size or speed of the vessel. As a rule, tramp vessels carry only bulk cargo, whereas liner vessels carry general cargo in addition to bulk cargo. In general, liner services provide transport for cargoes that are too small to fill a single ship and need to be grouped with others for transportation.

Most liner vessels have to be equipped to carry a large variety of goods. Some cargoes may not be stowed together, so it must be possible to load them into separate holds. For goods that are liable to deterioration, cooling (refrigerating) provisions must be available. Many liner vessels are equipped to carry special cargo such as containers.

Combined transport vessels (linking with road and rail) include container tonnage, ro/ro (roll-on, roll-off vessels for passengers, containers, and other cargo) general cargo/passenger, general cargo single-deck, general cargo multideck, and general cargo/container vessels.

The container and ro/ro tonnage make up the prime growth sector of liner services. Worldwide, countries are developing their seaports and infrastructure to accept this very efficient and reliable unitized method of global distribution. However, a very small volume of tweendeck break-bulk cargo vessels remain in service, particularly in the developing countries.

Definition of terms

Some terms frequently used in liner shipping have been used in these courses previously, but others may be new to you. This list may help you to remember their meanings.

Bill of lading (B/L)	A dated document which states that a carrier has received certain goods in order to carry them to an indicated destination, and deliver them there to an indicated person. It also contains the conditions on which delivery is to take place.
Blading	Abbreviation for *bill of lading* in telex/fax messages, and cables.
Break-bulk cargo	Another term for non-unitized general cargo
Broken stowage	The proportion of cargo hold space that is wasted owing to the cargo or hold being of irregular shape.
Closed conference	Conference to which entry is subject to agreement by current membership.
Conference	Any type of formal or informal agreement between shipping companies, usually in the liner trades. Its purpose is to restrict competition and secure regularity and frequency of service and stability of rates.
Dunnage	Wood or other material used to pack general cargo securely in the hold of a traditional cargo-liner. Also used to assist ventilation.
Freight ton (also called revenue ton)	The unit of cargo on which the liner company calculates its tariff. This is usually a measurement ton or a metric ton (tonne), whichever is the larger for the commodity.
General cargo	Cargo that travels as small individual *parcels* too small to fill a ship, hold, or compartment.
Liner service	Shipping service that operates regular services at advertised times between designated ports at published commodity tariffs.
Measurement ton	Freight ton charged by the physical volume of the cargo rather than its weight (usually either a cubic metre or 40 cu. ft.)

Open conference	Conference to which entry is not restricted but members must follow the price agreement and other rules published by the conference.
Outsider (non-conference operator)	Liner service that is not a member of the conference on the route and does not conform to its rules.
Parcel	Individual consignment of cargo: for example, *500 tonnes of steel reinforcing rods* or *three concrete mixers.*
Stowage	The stacking of cargo in the hold of the ship.
Unitized cargo	Cargo packed into standard units for more efficient handling and stowage: for example, containers, pallets, pre-slung timber, wool bales.

Activities

1. Find out if there are any liner shipping companies operating in the port nearest to you. If not, find out where the liner ships in the port have company headquarters.
2. See if you can find out whether these companies belong to a conference.
3. Find out what their usual routes and schedules are.

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. What defines liner shipping as opposed to tramp shipping?
   a. the freight rates
   b. the types of vessels used
   c. the size of cargoes
   d. the sailing schedules

2. What is the term used for non-unitized general cargo?
   a. parcels
   b. break-bulk
   c. bulk
   d. broken stowage

3. What is the term used for the part of the cargo-hold space that is unused because of irregularly shaped cargo?
   a. broken stowage
   b. cargo stowage
   c. dunnage
   d. blading

4. What is the term for material used to pack cargo securely the hold?
   a. broken stowage
   b. cargo stowage
   c. dunnage
   d. blading

5. Explain briefly what the term “outsider” means in liner shipping.

   _____

   _____

Lesson 2..... Operations and documents

Liner shipping operations

The transport of a mass of small items on a regular service presents the liner operator with a vastly more complex task than that facing the bulk ship owner. Liner operators have a complex organizational task and the business is management-intensive. Liner operation involves an adequately sized fleet, and a relatively large shore-based establishment.

Operators must be able to:

- offer a realistic, regular service for many small cargo consignments
- process the associated mass of paper work
- charge individual consignments on a fixed tariff basis that yields an overall profit taking into account the large capital investment in vessels
- plan tonnage availability—including repair and maintenance of the company's fleet, the construction of new vessels, and the chartering of additional vessels to meet cyclical requirements
- load the cargo into the ship in a way that ensures that it is not damaged by the weight of other cargo above it but is accessible for discharge at several different ports while the ship remains stable and in trim
- run the ship to a tight schedule with punctuality while allowing for all the normal delays arising from adverse weather, breakdowns, strikes, etc.

Because of their high overhead costs and the need to maintain a regular service even when a full payload of cargo is not available, liner businesses are vulnerable. There is much competition between ship owners operating on the same trade routes. Liner companies continuously strive to improve efficiency and overall transit times.

Modern liner cargo service is very sophisticated in terms of logistics and computerized operations and the companies tend to be large. In recent years, liner companies have tended to operate container tonnage on a consortia basis. More and more liner cargo is being cleared through customs inland, away from the former traditional seaport area.

Combined transport (CT)

Combined transport, provides service from warehouse to warehouse. It also involves inland distribution by road and rail. It is designed to achieve fast turn-round times and a high level of ship management efficiency. Vessels are completely integrated into the seaport operation using purpose-built berths and extensive port and inland infrastructure.

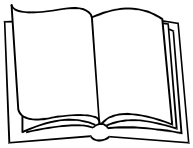
Bill of lading (B/L)

When cargoes are carried, documentation is needed to keep track of it. In liner shipping, this is most often done using *bills of lading*. They are used in many types of cargo carriage, not just shipping. The bill of lading for an ocean voyage is more specifically called the *ocean bill of lading*. The usual abbreviation is B/L, plural Bs/L. In telex/fax messages and cables, the term *Blading* (plural *bladings*) is also often used. Most bills of lading are drawn up in English.

The following is an official definition of the bill of lading:

> *The bill of lading is a dated document by which the carrier states to have received certain goods in order to carry them to an indicated place of destination, and deliver them there to an indicated person, also containing the conditions on which delivery is to take place.*

The bill of lading is the most important document for the transport of goods by ship. These goods must be delivered as received unless relieved "by the excepted peril". This means excused because of circumstances that are defined in the contract of carriage.



Your reader contains an example of a bill of lading. Another is shown on pages 238–239 of the course text *Elements of Shipping*. Study their details.

Receipt for goods

The bill of lading has various functions. Among other things it is a receipt for goods. The carrier (in this case the ship owner) declares in the B/L to have received certain goods in order to carry them by a certain vessel. When the shipper has received a B/L from the shipping company or their agent, it is a receipt for the goods in question.

The B/L may state that the consigned goods are:

- received on board—this is called a *shipped B/L* where the goods are officially received on board the carrier's vessel
- received for shipment—goods are received at the carrier's warehouse or inland container depot.

Clean B/L

A carrier signs the B/L on receipt of the goods but will note any deficiencies, damage, or poor packing on the B/L. If there are no such notes, the B/L is said to be *clean.* Thus the seller can prove that goods were supplied according to contract, and any claim of loss or damage on receipt of the goods by the consignee should be made against the carrier rather than the shipper.

Contract of carriage and Hague Rules

The B/L acts as a *contract of carriage*. That is, an agreement between two parties (the shipping company and the shipper) that states clearly the conditions on the goods are to be carried and delivered. These conditions are not identical in all bills of lading. They may vary for each shipping company, but they must be based on the *Hague Rules*. These Rules are an international agreement defining the rights and obligations of the carrier by sea.

Negotiable document

The bill of lading is a *negotiable document*, because it represents the goods that are identified in it. For example, the ownership of an original bill of lading for 100 cases of machinery is tantamount to the ownership of the machinery. Anyone holding the B/L may claim the goods described in it. During transit, the goods may be transferred by transferring the B/L. The carrier should not deliver the goods without presentation of the B/L unless he gets a guarantee against delivery to the wrong person (for example, a deposit of twice the invoice value).

Combined-transport bills of lading

In combined transport carriage, a combined-transport bill of lading is used, based on a through-rate. Separate bills of lading on each stage of such a carriage would be very cumbersome, slow, and costly to administer.

Terms and conditions

Each B/L contains details of its terms and conditions. Words that are used extensively throughout the contract are defined to put their interpretation beyond doubt and to allow one word in the subsequent clauses to convey a full meaning, which might otherwise require more than one word. This makes the clauses easier to read.

Short form B/Ls

The short form of bill of lading introduced in 1979 is legally identical to a long-form B/L, but is simpler to use. It uses standard legal clauses and is a negotiable document.

The sample B/L

The P&O Containers bill of lading shown in the text can be used as a port-to-port (P-to-P) or combined transport (CT) bill of lading according to how it is completed. That is, it is an *options document*. It has the flexibility to mix port-to-port at one end with combined transport at the other.

Options

On this form, the areas for *Ports of Loading* and *Discharge* must always be completed. Treatment of the areas for *Place of receipt* and *Place of delivery* varies depending on the type of agreement. Table 5–1 shows the possibilities:

	Place of receipt	**Place of delivery**
CT throughout	Completed	Completed
CT at loading but not after discharge	Completed	Left blank
No liability until loaded but CT after discharge	Left blank	Completed
P-to-P only	Left blank	Left blank

Table 5–1:
Completing place of receipt and delivery areas on bills of lading

Identity of the carrier

The identity of the carrier is clear from the signature clause as well the definition in Clause I on the B/L.

Shipper

This space must be completed with the name of the party with whom the carrier has contracted. It may show the actual shipper or the shipper's freight forwarder.

Warranty

The B/L serves as a warranty by the merchant that he has authority to give instructions to the carrier in relation to the goods concerned. The shipper shown on the face of the B/L may be:

- a freight forwarder acting for an undisclosed principal
- a freight forwarder acting for a disclosed principal
- a principal contracting with the carrier direct or through an undisclosed agent
- a merchant contracting with the carrier to carry goods which will be supplied direct to the carrier by the shipper
- a merchant contracting with the carrier on his own behalf.

Consigned to the order of

This space may be completed with the name of the consignee or the words "to order" (making the shipper the consignee). Delivery is made in accordance with consignee's instructions as follows:

- by specific endorsement on the B/L: for example, *Deliver to J. Smith and Co.* (stamp and signature of shipper).
- by attaching authorized delivery instructions on the shipper's stationary: that is, a delivery order from shipper to consignee.
- by means of a blank endorsement on the B/L, which is passed to the consignee: that is, containing the shipper's stamp and signature with no qualifications. Whoever has this document may take delivery of the goods. That is, it is a *bearer* document.

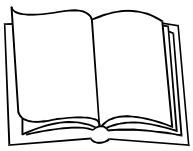
Blank endorsed order bills of lading

Note that a *blank endorsed order* B/L means that the carrier must make delivery to whoever presents it unless fraud is suspected. This is dangerous, but is frequently used because of the requirements of banks financing foreign trade. A bank advancing funds requires the security of documents, which it can use to foreclose on the goods if need arises. Thus the bank can use the B/L as a document of title to take delivery of the goods if it has to. However, it does not wish to become a party to the contract of carriage in case it incurs any liabilities. A B/L contains indemnities to the carrier which impose

liabilities upon the merchant. The bank may choose to conceal its interest and avoid these liabilities.

Notify Party

The *Notify Party* is the name of the party to whom, in most trades, P&O Containers sends its arrival notification form advising of goods coming forward for delivery.



Read *Elements of Shipping*
Pages 242–247.

Sea waybills

Sea waybills are *received-for-shipment* documents similar to short-form bills of lading. The document names the carrier and the consignee and uses standard clauses of a contract of carriage.

Like a B/L, a sea waybill is a receipt for the goods and provides evidence of a contract of carriage. However, it is non-negotiable—it is not a document of title to the goods. The document need not be produced in order for the goods to be delivered. This speeds the release of goods at their destination.

It is often used instead of a B/L for standard port-to-port movements with or without pre-carriage or post-carriage arrangements. It is useful where

- shipper and consignee have an established relationship
- a multinational company ships from plant to plant
- cargo is likely to arrive before the documents.

Mates receipt

A mate's receipt may be tendered by the ship owner's agent to the shipper upon delivery of the goods on to the quay for shipment. It is often issued by the officer (mate) of the ship after checking the tally clerk's records. Later the B/L is checked against the mate's receipt.

This receipt is evidence of the quantity and condition of goods received. It is not a document of title. However, usually, the person possessing a mate's receipt is entitled to the B/L which is given in exchange for it.

Activities

1. Visit a shipping company and ask to look at a completed bill of lading or a sea waybill.
2. Find out how many duplicates of a B/L are made and who receives copies.
3. Using an imaginary cargo and voyage of your choice, fill in the blank B/L form included in your Reader. Try to be realistic for the shipping industry in your area.

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. List at least four liner service operations?

   a. _____

   b. _____

   c. _____

   d. _____

2. List three developments that have affected modern liner shipping operations?

   a. _____

   b. _____

   c. _____

3. Describe briefly what is meant by a clean B/L.

   _____

   _____

4. Why do banks prefer blank endorsed order B/L?

   a. to be able to take delivery of the goods without carrier's liabilities
   b. to become a party to the contract of carriage
   c. to avoid having to take delivery of the goods
   d. to ensure that the B/L is a negotiable document

5. What is the main difference between a bill of lading and a sea waybill?

   a. the sea waybill is negotiable
   b. the sea waybill is non-negotiable
   c. the sea waybill is a short form of the B/L
   d. only the B/L is a legal document

Answer keys

Lesson 1

1. d. the sailing schedules
2. b. break-bulk
3. a. broken stowage
4. c. dunnage
5. a. liner service that is not a member of a conference.

Lesson 2

1. Any four of the following:
   - offer a realistic, regular service for many small cargo consignments
   - process the associated mass of paper work
   - charge individual consignments on a fixed tariff basis that yields an overall profit taking into account the large capital investment in vessels
   - plan tonnage availability–including repair and maintenance of the company's fleet, the construction of new vessels, and the chartering of additional vessels to meet cyclical requirements
   - load the cargo into the ship in a way that ensures that it is not damaged by the weight of the cargo above it but is accessible for discharge at several different ports) while the ship remains stable and in trim
   - run the ship to a tight schedule with punctuality while allowing for all the normal delays arising from adverse weather, breakdowns, strikes, etc.
2. – computerization
   - container consortia
   - inland customs clearance

3. There are no notes about damage, poor packing, or deficiencies on the B/L.

4. a. to be able to take delivery of the goods without carrier's liabilities

5. b. the sea waybill is non-negotiable.

Distance Education Course SB–101.3
Commercial Shipping

Unit 6 Liner companies and conferences

Liner services provide transport for cargoes that are too small to fill a single ship and need to be grouped with others for transportation. The ships operate regularly scheduled, advertised services between ports, carrying cargo at fixed prices for each commodity, though discounts may be offered to regular customers.

The three lessons in this unit will cover the topics of:

- liner company organization
- liner conferences
- competition and controlling liner conferences.

Unit 6 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Describe the organization of liner shipping companies.
- Identify the roles of various officers and departments in shipping companies
- Describe the functions of liner conferences
- List some of the organizations that control liner conferences.
- Discuss the decline of liner conferences

Lesson 1..... Liner companies

Types and sizes of liner companies

The size of a shipping business depends on the type of service that is operated. The tendency in recent years is for smaller shipping companies to merge. This enables the enlarged trading company to improve their competitive ability with more economical service at lower cost, resulting in improved tariffs. This is done by being able to:

- economize on administration costs
- improve prospects of raising capital for new tonnage
- rationalize facilities and personnel such as port agents, departments, overseas offices, berths, and ports of call
- consider long-term improvements in tonnage utilization and productivity. This may lead to rationalization of the fleet and centralization of marine department activities covering manning, management, survey program, and new building
- enlarge their large customer portfolio.

Shipping companies are changing because:

- market conditions are changing
- information technology is quickening the pace of decision-making, especially in middle management
- the head offices of modern companies tend to be much smaller with authority devolved to encourage more accountability of personnel at all management levels
- diversification of the business with interests which include real estate, construction, and ancillary activities of the core business such as road, haulage, seaports, warehouse, and shipbroking.

Within the bulk and liner shipping industries there are many different types of businesses, each with its own distinctive organizational structure, commercial aims, and strategic objectives. They range from a family owning one tramp ship, to large multinational corporations with huge fleets.

Examples of liner companies

Consider the following examples of large liner companies:

Company A:

This liner company is in the container business.

- It operates a fleet of around twenty container ships from a large modern office block housing of about 1000 staff.
- All major decisions are taken by the main board, which consists of twelve executive board members and representatives of major stockholders.
- In addition to the head office, the company runs an extensive network of local offices and agencies, who look after their affairs in the various ports.
- The head office has large departments dealing with ship operations, marketing, secretariat, personnel, and legal. In total the company has 3500 people on its payroll, 2000 shore staff and 1500 sea staff.

Company B:

This is the shipping division of an international oil company that has a policy of transporting 40–50% of its oil shipments in company-owned vessels.

- The division is responsible for all activities associated with the acquisition and operation of these vessels.
- There is a divisional board, which is responsible for day-to-day decisions, but major decisions about the sale and purchase of ships or any change in, the activities undertaken by the division must be approved by the main board.
- Each year the vice-president is responsible for submitting a corporate plan to the board, summarizing the division's business objectives and setting out its operating plans and financial forecasts. In particular, company regulations lay down that any items of capital expenditure in excess of $2 million must have main board approval.
- Currently the division is running a fleet of ten large crude carriers (VLCCs) and thirty-six small tankers from an organization that occupies several floors in one of the company's office blocks.

Company C:

This large, diversified shipping group was founded in the early nineteenth century.

- It runs a fleet of more than sixty ships from offices in the city of London, though recently it has been considering moving outside the area.
- The company is quoted on the London Stock Market and most shares are owned by institutional investors, so that its financial and managerial performance is closely followed by shipping investment analysts.
- The company has divisions: liner shipping and cruise ships. In recent years the problem of operating in the highly cyclical shipping market have resulted in strenuous efforts to diversify.
- Recently the company successfully resisted a major takeover bid, but management is under constant pressure to show a good return on capitals.

Company D:

This large, Scandinavian, specialist shipping group was started by a Norwegian who purchased small tankers in the early 1920s.

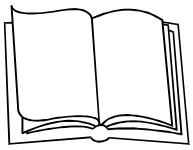
- Although it is quoted on the Stock Exchange, the family still own a controlling interest in the company.
- Since the Second World War the company has followed a strategy of progressively moving into more sophisticated markets, and it is involved in a number of liner shipping operations as well of the carriage of specialist bulk cargoes such as motor vehicles and forest products. It has succeeded in winning a sizeable market share and a reputation for quality and reliability of service in both of these markets.
- The company runs a large fleet of modern merchant ships designed to give high cargo handling performance, and is based in an Oslo office with a sizeable staff.
- Although the company has jealously guarded its status as a Norwegian ship owner, recently it took the decision to “flag out” and has progressively transferred ships to the Liberian flag.

Liner company organization

Direct responsibility for a particular aspect of company business may rest with an individual or with a department. The organizational structure of a liner company depends on a number of factors, such as:

- fleet size and overall financial turnover
- the trade(s) in which the company is engaged
- the scale of the business involved
- whether it is a subsidiary company reporting to a parent company which may have common services such as a legal department, planning organization, etc.
- whether it has offices abroad, relies on agencies, is part of a consortium, or out-sources some of its ship management.

Large, modern companies in most industries have changed their organizational structure in recent years in an attempt to reduce costs and remove some of the many layers of managers, making the company more responsive to its clients' needs. It is almost impossible to describe a "typical" modern organizational structure, they are evolving so rapidly. Many of the old job descriptions and names you will see in the literature are now obsolete. Some examples of organizational charts are shown in your reader, but be aware that actual company organization charts may be very different.



Study the organizational charts from liner shipping companies in your Student Reader.

Upper management

The organization of the upper management of a liner company is usually no different from that of any other company or corporation. The following describes some of the functions of various officers and groups within the higher management echelons.

Some of the duties described may be performed by a person who has more than one function, for example, the person who is general manager may also be the president. In some companies the names of the functions may be retained in the person's title, for example, *Mr. So-and-So, chairman and chief executive officer*. In others, the

person's title will be shortened and the definition of the person's job then becomes more company-specific or less well defined.

Board of directors

Directors are people appointed by the stockholders (the owners) to govern a public company. The directors establish the policies of the company which are then carried out by officers who are either chosen by the directors, or by the stockholders.

In a very large business organization, comprising many different companies, the board of directors of the company may need to seek the approval of the board of directors of the parent corporation for major financial or business decisions.

Companies that are privately owned do not need boards of directors as the owners themselves can set the policies.

Chair of the board of directors

The chair (chairman or chairperson) of the board of directors is the person through which the board communicates with the stockholders on the one hand, and with all employed by the company on the other. The chair is a powerful position in a public company. The chair must ensure that:

- shareholders, and other interested parties such as the government, are kept informed as to the state of the company's affairs
- there is co-operation with any parent corporation, including the implementation of parent corporation directives
- the president, or if there is no president the chief executive officer, runs the company profitably, in accordance with the board's directives
- any matters requiring the board's attention are dealt with by the board.

The person who fulfils the duties of chair of the board may also be the president, or have some other role in the company.

President

The president is the chief officer of the company. If the company is a public company, the president will be appointed either by the stockholders, or by the board of directors. Private companies are usually managed by the owners, in which case the president would

either be the owner, or one of a small group of owners, or, less often, some trusted person appointed by the owner or owners.

In very large business organizations, comprising many different companies, the president of the company may be accountable to the president of a parent corporation.

Executive branch

The executive branch of a company is that part of the company that actually carries out the policies of the company—that is, it is the part of the company that does the work.

The title of the head of the executive branch (if there is one such person) is usually:

- chief executive officer (CEO)
- general manager
- executive vice president, or
- some such similar name.

The principal officers in the executive branch will similarly be variously named **officer**, **manager**, **vice president**, or if they are also members of the board, **directors**, or **executive directors**.

Company secretary

The company secretary is responsible for convening board meetings, preparing and circulating board minutes, and looking after the shipping company's statutory affairs.

The secretary also:

- maintains records of stock and shares
- processes estate matters, such as land and property sales and purchases
- performs general administration of the company's affairs
- deals with legal matters.

Middle management

Line management

Usually in a company there will be a continuous chain of command extending from the chief executive officer through the senior

managers and supervisors down to the workers. This type of organization is known as *line management*, and managers in this chain of command are sometimes called line managers. If the chain of command is long, the management structure is said to be *vertical*; if it is short, as it tends to be in more modern companies, it is said to be *flat*. Line managers, and all those who work for line managers, are directly responsible for doing what the company does.

Staff management

The *staff management* of a company is that part of the company that acts in a support capacity to the production- or service-providing side of the company. Typical support services provided include:

- running the head office
- financial services
- purchasing and stores
- human resources (or personnel) management
- legal services
- public relations services
- responsibility for government relations
- computer services
- quality control
- building maintenance, security, etc.

Staff managers have similar titles to line managers, except that the head of finance may be called, **company treasurer**, **comptroller**, **controller**, or something similar. The organization of staff management usually does not have the long top-down structure of line management; it is much flatter as it provides specialist services to all levels of line management.

There is no rule as to which function belongs where. In a legal firm, for example, legal services would be a line management function, not just a support service.

Management organization

By function

The are several different ways the management of a company may be organized. The classical organization is known as organization

by function. Each major function within the company has a department (or division), for example, operations, marketing, finance, purchasing, engineering, legal, etc.

By product

Another way of organizing a company is by *product* or groups of major products. Applied to a liner shipping company for example, this type of organization could result in a freight shipping division that operated independently of the passenger shipping business. Product organization is common in large corporations that have been built up by the amalgamation of already-established companies.

By geography

Multinational companies will almost certainly have some layers of their management structure organized *by geography*—a European division, a North American division, a South East Asia division, and so on.

By project

By project organization is a popular way of organizing the management of large projects. Each major project has its own team of managers and staff who are assigned exclusively to the project for the project's lifetime. A liner company might adapt this approach by assigning, for example, a trade or service manager to a particular route, and have this manager be responsible for all aspects of the business associated with that route, including responsibility for operations, sales, marketing, finance, etc.

Other structures

You can probably think of other ways of organizing a business for yourself—how about organization by major customer, for example. In practice you will also come across combinations of these structures. A corporation organized by geography will not continue to use this method once we are down to considering the organizational structure of business centres within a single country or territory.

Management divisions in a liner company

Since the business of a liner company is the transport of goods and passengers by ship, a liner company will usually have (functional if not actual) divisions (or departments) responsible for:

- management of the fleet—placing orders for ships, selling ships, crewing, chartering, etc.
- operations of the fleet—ship deployment, ship scheduling, terminal operations, etc.
- freight traffic management
- passenger services.

Fleet management

The **fleet manager** (if there is one such named person in the company) would be responsible for providing and maintaining the fleet that the fleet operations manager uses. This would involve:

- the sale and purchase of ships
- chartering ships
- appointment of ship's officers
- crewing
- ship safety, relevant navigational matters, and ship discipline
- scheduling maintenance
- insurance.

Within the domain of the fleet manager one might find a **shipbroker and chartering department** which would be responsible for chartering, insurance, and ship sale and purchase. In some circumstances, the chartering department would procure additional tonnage when needed, and conversely secure fixtures for the company's own vessels when it had surplus tonnage.

Operations

The operations department is usually the largest and most important in any company and is often headed by a vice president of operations, or operations director.

Among other duties, the head of operations is responsible for producing the optimum performance from the fleet. He or she does this by reconciling:

- traffic needs with the available ship capacity, taking into account both short and long-term needs
- sailing schedules with obligations of a joint service or liner conference, whereby each operator may be allocated a certain percentage of the sailings.

The vice president of operations will have one or more managers reporting to him or her.

A **fleet operations manager** (if there is one such person in the company) would cover:

- the deployment of ships
- schedules
- ships' customs formalities (entering and clearance)
- victualing (the job of a commissary superintendent)
- ship stores
- bunkering.

Management of **terminal operations** would involve:

- negotiating with port authorities
- appointing and liaising with port agents, brokers, etc.
- taking care of loading and discharging formalities
- organizing the provision of berthing and quay facilities and related equipment.

Freight management

The freight traffic management function is another very important part of a liner company's services and could well be headed by a senior manager, such as a vice president.

The vice president of traffic will be responsible, through managers, for freight agents and freight departments.

Inward freight department

An inward freight department would be responsible for customs clearance of imports, delivery to consignees, and transshipment of cargo.

Outward freight department

An outward freight department would be responsible for processing export cargo and related documentation, supervising the provision of shipping space for cargo bookings

The processing of international consignments is an important function and fully computerized. It involves close liaison with the ports.

The freight department might also be responsible for the acceptance and conveyance of dangerous cargo and the related procedures and conditions.

Passenger services management

A passenger services manager would be responsible for appointment and liaison with travel agents, for setting and collecting fares, for handling baggage and passenger complaints, and for liaison with passengers' associations and liner conferences.

Support services in a liner company

Engineering

A liner company may have some in-house engineering expertise, or it may prefer to contract-out such work. An engineering support group in a large company might be responsible for ship procurement, surveys, actual maintenance and repair, new ship design, etc.

An **engineering manager** (or technical director) may run a department that might include specialists in the following fields:

- electrical engineering
- naval architecture
- project and contract management for new-ship purchases
- ship surveys required to ensure ships meet statutory/classification society standards
- ship design when new tonnage is required
- maintenance and repair of ships
- marine workshops and stores.

Sales and marketing

Sales and marketing are two very closely related activities. In some companies, these are the responsibility of a single department or division, in others they may be separate. Sales personnel handle all stages of a "sale" from initial customer inquiry through contract negotiation to final sale. Marketing personnel are usually responsible for maintaining and expanding the customer-base of the company. They do this through advertising and promotions, and they may also be involved in pricing.

Marketing director

The marketing director of a liner company develops the company's business in the freight and passenger markets. The marketing director's duties may include:

- devising an annual sales and marketing plan
- maintaining a field sales force (if this is the way the company is organized)
- producing advertising promotions and publicity material including public relations
- market research
- appointment of the advertising agency
- dealing with freight rates.

Finance

Finance department

The two broad aspects of managing the financial affairs of a company are those to do with the day-to-day financial transactions (managing the cash) and longer-term financial planning (budgets, investment strategies, loan procurement, etc.).

A financial director (or vice president of finance, etc., however he is called) in a liner company would usually be responsible for:

- budgets for revenue, expenditure, investment, and cash flow
- credit control involving the billing of customers/shippers and payment of accounts
- preparation of management data which may cover any month's traffic carryings, revenue, and actual expenditures against budget
- costing data such as voyage costs and individual traffic flows.

The accountant's department, which would work under the financial director, might have individual officers responsible for each function such as audit officer, budgets officer, costing officer, and credit controller.

Purchasing agents are required to support particularly the fleet operations manager, but also engineering and other parts of the company.

Human resources (or personnel)

Human resources officer

Human resources is responsible for training, education, recruitment, career development, appointments, redundancy, shore discipline, wages and salaries negotiations, industrial relations, service conditions, etc.

Legal

Large companies may find it advantageous to retain their own in-house legal specialists rather than rely on outside services.

Public relations

The public relation/press officers develop business in both the passenger and freight sector in liaison with the marketing director, and possibly the passenger and freight managers. Duties might include:

- liaison with freight associations, chambers of commerce, and shippers' councils
- organizing participation in liner conferences.

Government relations

A liner company might find it worthwhile to have a single point-of-contact for government agencies. It might also employ lobbyists to

influence both national and international government decisions on legislation and policies that have a potential impact on the company's business.

Computer services

Information technology director

Shipping companies make extensive use of computer and data transmission technology. For example, brokers use electronic data interchange (EDI) to make contracts. The information technology director is a specialist and has a high profile in many liner companies.

The information technology director's duties normally include:

- budgetary control of all computer activities (hardware and software)
- liaising with other departments and the computer industry to develop information technology and EDI
- ensuring the effective use of computer technology
- formulating the information technology investment policy
- improving users' satisfaction with the company's data transmission networks
- training.

Activities

1. Contact a liner shipping company and try to find out if their organizational structure chart matches the descriptions in this lesson. What are the differences? If you are unable to contact a liner company, try obtaining an organizational structure chart from any near-by sizeable business operation.
2. Try to understand why the company has chosen to organize its management structure the way it has. Do you think there might be a better way to organize the company?

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. Who sets the company policy of a public company?
   a. president
   b. CEO
   c. board of directors
   d. shareholders

2. A line manager in a service-providing company would do what?
   a. manage a technical support group
   b. manage a service-providing group
   c. manage a sales department
   d. nothing special, all managers are line managers

3. List at least four ways the management of a liner company could in principle be organized.
   a. _____
   b. _____
   c. _____
   d. _____

4. What major decision must the top management of a company make when it comes to considering ways of providing support services?

   _____

5. Name three things you would expect an inward freight department of a liner shipping company to be responsible for.
   a. _____
   b. _____
   c. _____

Lesson 2 .....Liner conferences

A liner conference is an organization whose members agree upon the conditions under which liner services are to be offered on a particular sea route. Some cargo operators belong to more than one conference. They have been a prominent part of liner shipping, but in recent years their influence has greatly reduced. In 1970, liner conference members carried 90 to 95% of liner cargo, but by 1995, this was reduced to 20% and non-conference vessels carried almost 80% of liner cargo.

The first conference was the Calcutta Conference founded in 1875. Today, there are many conferences worldwide, such as the Europe-East Africa conference, which has eleven members. The organization that acts as a conference in the Caribbean is *Cagema/Carifreight,* based in St. Lucia.

Functions of a conference

Conferences restrict competition among their members and protect them from outside competition. Their chief function is to establish a common tariff of minimum freight rates and passenger fares. Members compete with the quality of their service. Costly price wars are avoided.

In addition, conferences do the following:

- Establish sailing schedules for members.
- Mutually adapt tonnage to suit shippers' requirements.
- Establish and maintain uniform terms and conditions in documentation such as bills of lading.
- Supervise the adherence of members to the agreed conditions of membership.

Meetings

Some conferences meet regularly but informally, to discuss rates and policy. Others have more formal organization with strict rules for membership and penalties for violations of the conference rules.

Owners' or principals' meetings are usually held several times a year and are attended by the managers of the shipping companies in the conference. Important matters discussed may include new members, extensions of the sphere of action of the conference, and general questions regarding rates.

Supervision of conference members' compliance

Sometimes a conference supervises its members' compliance itself, and sometimes it charges a neutral supervisory organization to do the work.

The secretariat

Conference tasks are carried out by the secretariat, headed by an impartial professional secretary who has wide knowledge of shipping affairs. It is the secretary's job to notify brokers of rate changes.

Cargo control

Cargo control includes checking:

- weights and measures against documents
- contents of packages and containers (this may be done where the container is stripped)
- that correct freight rates are applied.

Administrative control

Administrative control involves checking the manifests to ensure: that all the data is correct. This includes:

- freight rates
- contracting party
- commission
- wording of documents such as clauses in the bill of lading.

These checks are made at the shipbroker's office or the broker may be invited to send in the documents.

Irregularities, misdeclarations, and fines

If there are any irregularities they are reported and put right. The shipbroker and the secretary of the conference are informed by letter. If there is undercharging, the shipbroker must collect the difference from the shipper. The secretary reports to the shipping company involved and may impose a fine.

Usually these irregularities are due to simple errors, but fines are still imposed because the basic principal of minimum rates is very important to conferences. The fines are usually more than the difference in freight charges. Although it is the shipping company

that pays the fine, the broker is also affected by losing business due to inattentiveness to detail.

If there are discrepancies between documents and the weight or dimensions of packages, they are called *misdeclarations*. They are also reported to the wharfinger so that things may be put right before the manifests and freight notes are made out. There may be consequences, depending on the bill of lading clauses. The shipping company may be entitled to collect several times the freight difference or twice the correct freight less the rate charged.

Rate changes

Shipping companies that belong to a conference may not reduce their freight rates below the conference tariff. However, it is possible to obtain a change in agreed freight rates without having a conference meeting. There is no set policy on charging more than the minimum, if the market allows it.

If a member finds that the conference rate is not competitive, a request for a change must be made. This process is started by using a *rate enquiry form.*

Rate enquiry forms

A shipper fills out a rate enquiry form containing all the data required for a decision on freight rates. These include:

- port of shipment and destination
- nature of the goods
- packing
- weight/measurement ratio
- f.o.b. value
- amount of shipment expected
- information about the competition

The shipbroker passes this information to the principals who submit it to the conference. A decision is made within a few days. It is in all conference members' interests for the conference to be as competitive as possible in their rates.

Pooling

When there is excess tonnage in a trade, there may be an agreement to reduce the number of sailings and pool earnings. Each member

operates an agreed percentage of sailings and takes the same percentage of the total pooled income.

Some conferences have regular pooling agreements. In these, traffic, gross earnings, or net earnings, or traffic are pooled, with members receiving an agreed percentage of the pool.

The way pools work is as follows:

- With gross earnings arrangements, the ship owner bears all operating and investment costs and pools gross earnings.
- With net earnings arrangements, each operator pools net earnings. Under this type, the more efficient, low-cost owner is penalized.

Some cargoes pay better than others. Pooling provides good protection for a carrier who carries mostly low-value commodities for the good of the conference as a whole. Such pools are called *profit pools*.

Over-carriers and under-carriers

When companies exceed or remain below their agreed share, they are called over-carriers (over-earners) and under-carriers (under-earners). Over-earners compensate under-earners provided that the under-earners have met their tonnage obligations.

Rebates, net rates, and contracts

Rebates are used by carriers to ensure loyalty of shippers to conference liners. In the past the rebates were deferred for several months, after which a percentage of total freight charges was repaid to the shipper. This was expensive to administer, so increasingly, slightly lower rebates are given at the time of payment. These are called *net rates*.

Sometimes a shipper contracts to use a liner conference for all shipping in return for a reduced freight rate. This may be for all the shipper's business, or for one large project.

These systems are criticized because they tend to keep rates high and build monopolies. Shippers are restricted in their choices for fear of losing their rebates.

Activity

1. Contact a liner shipping company and try to find out which conference they belong to (or are in competition with.)
2. If they are not in the conference, try to find out why not.

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. What is the main objective of a liner conference?
   a. to restrict choices for the shipper
   b. to unify quality of service
   c. to establish standard minimum freight rates
   d. to establish the share of trade each vessel will get

2. Differentiate between pooling arrangements based on gross and net earnings.

   _____

   _____

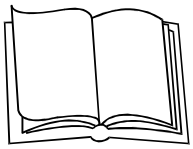
   _____

3. What are net rates?
   a. a pooling arrangement that protects inefficient operators
   b. rebates given at the time of payment
   c. deferred rebates of a percentage of total of freight charges
   d. a reduced freight rate given to a shipper who contracts to use only conference shipping

4. When companies exceed their agreed share in a pool, what are they called?
   a. misdeclarations
   b. under-carriers
   c. over-carriers
   d. under-earners

5. Who fills out the rate enquiry form?
   a. shipper
   b. ship broker
   c. ship owner
   d. secretary of the conference

Lesson 3 .....Competition and controlling liner conferences



Read *Elements of Shipping*
Pages 198–201; and pages 203 (section 10.5) to 209.

Various other organizations and groupings have an effect on conferences or have input into their regulation. There is also competition among conference members and between members and non-members.

Competition among conference members

Although they do not compete in their rates, members do compete through the quality of their services. Some aspects of this competition are:

- quality and speed of the ship
- facilities for shipping heavy or awkward cargo
- behaviour of ship brokers' staff (customer relations)
- ability and willingness to propose solutions to problems
- care of the cargo during shipping
- efficient administration (including interactions with banks where credits are involved).

Independent lines and outsiders

A shipping company that does not belong to a conference or adhere to their tariff is called an *outsider*. These companies are in direct competition with conference members.

Some shipping lines call themselves *independent lines*. Although they do not belong to the conference, they conform to a certain extent with their policies and freight rates.

Harmonization conferences

At voluntary harmonization conferences, cargo operators who may be members of more than one liner conference discuss matters of

mutual concern. Often the operators are from different countries. They discuss such things as documentation, fuel surcharges, and the basis of the freight rates.

International liner codes

The UN and other international groups seek to control how liner conferences work and the amount of government intervention allowed. Some groups wish to see the liner conference system eliminated. Aside from the monopolistic aspects of their rules, complex modern transportation of containers from door to door has complicated matters.

Numerous international meetings and reviews continue to be held to resolve the issues. The traditional, mostly Western, maritime nations prefer less government intervention. Developing countries seek a larger share of the trade and favour inter-governmental regulation of rates.

UNCTAD liner conference code

The United Nations Conference on Trade and Development (UNCTAD) introduced a liner conference Code in the 1970s that differed from the European Code. UNCTAD is also discussed in Unit 10.

The Code specifies:

- the right of countries to become members of the conference serving their trades
- a cargo-sharing formula 40/40/20, whereby the two countries between whom there is trade have a right to carry 40% each of the trade and only 20% may be carried by third parties.
- that shipping conferences must consult shippers over the rates charged and methods to deal with currency fluctuations
- that national lines of developing countries must be fully involved in major policy decisions

Shippers' councils and other associations

Shippers have also rallied their forces and united in various national and international *shippers' councils*. These councils work closely with the conferences, discussing such things as freight changes and currency surcharge fixtures.

There are also various shippers' associations that are specifically interested in particular products, exports only, or imports only. These associations help their members with their problems.

Advantages of a conference

Advantages of a conference include:

- avoidance of wasteful competition through over-supply of tonnage
- reasonable chance of a good profits without rate competition
- stability of rates which diminishes the risks of forward contracting
- regular, frequent sailings, maximizing ship use
- equality of treatment for shippers
- economies of service, enabling operators to provide faster, better ships

Disadvantages of a conference

The main disadvantages of a liner conference are:

- large shippers cannot use their bargaining power to get lower rates
- shippers cannot take advantage of low-rate tramp tonnage or non-conference liner rates without penalty.

Factors influencing the decline of liner conferences

The UNCTAD liner code reflects the shift away from traditional maritime powers and toward developing countries. In addition, the inflexibility of rating systems, lengthy procedures to negotiate discounts, and rigidity have influenced the decline of conferences. They concentrated on their traditional concerns and were slow to take advantage of modern market developments such as multimodal transport and container consortia.

Much of their previous advantage was due to their cargo handling expertise, but containers have made this less important. Change is needed in the system to accommodate the growing intermeshing of sea transport with pre- and post-shipment transport on land. To be profitable, container operators require flexibility and quick decisions.

There have also been many technological changes in ship operations and cargo handling. The vessels are no longer the largest expense for the carrier. Computer systems and container handling are the major costs.

Activity

There is no Activity for this lesson.

Practice Exercise for Lesson 3

Test your understanding of Lesson 3 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. Members of liner conferences do not compete with one another. True or false?

   a. true
   b. false

2. What is an independent line?

   a. a conference member who adhered only to the tariff rates
   b. a liner company who does not belong to a conference and does not adhere to the tariff rates
   c. a liner company that is publicly owned
   d. a liner company that does not belong to a conference but conforms to their policies and freight rates

3. Explain in a brief sentence the main difference in the attitudes of traditional maritime countries and developing countries to the liner conference system.

   _____

   _____

   _____

4. What four important things does the UNCTAD liner code specify?

   a. _____
   b. _____
   c. _____
   d. _____

5. List four factors that have contributed to the decline of conferences.

   a. _____

   b. _____

   c. _____

   d. _____

Answer keys

Lesson 1

1. c. board of directors
2. b. manage a service-providing group
3. Any four of the following:
   - by function
   - by project
   - by geography
   - by product
   - by major customer
   - by route
4. Provide the service in-house or contract out.
5. – customs clearance of imports
   – delivery to consignees
   – transshipment of cargo.

Lesson 2

1. a. to establish standard minimum freight rates
2. **gross:** The ship owner/operator bears all operating and investment costs and pools gross earnings.

   net: The ship owner/operator deducts operating and investment costs from gross earnings and pools net earnings.
3. b. rebates given at the time of payment
4. c. over-carriers
5. a. shipper.

Lesson 3

1. b. false

2. d. a liner company that does not belong to a conference but conforms to their policies and freight rates

3. The Western maritime nations prefer less government intervention. Developing countries seek a larger share of the trade and favour inter-governmental regulation of rates.

4. The UNCTAD Liner Code specifies:
   - the right of countries to become members of the conference serving their trades
   - a cargo-sharing formula 40/40/20, whereby the two countries between whom there is trade have a right to carry 40% each of the trade and only 20% may be carried by third parties.
   - that shipping conferences must consult shippers over the rates charged and methods to deal with currency fluctuations
   - that national lines of developing countries must be fully involved in major policy decisions.

5. Any four of the following:
   - inflexible rating systems
   - lengthy negotiation procedures for discounts
   - rigidity
   - concentration on traditional concerns
   - containerization
   - multimodal transport
   - container consortia
   - changes in large expenses from vessels to container-handling and computer systems.

Distance Education Course SB–101.3
Commercial Shipping

Unit 7 Scheduling, routing, and bunkering

Organizing the schedule and route of a cargo vessel is complex as many things must be taken into account. Theses include issues to do with the vessel, the crew, the types of cargoes carried, the layout and efficiency of the ports to be visited, the geographical areas to be passed through on the voyage, and the availability of reasonably-priced bunkers.

The three lessons in this unit will cover the topics of:

- an outline of the key issues in routing and scheduling
- the effects of loadline requirements on routing
- the factors involved in choosing bunkering ports.

Unit 7..... Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Identify the issues that make ship scheduling important.
- Describe the factors that influence ship schedules.
- Explain the effects of loadlines on scheduling and bunkering.
- Identify the factors affecting the choice of bunkering ports.
- Calculate deadweight available for bunkers, water, and cargo.
- Calculate bunkers consumption.
- Compare the effects of various bunkering stops on costs and schedules.

Lesson 1 .....Steamship scheduling and routing issues

In planning a vessel's sailing schedule it is of the utmost importance that it be fully employed while it is available. It earns no money for the shipowner when laid up – whether for survey, general maintenance, or due to lack of traffic. Such periods must be kept to an absolute minimum. This is important because of the large amount of capital invested in a ship, which has heavy annual depreciation charges. A ship must earn as much profit as possible during its limited life.

Limits to fleet size

Owners who have full employment for their vessels are likely to realize a larger profit than those who operate vessels only during peak periods. If some vessels have a few months' uneconomic service each year, it might be worthwhile for the owner to reduce the size of the fleet.

As a shipowner's business expands, the cost of increasing the size of the fleet may exceed the additional revenue to be gained, and so the operator may sustain a loss. If such is the case, the new project should be abandoned unless there are compelling reasons (social, political, or even commercial) to the contrary.

The optimum size of fleet is that where the minimum number of vessels is earning the maximum revenue. The owner is not normally able to have a standby vessel available, as the amount of capital tied up in any one vessel is considerable.

Tramps and cargo-liners

As discussed in the previous units, there are basically two types of commercial shipping service:

- regularly scheduled service, primarily in liner cargo trades
- service operated according to a particular demand, mostly confined to tramps.

With cargo-liners, the frequency of sailings is published months in advance, and agreed within the consortium where such conditions apply. Many cargo-liners operate outside the liner conference system.

Factors influencing the formulation of sailing schedules

Sailing schedules are based primarily on commercial considerations with political, economic, operating and, to some extent, the technical capabilities of the ship all playing their role as contributory factors. Some of the factors affecting scheduling are:

- traffic and competition
- available ships
- crew availability and certification
- efficiency of ship and port operations
- uncontrollable conditions of work.

Traffic and competition

This category of issues includes the following:

- volume, type, and any special characteristics of the traffic
- traffic fluctuations such as peak demand
- some competition between conference tonnage
- competition between conference and non-conference tonnage
- seasonality—food cargoes are often seasonal, and with multipurpose vessels conveying road haulage vehicles, passengers, and accompanied cars, the amounts shipped can vary according to the time of year and/or day.

Available ships

The number and types of available ships have a strong impact on scheduling. A large fleet of small vessels has more operating flexibility than a small fleet of large vessels that are restricted to a limited number of ports whose facilities can accommodate them. Important factors include:

- size (length, beam, and draft)—some large vessels can only operate between ports that have deep-water berth facilities.
- special characteristics—some may be suitable only for cruising
- special equipment may be required for loading and discharging cargo
- plying limits for individual ships due to agreements and conferences.

Crew

Efficient, well-trained crew have a great effect on scheduling (and profits). Issues in this area include:

- availability of crew
- costs of crew
- the impact of STCW (the International Maritime Organization's Convention on Standards of Training, Certification and Watchkeeping for Seafarers)
- arrangements for relief measures in emergencies.

Efficiency of ship and port operations

The efficiency of the ship's operations and port operations affect scheduling through the following factors:

- maintenance of time margins where services connect (for example, with multimodalism involving container tonnage and the dry port concept involving dedicated rail networks, port turn-round time is crucial)
- time necessary for terminal duties at the port, including such things as loading, discharging, customs procedure, bunkering, and victualing
- voyage times
- estimated voyage cost and expected traffic receipts.

Uncontrollable political, port, or geographic conditions

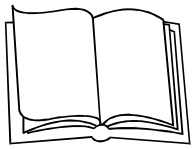
Shipping must operate in some conditions that are not within the operators' control. These include:

- climatic conditions—some ports are ice-bound throughout certain periods of the year, which prevents any shipping calling
- hostile activities, actual or envisaged, in any particular waters
- political actions such as flag discrimination or bilateral trade agreements causing unbalanced trading conditions
- location of canals routes such as the Suez and Panama
- general availability of port facilities and dock labour
- tidal restrictions affecting times of access and departure
- for liner tonnage, any condition imposed by liner conference agreements.

Multimodal transport (intermodalism)

Container operations are usually multimodal. Multimodalism is the process of operating a door-to-door or warehouse-to-warehouse service for the shipper using at least two means of transport (by road, rail, river, canal, ocean, or air). The merchandise is conveyed in the same unitized form for the entire transit. It is also referred to as *intermodalism*.

A wide variety of containers and pallets allows cargo to travel in any combination of truck, railcar, barge, ship, and airplane with a minimum of cargo handling at transfer points.



Read *Elements of Shipping*
Section 16.3, pages 378–393.

Activities

1. In the port nearest to you, find out what types of multimodalism are routinely used. Identify the road, rail, river, or canal links that are made for inland transport. Also find out where the nearest container warehouses are.
2. Find out how many liners enter and leave the nearest port on an average working day. Find out when the periods of peak demand are. Are these peak periods due to a seasonal cargo or some other factor?

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. What is the best size for a liner fleet?

   a. as many vessels as the owner can afford
   b. enough boats to operate only in peak periods
   c. enough boats to have standbys for unexpected traffic
   d. the minimum number of boats possible to serve the traffic and maximize revenues

2. Which of the following best describes the scheduling of cargo-liners?

   a. cargo-liners set their schedules frequently and flexibly according to demand
   b. only conference liners have set schedules
   c. conference liners publish schedules several months in advance
   d. cargo-liners have no set schedules

3. List at least four factors that influence sailing schedules.

   a. _____
   b. _____
   c. _____
   d. _____

4. What four characteristics of available ships affect scheduling?

   a. _____
   b. _____
   c. _____
   d. _____

5. List at least four conditions that are not controllable by port authorities or shipowners which might affect scheduling.

   a. _____

   b. _____

   c. _____

   d. _____

Lesson 2 .....Loadlines

The amount of cargo and supplies that may be carried on board a vessel varies with the route followed and the time of the year. This is because the maximum permitted draft varies according to the season and waters in which the vessel plies. This is explained in more detail in Unit 4 of the *General Ship Knowledge* course.

The draft of a vessel is the vertical distance from the keel to the waterline. The draft limits are marked on the sides of each vessel with horizontal lines, called *loadlines*. A ship must not be loaded so that the loadline for the zone and season in which it is plying is submerged.

Loadlines define the minimum amount of freeboard the vessel must have. Freeboard is the distance measured amidships from the water line to the uppermost continuous deck in a ship with one or more decks. In a shelterdeck vessel it would be the next deck below.

Placing and certifying loadlines

UN member countries have a designated authority who can administer the award of *loadline certificates*. Without this document a ship cannot legally trade. The certificate is issued only after stringent rules have been applied. This authority specifies and verifies the ship's freeboard, the position of the loadlines, and where on the hull they are located, before issuing the certificate,

Loadline marks are cut-in the hull and painted, light on a dark background, or vice-versa, so as to be clearly seen and not moveable. The dimensions of the lines and lettering are laid-down in the regulations. These marks at amidships then correspond to official *draft marks* cut-in and painted at the bows and stern.

The loadline mark includes a disc, commonly called the *Plimsoll mark*. The initials of the assigning authority are placed on each side of this disc; (for instance, "L–R" standing for Lloyd's Register).

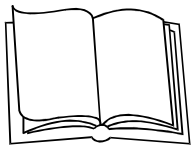
Permanent and seasonal loadline areas

The navigable waters of the world are divided into loadline zones defined by the International Convention on Load Lines (1966). These geographical areas are described as either tropical (T), summer (S), or winter (W). Some areas are permanent and others are seasonal.

In seasonal zones, loadlines vary according to the time of year because of climate changes. These variable zones are defined according to the international standards for specified dates for each type of vessel. Vessels are not permitted to have less freeboard than is indicated by the loadline mark that applies for that time of year.

International standards

Details of winter, summer, and tropical loadlines are specified in the international standard by the International Maritime Organization (IMO). A copy of part of this standard is in your reader. The topic is also discussed in Unit 4 of the *General Ship Knowledge* course.



Read the pages from the International Convention on Load Lines (1966) in the Student Reader.

Variations in permitted freeboard

Tankers have separate freeboard rules from other classes of ships because of their peculiar construction. They have a closer sub-division of cargo compartments and smaller deck openings. This type of vessel is permitted smaller freeboard and deeper loading.

Timber carriers with deck cargo effectively increase their buoyancy, and enjoy increased protection from adverse weather, provided this deck loading is carried out strictly in accordance with appropriate regulations. These vessels are allotted *lumber loadlines* permitting them to load deeper than their standard loadlines.

Ships of all classes with overall length of 100 metres or less are restricted to a larger freeboard, particularly in winter conditions in the North Atlantic. An extra loadline mark is cut on vessels that trade in that region. This is called the *winter North Atlantic mark (WNA).*

Changing zones during a voyage

Tropical zones are considered the safest for vessels, and consequently, ships carrying cargoes in such areas are allowed to be more heavily laden and to be deeper in the water than in summer or winter zones. (Winter zones are judged the least safe and most prone to heavy weather.)

When a ship is loaded to its tropical loadline mark, the ship's master must take care that a seasonal tropical zone does not change to summer whilst the vessel is trading there. In such a case, the summer mark would be submerged and the ship would be overloaded and illegal.

Also, as the vessel crosses from a tropical to an adjacent summer zone, the ship's master must ensure that the weight carried is reduced enough to ensure that the ship rises in the water to its summer mark. This is done through the vessel's consumption of the correctly estimated amount of bunkers and water. Similar constraints apply, of course, for a ship moving from a summer to a winter zone.

Activities

1. Study a map of the world and notice where the permanent tropical, summer, and winter loadline zones are located.
2. Study a map of the Caribbean and find out where the permanent or seasonal loadline zones change for a particular type of vessel moving in and out of the area at various times of the year.

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. What are loadlines?
   a. lines on a chart defining the zones where draft varies
   b. lines on a ship defining the maximum freeboard
   c. lines on a ship defining the minimum draft
   d. lines on a ship defining the minimum freeboard

2. What three things are specified and verified by the authorities before issuing a loadline certificate?
   a. _____
   b. _____
   c. _____

3. Why do tankers have separate freeboard rules?
   a. because they are more buoyant
   b. because they are more protected from weather
   c. because they are constructed differently
   d. because they travel only in certain loadline zones

4. What happens if a ship loaded to her summer loadline mark moves into a winter zone?
   a. the winter loadline would be submerged and the ship would be overloaded
   b. nothing—the winter loadlines are higher on the hull
   c. nothing—the only problem is when ships move between summer and tropical loadline zones
   d. the tropical or summer loadline marks would be submerged and the ship would be overloaded

5. The winter North Atlantic Mark is a special loadline mark cut on any vessel trading in the North Atlantic during winter. True or false?
   a. true
   b. false

Lesson 3: .....Choosing bunkering ports

During a voyage, bunkers and water are continually used. Sufficient bunkers and water must be carried for each leg of the journey, but this must be balanced with the need to maximize revenue-producing cargo. Overall weights that can be carried are limited by the need to respect legal loadlines that depend on the location and season.

There is no hard and fast rule about where bunkers should be replenished. It is in the shipowner's interest to run each voyage as efficiently as possible, minimizing time and costs while maximizing revenues. Although bunkers may be readily available at a very low cost at a particular port, it may not be economical to detour to that port, or it may be positioned so that large quantities of fuel cannot be loaded without submerging the loadline on the next leg of the voyage.

Factors affecting choice of bunkering port

The following factors affect where bunkering is done:

- rate of freight per tonne after deduction of loading and/or discharging expenses, if any, and commission or brokerage
- prices for bunkers, including delivery charges such as lighterage charges (For example, bunker prices are very low in places such as Aden and Djibouti.)
- possible extra port charges and delays at bunkering ports
- availability of facilities to replenish bunkers at port(s) and dock(s) of loading, to allow loading cargo and bunkers simultaneously, thus avoiding delay
- type of cargo. A full load of heavy cargo has the vessel at maximum draft with limited space for bunkers and water. A light cargo means that capacity is governed by grain space and the vessel is not loaded to maximum draft. This allows extra deadweight for bunkers or water, avoiding the need to replenish *en route*
- possible draft restrictions at the port of discharge. For example, Russian Black Sea ports have restricted draft. Vessels plying between Australia and Europe usually replenish bunkers at Aden or Djibouti, but if a large bulk carrier must go to a Black Sea port afterwards, that may not be possible.

In general, reserves are essential for a long voyage, and a bunker call should:

- avoid deviation from the route
- avoid high costs (fuel and port charges)
- take no more than half a day.

Calculations must be made to decide when and where to bunker. This is an important part of voyage estimating, which will be covered in Unit 8.

Example 1 of bunkering during a voyage

A carriage of a cargo of wheat from Bahía Blanca to Yokohama via the Cape of Good Hope illustrates some of the issues in bunkering.

Vessel data

dwt. capacity	winter loadline	25 125	tonnes
	summer loadline	25 875	tonnes
	tropical loadline	26 625	tonnes
Grain space	Holds	1 205 000	cu.ft.
	Wing tanks	150 000	cu.ft.
	Total:	1 355 000	cu.ft.
Bunker capacity	(IFO and DO)	1760	tonnes
Bunker use	**At sea** (15 knots) Bunkers used is 38 tonnes per day Water used is 10 tonnes per day		
	In port Bunkers used is 3 tonnes per day		

Minimum reserves

Each leg of a voyage must be planned so that a certain minimum amount of bunkers, water, and stores remains in reserve when the vessel reaches port. For the purposes of this and the following examples, we will assume (arbitrarily, but realistically) that the following reserves are always carried.

Planned length of leg	Reserves	Bunker reserves
0–10 days	0–6 days	0–228 tonnes
10–20 days	6 days	228 tonnes
20–30 days	6–8 days	228–304 tonnes

For simplicity, we will assume that the weight of the ship's stores is a constant 250 tonnes, although in fact of course, some will be consumed during the voyage.

Voyage data

The proposed route of this voyage is Rotterdam (Netherlands) - St. Vincent (Cape Verde Islands) - Rosario (Argentina) - Bahía Blanca (Argentina) - Durban (South Africa) - Singapore - Yokohama (Japan).

The vessel is scheduled to load some cargo in Rosario and to finish loading in Bahía Blanca before heading to Yokohama. Rosario is upriver on the Río de la Plata and vessels must pass the Martin-Garcia Bar. This is shallow and requires vessels to have maximum draft. Bulk carriers loading full cargoes of grain from the Río de la Plata to Japan may load to full capacity at Buenos Aires (Argentina) or Bahía Blanca.

Bunkering stops may be made in St. Vincent, Durban, and Singapore. There is a long passage during which bunkers will not be replenished—from Durban to Singapore, which is 4975 nautical miles.

At 15 knots, this takes $\frac{4975}{15\times 24} = 13.8$ days

This means approximately 14 days at sea (rounding off to the nearest integer).

Loadlines		
	Bahía Blanca 39°S:	summer*
	Durban 30°S:	summer
	Singapore 1°N:	tropical
	Above latitude 10°N:	summer
	Yokohama 35°N:	summer

* the voyage between Bahía Blanca to Durban is "seasonal winter" if the vessel crosses the Atlantic south of 34°S; however, at the time of year we are imagining the voyage to be taking place, summer conditions apply in southern seasonal winter areas.

Calculating dwt. for bunkers, water and cargo

Bunkers and water are needed for the passage with no bunkering stop from Durban to Singapore (14 days) plus a minimum reserve for 6 days. This totals 20 days. Space requirements are calculated as follows:

Total bunker requirements 20 days @ 38 tonnes per day	=	760 tonnes
Total water requirements 20 days @ 10 tonnes per day	=	200 tonnes
Estimated weight of stores	=	250 tonnes
Total requirements for non-cargo	=	1 210 tonnes
dwt. on summer loadline (at Bahía Blanca)	=	25 875 tonnes
dwt. available for cargo (subtracting)	=	24 665 tonnes

Cargo data

There is to be a full cargo of wheat and the stowage factor of wheat in bulk is 1.3935 cubic metres per tonne (50 cu. ft. per long ton).

Note that:

- If this vessel were loaded to capacity,

the full load could be $\frac{38370}{1.3935} = 27\,535$ tonnes.

However, this must be reduced to allow for loadline requirements and deadweight for bunkers, water, and stores as calculated above.

- The terms of the charter party specify how long it should take to load and discharge the 24 665 tonnes of wheat that will be carried.
- If loadlines change, or waters near upriver ports are too shallow, the full allowable cargo may have to be loaded at two different ports.

Table 7–1 shows the voyage schedule for Example 1. This schedule shows the dates of arrival and sailing for all stops on the voyage. It also shows the total distance travelled and the total number of days at sea and in port.

The voyage schedule

Route	Miles	Arrival	Sailing	Number of days at sea	Number of days in port
Rotterdam			Nov 15		
	2568			7	
St. Vincent		Nov 22	Nov 23		1
	3984			11	
Rosario		Dec 4	Dec 8		4
	625			2	
B. Blanca		Dec 10	Dec 20		10
	4540			13	
Durban		Jan 2	Jan 3		1
	4975			14	
Singapore		Jan 17	Jan 18		1
	2900			8	
Yokohama		Jan 26	Feb 5		10
Totals	**19 592**			**55**	**27**

Table 7–1: The voyage schedule for Example 1

The voyage schedule is expanded to show the quantities of bunkers stored, used, and replenished in the *total consumption report* which is shown in Table 7–2.

Total bunkers consumption:

Bunkers is used at the rate of 38 tonnes per day at sea and 3 tonnes per day in port.

	IFO +DO (tonnes)
55 days at sea:	2090
27 days in port:	81
Total:	2171

Total consumption report

Route	Miles	Number of days		Bunkers taken on and used				
		at sea	in port	arrival	at sea	in port	refill	sailing
Rotterdam							418	418
	2568.	7			266			
St. Vincent			1	152		3	1109	1258
	3984	11			418			
Rosario			4	840		12		828
	625	2			76			
B. Blanca			10	752		30		722
	4540	13			494			
Durban			1	228		3	535	760
	4975	14			532			
Singapore			1	228		3	307	532
	2900	8			304			
Yokohama			10	228		30		198*
Totals	**19 592**	**56**	**27**		**2090**	**81**	**2369**	

*Bunkers on discharge at Yokohama

Table 7–2 Total consumption report for Example 1

The effects of bunkering arrangements on routes

via St. Vincent

In this example, bunkers will be replenished at St. Vincent for the onward voyage. Sometimes vessels replenish bunkers at La Palma (Canary Islands). Bunker prices at La Palma and St. Vincent are roughly the same, and so an exact calculation would have to be made to find out which is preferable.

Sometimes, also, vessels proceed directly from Northern European ports to the Río de la Plata without a bunkering stop. There is no hard and fast rule and each case has to be considered on its merits.

Note that the vessel arrives at St. Vincent with a bunkers reserve of 4 days (4 × 38 = 152 tonnes) in accordance with the minimum reserve plan specified above.

via Durban or Capetown

From Bahía Blanca, the following options are open to the vessel. It could proceed:

1. via Durban (29°52'S) for bunkers, on to Singapore for bunkers again, and then to Yokohama = 12 415 miles (as is shown above).
2. via Capetown (33°54'S) for bunkers, on to Singapore for bunkers again, and then to Yokohama = 12 335 miles.

Calling at Capetown rather than Durban would save 80 miles, but the prices for bunkers at Durban are slightly lower than the prices at Capetown. We can show that the break-even price for bunkers at Capetown, assuming that the vessel arrives in Singapore with exactly the same amount of bunkers, is when:

$$\$P(C) \times (535 - \frac{80}{15 \times 24} \times 38) = \$P(D) \times 535$$

which is when:

$$\$P(C) \times 527 = \$P(D) \times 535$$

where:

$P(C) is the price per tonne of bunkers at Capetown;
527 tonnes of bunkers would be needed at Capetown;
$P(D) is the price per tonne of bunkers at Durban;
535 tonnes of bunkers are purchased at Durban;
$\frac{80}{15 \times 24} \times 38 \approx 8$ tonnes is the amount of bunkers saved by sailing 80 fewer miles at 15 knots and a bunkers consumption rate of 38 tonnes per day.

Only if the price of bunkers at Durban were more than $\frac{527}{535} = 98.5\%$ of the price in Capetown would it not be worth going to Durban.

via the Strait of Magellan

Instead of calling at either Durban or Capetown on the southern tip of Africa, the vessel could instead proceed directly from Bahía Blanca to Yokohama via the Strait of Magellan at the southern tip of South America. At this time of year it is summer in the south and winter loadline regulations do not apply.

Using the Strait of Magellan, the distance to be covered from Bahía Blanca is 10 280 miles. This has to be covered without an opportunity for bunkering which means carrying bunkers for about 29 days at sea, plus a reserve, because of the distance, for 8 days.

These routes from Bahía Blanca to Yokohama compare as shown in Table 7–3:

	via Strait of Magellan	via Durban
Distance	10 280 miles	12 415 miles
Time at sea	29 days	35 days
Time in port	20 days	22 days
Capacity for cargo	23 849 tonnes	24 665 tonnes

Table 7–3:
Comparison of two routes from Bahía Blanca to Yokohama

Total bunker requirements (Strait route)
37 days @ 38 tonnes per day = 1406 tonnes

Total water requirements
37 days @ 10 tonnes per day = 370 tonnes

Estimated weight of stores = 250 tonnes

Total requirements for non-cargo = 2 026 tonnes

dwt. on summer loadline (at Bahía Blanca) = 25 875 tonnes

dwt. available for cargo (subtracting) = 23 849 tonnes

Sailing directly would save time, but at a cost of a reduction in cargo capacity of about 800 tonnes.

via the Strait of Magellan and Honolulu

If the vessel were to use the Strait of Magellan, replenishing bunkers at Honolulu (Hawaii) would be an option. Such a deviation would mean

- about 500 miles extra steaming and time in port, a total of about three days
- the distance between Bahía Blanca and Honolulu (7375 miles) means only 20 days at sea, with only 6 days reserve for bunkers.

Although going via the Strait appears to be the better route, in practice, the number of bulk carriers proceeding this way direct to Yokohama is limited. The majority of bulk carriers follow the route via Cape of Good Hope, calling at Durban. This is probably due to:

- better weather conditions
- ability to call at Capetown, Durban, or Singapore for repairs.

Example 2 of bunkering decisions on a voyage

A carriage by the same vessel of a full cargo of wheat from Vancouver (Canada) to Rotterdam (Netherlands) illustrates more of the issues in bunkering.

Let us assume that the vessel first sails unloaded to Vancouver from Rotterdam, leaving on April 10.

Vessel data

This is all the same as in the previous example.

Voyage data

The proposed route of this voyage is from Rotterdam (Netherlands) via Cristobal (east Panama) and Balboa (west Panama) to Vancouver (Canada), returning the same way.

Since the vessel is unloaded during the outward leg of the voyage, there is no concern over either its loadlines or its bunkering requirements until it leaves Vancouver bound for Rotterdam on May 17.

The longest passage on the return leg during which bunkers will not be replenished is Cristobal to Rotterdam. This is 4793 miles which means (approximately) 13 days at sea. (Use the method in the previous example to check this calculation.)

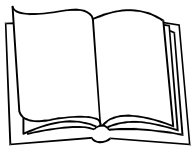
Loadlines	Vancouver 49ºN:	summer
	Below latitude 33ºN:	tropical[1]
	Below latitude 13ºN:	tropical
	Balboa 9ºN:	tropical
	Cristobal 9ºN:	tropical
	Above latitude 13ºN:	tropical[2]
	Above latitude 20ºN:	summer
	Above latitude 36–43ºN:	summer[3]
	Rotterdam 52º N:	summer[3]

NOTES

1. Once the vessel is south and east of 33ºN, 123ºW along the west coast of North America, seasonal tropical regulations apply. From March 1 to June 30 this zone is deemed a tropical zone.

2. Once the vessel is north of 13ºN in the Caribbean, seasonal tropical regulations apply. From November 1 to July 15, this zone is deemed a tropical zone.

3. From April 16 to October 15, the northern seasonal winter zone is deemed a summer zone.



You should check these loadline stipulations with the chart included in your Student Reader.

The combination of these loadline regulations, together with the sailing dates, and the assumption that the vessel takes on bunkers at Cristobal, means that:

- the vessel must leave Vancouver loaded to no more than its summer loadline
- the vessel may leave Cristobal loaded to its tropical loadline; provided that, by the time it has reached 20ºN, it has consumed sufficient fuel, etc. to rise to its summer loadline.

Calculating dwt. for cargo

Vancouver to Bilboa

Bunkers, water, and stores are needed for the passage from Vancouver to Cristobal. Reserves need be held only for the portion of the journey between Vancouver and Bilboa, because the vessel has the option of replenishing its supplies there if necessary. The journey takes 11 days, with 6 days of reserves. The total of 17 days requires space as follows:

Total bunker requirements 17 days @ 38 tonnes per day	=	646 tonnes
Total water requirements 17 days @ 10 tonnes per day	=	170 tonnes
Estimated weight of stores	=	250 tonnes
Total requirements for non-cargo	=	1 066 tonnes
dwt. on summer loadline (at Vancouver)	**=**	25 875 tonnes
dwt. available for cargo (subtracting)	**=**	24 809 tonnes

Calculating dwt. for cargo

Cristobal to Rotterdam

Bunkers, water, and stores are needed for the non-stop passage from Cristobal to Rotterdam, taking 13 days, plus a minimum reserve for 6 days. The total of 19 days requires space as follows:

Total bunker requirements 19 days @ 38 tonnes per day	=	722 tonnes
Total water requirements 19 days @ 10 tonnes per day	=	190 tonnes
Estimated weight of stores	=	250 tonnes
Total requirements for non-cargo	=	1 162 tonnes
dwt. on summer loadline (at Cristobal)	**=**	25 875 tonnes
dwt. available for cargo (subtracting)	**=**	24 713 tonnes

At this point we might be tempted to conclude that the maximum weight of cargo that can be carried is 24 713 tonnes, since this is less than the 24 809 tonnes that could be carried from Vancouver. However, we should note that the 24 713-tonne figure is based on the assumption that the vessel leaves Cristobal loaded only to its summer loadline. If we were to consider leaving Cristobal with the maximum load that could be carried from Vancouver, then the dwt. would be:

Total requirements for non-cargo	=	1 162 tonnes
dwt. of cargo carried from Vancouver	**=**	24 809 tonnes
Total dwt. (adding)	**=**	25 971 tonnes

Since 25 971 tonnes is less than the vessel's tropical loadline dwt. capacity of 26 625 tonnes, this would be a perfectly legitimate thing to do. The only stipulation would then be that the vessel would have to continue to sail in the tropical zone until it had reduced its deadweight to the summer loadline limit of 25 875 tonnes by consumption of:

25 971 – 25 875 = 96 tonnes of bunkers and water.

At a combined consumption rate of 48 tonnes per day, this would only take 2 days and it would be easy to plan a route eastward through the Caribbean that complied with this constraint. Ships

commonly sail 1100 miles from Cristobal before reaching latitude 20º N, which, for our example vessel, takes 3 days.

The full cargo of wheat is therefore 24 809 tonnes.

The voyage schedule

The voyage schedule for Example 2 is shown in Table 7–4. This shows arrivals and departures for all stops on the voyage. It also shows distances travelled and the numbers of days at sea and in port.

The voyage schedule (Example 2)

Route	Miles	Arrival	Sailing	Days at sea	Days in port
Rotterdam			April 10		
	4793			13	
Cristobal		April 23	April 24		1
	44			1	
Balboa		April 25	April 25		
	4045			11	
Vancouver		May 6	May 16		10
	4045			11	
Balboa		May 27	May 27		
	44			1	
Cristobal		May 28	May 29		1
	4793			13	
Rotterdam		June 11	June 21		10
Totals	**17 764**			**50**	**22**

Table 7–4: Voyage schedule for Example 2

Total bunkers consumption

Bunkers is used at the rate of 38 tonnes per day at sea and 3 tonnes per day in port.

	IFO +DO (tonnes)
50 days at sea:	1900
22 days in port:	66
Total:	1966

The total consumption report for Example 2 is shown in Table 7–5.

Total consumption report (Example 2)

Route	Miles	Days at sea	Days in port	Bunkers taken on or used				
				arrival	at sea	in port	refill	sailing
Rotterdam							722	722
	4793	13			494			
Cristobal			1	228		3	907	1132
	44	1			38			
Balboa			4	1094				1094
	4045	11			418			
Vancouver			10	676		30		646
	4045	11			418			
Balboa			1	228				228
	44	1			38			
Cristobal			1	190		3	535	722
	4793	13			494			
Rotterdam			10	228		30		198*
Totals	**17 764**	**50**	**22**		**1900**	**66**	**2164**	

*Bunkers on discharge at Rotterdam

Table 7–5: Total consumption report for Example 2

The effects of bunkering arrangements on routes

In this example, at Rotterdam there is sufficient bunkers to reach Cristobal with a reserve for 6 days (6 × 38 = 228 tonnes). Bunkers is replenished at Cristobal for the voyage to Balboa and Vancouver and back again to Balboa with a reserve for 6 days. Bunkers is replenished again at Cristobal for the return voyage to Rotterdam with a reserve for 6 days on arrival at Rotterdam.

The effects of date of sailing on deadweight capacity

To illustrate the effects of sailing dates on deadweight capacity, let us consider what would happen to our vessel if it leaves Cristobal for Rotterdam on October 15. The voyage schedule shown in Table 7–4 would then be as shown in Table 7–6.

The voyage schedule (Example 2, later in the year)					
Route	**Miles**	**Arrival**	**Sailing**	**Days at sea**	**Days in port**
Rotterdam			Aug 27		
	4793			13	
Cristobal		Sep 9	Sep 10		1
	44			1	
Balboa		Sep 11	Sep 11		
	4045			11	
Vancouver		Sep 22	Oct 2		10
	4045			11	
Balboa		Oct 13	Oct 13		
	44			1	
Cristobal		Oct 14	Oct 15		1
	4793			13	
Rotterdam		Oct 28	Nov 7		10
Totals	**17 764**			**50**	**22**

Table 7–6: Voyage schedule for Example 2 later in the year

The loadline zoning that then applies is as follows:

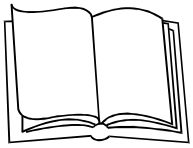
Loadlines	Vancouver 49ºN:	summer
	Below latitude 33ºN:	summer[1]
	Below latitude 13ºN:	tropical
	Balboa 9ºN:	tropical
	Cristobal 9ºN:	tropical
	Above latitude 13ºN:	summer[2]
	Above latitude 20ºN:	summer
	Above latitude 36–43ºN:	winter[3]
	Rotterdam 52º N:	winter[3]

NOTES

1. Once the vessel is south and east of 33ºN, 123ºW along the west coast of North America, seasonal tropical regulations apply. From July 1 to October 31 this zone is deemed a summer zone.

2. Once the vessel is north of 13ºN in the Caribbean, seasonal tropical regulations apply. From July 16 to October 31, this zone is deemed a summer zone.

3. From October 16 to April 15, the northern seasonal winter zone is deemed a winter zone.



Again, you should check these loadline stipulations with the chart included in your Student Reader.

Compared with our example earlier in the year, there are two important changes.

- Because of the hurricane season in the Caribbean, the effective summer loadline zone has moved southwards from 20ºN to 13ºN.
- Winter loadline regulations now apply in the North Atlantic.

Let us consider the second of these two changes first. We have to be sure that the vessel can reach Rotterdam through the winter zone.

The closest that the vessel can sail to Rotterdam before entering the seasonal winter zone is Cape Toriñana (Spain), roughly 2 days sailing south. Hence the maximum cargo that can be carried, allowing for 6 days reserve upon arrival, is:

Total bunker requirements for the winter zone		
8 days @ 38 tonnes per day	=	304 tonnes
Total water requirements		
8 days @ 10 tonnes per day	=	80 tonnes
Estimated weight of stores	=	250 tonnes
Total requirements for non-cargo	=	634 tonnes
dwt. on winter loadline (at entry to the winter zone)		
	=	25 125 tonnes
dwt. available for cargo (subtracting)	**=**	24 491 tonnes

This is the most that the vessel can bring to Rotterdam at this time of year, no matter what conditions apply earlier in the voyage. The full cargo of wheat must therefore be reduced from 24 809 tonnes to at least 24 491tonnes.

Now we can look again at the departure from Cristobal to see if there are loadline problems in the Caribbean.

Proposed dwt. of cargo	**=**	24 491 tonnes
Total requirements for non-cargo	=	1 162 tonnes
Proposed total dwt. (adding)	**=**	25 653 tonnes

Since 25 653 tonnes is less than the vessel's summer loadline dwt. capacity of 25 875 tonnes, the vessel will leave Cristobal with its summer loadline above water. The change in the seasonal zones in the Caribbean will therefore, on this particular voyage, have no impact.

The full cargo of wheat for this late-in-the-year sailing is therefore 24 491 tonnes.

Activity

There is no separate Activity for this lesson.

Practice Exercise for Lesson 3

Test your understanding of Lesson 3 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. List at least four of the factors affecting the choice of bunkering port.

   a. _____

   b. _____

   c. _____

   d. _____

2. When calculating bunker needs, only the time at sea needs be counted, because bunkers are not used in port. True or false?

   a. true
   b. false

3. Why might it be necessary for a vessel to stop at a second port to obtain a full load of bulk cargo before proceeding on its voyage?

   a. it is permissible to load more cargo in salt-water ports than freshwater ports
   b. the loadline regulations at one port might be different from those at another
   c. shallow water on the outward-bound route from a port might prevent the vessel from carrying a full load
   d. bunkers might not be available at the first port

4. Fill in the blanks in the following calculations:

Bunkers is used at the rate of 38 tonnes per day at sea (36 t IFO, 2 t DO) and 3 tonnes per day in port (2 t IFO, 1 t DO).

	IFO	**DO (tonnes)**	
45 days at sea:	____	90	_____
13 days in port:	____	13	_____
Totals	____	103	_____

5. A vessel's dwt. on her loadline at the port of sailing is 24 000 tonnes. The voyage will take 23 days but the ship will need reserve fuel and water for 7 days. The vessel uses bunkers at the rate of 35 tonnes per day and uses water at 10 tonnes per day. Estimated weight of stores is 200 tonnes. Calculate the deadweight available for cargo.

Answer keys

Lesson 1

1. d. the minimum number of boats possible to serve the traffic and maximize revenues

2. c. conference liners publish schedules several months in advance

3. Any four of the following:
   - traffic and competition
   - available ships
   - crew availability and certification
   - efficiency of ship and port operations
   - uncontrollable conditions of work

4. Characteristics of the ships affecting scheduling:
   - size (length, beam, and draft) and the need for deep-water berth facilities
   - special characteristics—such as cruise ships
   - special cargo-handling equipment
   - plying limits due to agreements and conferences

5. Any four of the following:
   - climatic conditions
   - hostile activities, actual or envisaged
   - political actions such as flag discrimination or bilateral trade agreements
   - location of canals routes
   - general availability of port facilities and dock labour
   - tidal restrictions
   - any condition imposed by liner conference agreements on liner tonnage.

Lesson 2

1. d. lines on a ship defining the minimum freeboard

2. – freeboard
   – position of loadlines
   – location of loadlines on hull

3. c. because they are constructed differently

4. a. the winter loadline would be submerged and the ship would be overloaded

5. b. false

   The WNA loadline only applies to vessels less than a 100 metres long.

Lesson 3

1. Any four of the following:
   – rate of freight per tonne after deduction of loading and/or discharging expenses, if any, and commission or brokerage
   – prices for bunkers, including delivery charges (such as lighterage charges).
   – possible extra port charges and delays at bunkering ports
   – availability of facilities to replenish bunkers at port(s) and dock(s) of loading, to allow loading cargo and bunkers simultaneously, thus avoiding delay
   – type of cargo
   – possible draft restrictions at the port of discharge

2. b. false

3. c. shallow water on the outward-bound route from a port might prevent the vessel from carrying a full load

4. The completed calculation is:

Bunkers is used at the rate of 38 tonnes per day at sea (36 t IFO, 2 t DO) and 3 tonnes per day in port (2 t IFO, 1 t DO).

	IFO	DO (tonnes)	
45 days at sea:	1620	90	1710
13 days in port:	26	13	39
Totals	1646	103	1749

5. The deadweight available for cargo is calculated as follows:

   Total bunker requirements:

   30 days @ 35 tonnes per day = 1050 tonnes

   Total water requirements:
   30 days @ 10 tonnes per day = 300 tonnes

   Estimated weight of stores: = 200 tonnes

   Total requirements for non-cargo: = 1550 tonnes

   dwt. on loadline at sailing: = 24 000 tonnes

   dwt. available for cargo: = 22 450 tonnes.

Distance Education Course SB–101.3
Commercial Shipping

Unit 8 Voyage estimating

Commercial shipping aims to make a profit by carrying goods or passengers between ports. To ensure that a commercial venture is viable, estimates of costs must be accurately made so that they may be weighed against projected revenues. During a voyage fuel and fresh water are used continuously and must be replenished. Estimating the best timing and location of these functions is vital to the enterprise.

The lessons in this unit will cover the topic of voyage estimation.

Unit 8 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Describe what voyage estimation is.
- Identify the main steps and factors in voyage estimation.
- Estimate voyages.

Lesson 1..... What voyage estimation is

Before undertaking a voyage, the shipowner or charterer will want to know how much money will be made on the venture. During the voyage, the ship incurs expenses and uses supplies that must be replenished. Rough cost estimates, and later more accurate ones, must be made so that different routes can be compared. Such estimates focus on the variable costs involved.

The main steps in estimating a voyage

The six steps of accurate voyage estimation are as follows:

1. Become familiar with the vessel's characteristics.
2. Map out the proposed employment of the vessel.
3. Estimate the cargo quantity and loading/discharging times.
4. Calculate expenses.
5. Calculate income.
6. Calculate the net income (loss) including freight taxes.

Step 1: Assess the vessel

1.1 Various aspects of the vessel affect the cost of a voyage. Its overall shape and size determine how much of which kinds of cargo can be carried, and how much space is used for bunkers, freshwater, and other supplies. The characteristics of a ship that affect voyage estimates include:

- gross and net registered tonnage (GRT and NRT)
- fuel consumption and speed
- cargo capacity in tonnes (deadweight, dwt.)
- cargo capacity in cubic metres, TEUs, etc.
- holds and hatches which affect loading, discharge, and stowage
- overall length (LOA) and draft
- length between perpendiculars (LBP or Lpp)
- moulded breadth (width of the underside of the upper continuous deck between the ship plating)
- moulded depth (depth from the underside of the upper continuous deck to the inner bottom of the ship)

age and classification.

Step 2: Map out the voyage

The voyage plan must consider what route will be taken, and what bunkering arrangements will be made.

2.1 Considerations that enter into route planning include:

- distances and sailing times involved
- weather conditions
- availability and cost of bunkers in different locations
- loadline zones
- ports of call—extra time must be allowed per port
- canal tolls
- canal transits—extra time must be allowed
- proximity to the route of ports able, if necessary, to replenish supplies and make repairs.

2.2 Bunkering arrangement considerations include:

- speed of vessel—bunker consumption at various speeds
- bunker consumption—fuel oil and diesel oil per day at sea and in port
- bunkering calls—the general rule is half a day per call, avoiding deviation from route
- and again, cost of bunkers in different locations.

Step 3: Estimate the quantity of cargo and loading/discharge times

3.1 The potential cargo-carrying capacity (tonnes) of the vessel is its deadweight-carrying capacity less the weight of:

- stores, including food and other supplies for the crew and lubricants for the machinery
- freshwater
- bunkers (IFO and DO).

A vessel may not however be able to carry the maximum weight of cargo if the volume of that maximum weight of cargo is too great for the holds.

3.2 The cargo-carrying capacity of the holds of a vessel are specified in cubic metres, or, less often nowadays, in cubic feet or measurement tons. A measurement ton is a unit of volume defined in a particular tariff.

To estimate the equivalent weight of the maximum volume of cargo, the following formula is used:

$$\text{full-load weight} = \frac{\text{grain or bale capacity}}{\text{stowage factor}}$$

where:

the *grain* or *bale capacity* is the grain or bale capacity of the vessel. Grain capacity is used for bulk cargoes that completely fill the hold; bale capacity is used for cargoes that are packaged and so cannot entirely fill the hold because of its awkward shape.

the *stowage factor* is the volume per unit weight of the particular cargo stowed.

The units of weight in the above formula will be those defined by the stowage factor. If the stowage factor is defined as so many units of volume per long ton, for example, then the full-load weight will be in units of long tons. The units of volume in the above formula must be the same. For example, if the grain or bale capacity is in units of cubic feet, then the stowage factor must be in units of so many cubic feet per unit weight. If you can, always use metric units (cubic metres, tonnes, and cubic metres per tonne).

3.3 The vessel can only carry either the cargo-carrying capacity measured in tonnes, as calculated in paragraph 3.1, or the full-load weight in tonnes, as calculated in paragraph 3.2, whichever is smallest.

In general, amounts of cargoes with stowage factors of less than about one cubic metre per tonne are limited by weight (deadweight cargo); those with stowage factors of more than about one cubic metre per tonne are limited by volume (measurement cargo).[1]

3.4 Allowances for load time and discharge time are calculated as explained in Unit 3 and Unit 4.

[1] Some tariffs specify volumes in terms of "measurement tons". A measurement ton is a unit of volume specified in the tariff and is commonly, but not always, one cubic metre. Charges are then made on the basis of cargo weight (tonnes) or cargo volume (measurement tons), whichever is higher. The actual unit used for cost calculations, whether it is a tonne or a measurement ton, is called a "freight ton".

Step 4: Calculate expenses

4.1 An estimate of the required bunkers is obtained by calculating:

- fuel consumption for the number of days at sea
- fuel consumption for the number of days in port
- total cost of fuel.

4.2 Port charges are estimated from the *pro forma* invoice (a "before-the-fact" invoice) of the agency.

4.3 Special charges, such as canal transit fees, must be included in the estimate.

Remember that when estimating voyages, we are mostly interested in variable costs. If the cost of doing, providing, or purchasing something, is the same for all plans, then knowing the amount of that cost is no help in deciding which plan is best—it has to be paid anyway. Only when it comes to deciding whether or not a voyage should be undertaken at all are fixed costs a factor, and generally these types of decision are not made on a voyage-by-voyage basis. Keeping vessels busy is usually good for business. This topic is covered in greater detail in the *Economics of Shipping* course.

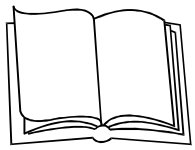
Step 5: Calculate income

This calculation includes:

- cargo quantity (Step 3)
- freight rate
- commissions and brokerage
- demurrage or dispatch payments so far as these are predictable in advance.

Step 6: Calculate net results

Compare the results of the calculation in Steps 4 and 5. Take account of any taxes due.



Read *Elements of Shipping*
Pages 357–362.

Activity

Using the above procedure, estimate the cost of a journey carrying a cargo of your choice in a truck from one end of your island to the other across a toll bridge. Assume that two people will help you load and discharge the cargo (who may or may not be paid) and assume that you must keep the truck engine running while you load and discharge. Don't forget the crew must eat and drink!

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. What are the six main steps in estimating the profitability of a voyage?

   1. _____
   2. _____
   3. _____
   4. _____
   5. _____
   6. _____

2. Name at least four characteristics of a ship that affect the cost of a voyage.

   a. _____
   b. _____
   c. _____
   d. _____

3. Name four things that affect the route a ship takes?

   a. _____
   b. _____
   c. _____
   d. _____

4. Name the two most important components of a vessel's deadweight, other than cargo.

   a. _____
   b. _____

5. The port charges and other items on the pro forma invoice do not affect the profitability of a voyage. True or false?

   a. true
   b. false

Lesson 2..... Sample voyage estimates

The following voyage estimates have been made for a single-deck, self-trimming bulk carrier. Two possibilities are considered.

The characteristics of the ship

Deadweight capacity	Winter loadline	25 125 tonnes
	Summer loadline	25 875 tonnes
	Tropical loadline	26 625 tonnes
Cubic capacity	– Holds	1 205 000 cu.ft.
	– Wing tanks	150 000 cu.ft.
	Total	1 355 000 cu.ft.
Draft on summer freeboard		9.96 m
Average speed		15 knots
Bunker capacity		
	Intermediate fuel oil (IFO)	1600 tonnes
	Diesel oil (DO)	160 tonnes
	Total	1760 tonnes
Daily consumption of IFO at sea		36 tonnes
Daily consumption of DO at sea		2 tonnes
Daily consumption of IFO in port		2 tonnes
Daily consumption of DO in port		1 tonne
Daily consumption of water		10 tonnes

Certificates:	**National**	**Panama Canal**	**Suez Canal**
Gross tonnage	16 640	16 890	16 610
Net tonnage	11 550	13 670	13 300

The upper wing tanks are self-trimming and can be used for grain in bulk or water ballast. These tanks are loaded through small hatches fitted with covers. They are discharged by emptying them into the centre holds through 20-inch (51-cm) diameter openings.

Conditions of the cargo and voyage

Reserves

Assume that the vessel carries a minimum reserve of bunkers and water throughout the voyage for unforeseen circumstances. The size

of this reserve depends upon such things as the distance to be covered, weather conditions expected during the voyage, and the possibility to replenish bunkers in ports *en route*. It is up to the ship's master to judge each case on its merits; no hard and fast rules can be given.

Stowage factor

The stowage factor for grain in bulk varies considerably for different ports of loading or seasons. It also depends upon the age of the crop and whether a light or heavy variety is shipped. The following figures can be taken as fair averages:

Maize or corn in bulk	48–52 cu.ft. per long ton
Wheat in bulk, heavy variety	45–47 cu.ft. per long ton
Wheat in bulk, light variety	47–50 cu.ft. per long ton

Whether the wing tanks will be required or not, depends upon the type of grain shipped.

Duration of voyage

The estimated duration of the voyage is increased by the number of days required for such things as preparation, repairs, dry-docking, and survey. The number of days used is based upon experience.

Loading and discharge (cost and time)

The vessel will be loaded and discharged in accordance with the terms of the charter party. Assume that:

- The cargo will be loaded, trimmed, and discharged free of expense to the vessel (f.i.o.t.). This is so unless otherwise stated in the charter party.
- In practice the agreed lay time may be exceeded or lay time may be saved, in which case the charter party stipulates how demurrage or dispatch money will be payable. These are usually fixed at levels that cover daily operating costs and do not have an important bearing on voyage estimates.

Payment of freight

Assume that the agreed freight will be fully prepaid upon surrender of signed bills of lading. (This is the case unless it is otherwise agreed.)

Daily operating costs

Daily operating costs may vary considerably since they depend on the nationality of the vessel and other factors. Consequently, this item has been left blank in the estimates. The same applies to amortization, which depends upon the building costs of the vessel, etc.

The operating costs cover the following items:

- wages, including overtime and benefits
- victualing
- insurance, including war risks and P&I insurance
- maintenance, repairs, and survey
- stores (for deck, engine, and steward)
- lubricating oil and water
- miscellaneous expenses.

Pro forma voyage account

The pro forma voyage account includes various charges and disbursements that are incurred during a voyage. These have been left blank in the following examples. In these times of fluctuating rates, prices, and port charges, it serves no purpose to fill them in. Shipowners have complete information concerning port charges, canal dues, etc., enabling them to estimate these items with maximum accuracy in a complete estimate.

Sample voyage estimation

This calculation is for the carriage of a full cargo of coal from Norfolk to Yokohama.

Rate of loading	Five days, all purposes, Sundays and holidays excepted.
Rate of discharge	Five days, all purposes, Sundays and holidays excepted.
Route	Rotterdam (Netherlands) – Norfolk (Virginia USA) – Panama Canal – Yokohama (Japan)

Stowage factor for coal = 42 cu.ft. per long ton

Table 8–1 shows the voyage schedule.

Route	Miles	Arrival	Sailing	Days at sea	Days in port
Rotterdam			Jul 16		
	3490			10	
Norfolk		Jul 26	Jul 28		2
	1728			5	
Cristobal		Aug 2	Aug 3		1
	44			1	
Balboa		Aug 4	Aug 4		–
	7742			22	
Yokohama		Aug 26	Aug 29		3
Totals	**13 004**			**38**	**6**

Table 8–1: Voyage schedule Rotterdam to Yokohama

Loadlines

Norfolk 37°N:	summer
Cristobal 9°N:	tropical
Balboa 9°N:	tropical
Yokohama 35°N:	summer

Calculation of dwt. for bunkers, water, and cargo

The longest passage the loaded vessel makes on which bunkers are not replenished is Panama Canal (Balboa) to Yokohama. This is 7742 miles and takes 22 days at sea. Bunkers and water are needed for this passage, plus reserves for, say, 8 days.

Total bunker requirements 30 days @ 38 tonnes per day	=	1140 tonnes
Total water requirements 30 days @ 10 tonnes per day	=	300 tonnes
Estimated weight of stores	=	250 tonnes
Total requirements for non-cargo	=	1 690 tonnes
dwt. on tropical loadline (at Balboa)	**=**	26 625 tonnes[1]
dwt. available for cargo (subtracting)	**=**	24 935 tonnes[2]

cargo weight @ 1016 kg/ton = 24 542 long tons
cargo volume @ 42 cu.ft./long ton = 1 030 764 cu.ft.

NOTES
1. How many days after leaving Balboa will the vessel have

consumed enough fuel and water to bring it up to the summer loadline limit? Is it reasonable that the vessel spend this long at sea before crossing into the summer zone? Take a look at the chart in the Student Reader.

2. You should verify for yourself that the vessel can leave Norfolk for the Panama Canal with this weight of coal aboard. Allow 5 days, plus 3 days in reserve, and observe the summer loadline limit.

Pro forma voyage account

(Filled in with accurate estimates by the ship owner or charterer)

Intake weight	=	24 935 tonnes
Short weight (2%)	=	500 tonnes
Delivered weight	=	2 435 tonnes

@ $____ per tonne = $_____

Disbursements:

Bunkers
Port charges
Panama Canal dues
Loading expenses
Discharging expenses
Cleaning expenses
Insurance
Commission and brokerage
Miscellaneous expenses
BALANCE = $_____

Excluding 44 days of daily operating costs and amortization.

Calculating and reporting total consumption

Table 8–2 shows the total consumption report for this voyage.

Route	Miles	Days at sea	Days in port	Bunkers used and replaced				
				arrival	at sea	in port	refill	sailing
Rotterdam							804	804
	3490	10			380			
Norfolk			2	424		6		418
	1728	5			190			
Cristobal			1	228		3	953	1178
	44	1			38			
Balboa				1140				1140
	7742	22			836			
Yokohama			3	304		9		295*
Totals	**13 004**	**38**	**6**		**1444**	**18**	**1757**	

*Bunkers on discharge at Yokohama

Table 8–2: Total consumption report Rotterdam to Yokohama

Total bunkers consumption:

	IFO:	DO	Total (tonnes)
38 days at sea:	1368	76	1444
6 days in port:	12	6	18
Total:	1380	82	1462

Explanation of bunkering arrangements

When fixing the maximum quantity of coal that can be carried on sailing from Norfolk via Panama Canal to Yokohama in Japan, the following considerations played a part:

- on sailing from Norfolk the vessel may be loaded to her summer loadline
- on sailing from Balboa the vessel may be loaded to her tropical loadline.

Reserves

It has been assumed that the vessel will be dispatched from Rotterdam with sufficient bunkers to reach Cristobal with a reserve for 6 days (reserve = $6 \times 38 = 228$ tonnes). At first sight, such a margin seems high, but bear in mind that the consumption on the

voyage in ballast (without cargo) from Rotterdam to Norfolk may be higher than anticipated due to weather conditions. It is possible to replenish bunkers at Norfolk, but the saving in bunker costs may not be worthwhile in view of the small quantity involved, lighterage expenses, etc.

The unbroken journey to Yokohama from Balboa

The carrying capacity for coal on this voyage is governed by the tropical loadline on sailing from Balboa with sufficient bunkers, water, and other stores to reach Yokohama without stopping on the way (for example at Los Angeles).

Replenishing bunkers at Los Angeles would not be a paying proposition. Apart from the extra distance (about 100 miles) during which supplies would be used, there would be extra port charges and loss of time. Also, on sailing from Los Angeles to Yokohama the summer loadline may not be submerged. As a result, the carrying capacity for coal would be reduced by about 245 tonnes, as shown below:

Total bunker requirements 14 + 6 days @ 38 tonnes per day	=	760 tonnes
Total water requirements 14 + 6 days @ 10 tonnes per day	=	200 tonnes
Estimated weight of stores	=	225 tonnes
Total requirements for non-cargo	=	1 185 tonnes
dwt. on summer loadline (at Los Angeles)	**=**	25 875 tonnes
dwt. available for cargo (subtracting)	**=**	24 690 tonnes

Reduction compared to direct route = 24 935 – 24 690 = 245 tonnes

Activity and Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by doing the following voyage estimate. Check your results in the answer key at the back of this unit.

Data on vessel and voyage

A vessel leaves Rotterdam on April 12 and travels to Bahía Blanca. It has to load and carry a full cargo of wheat back from Bahía Blanca to Rotterdam.

Rate of loading: 2000 tonnes per weather working day, gross terms.

Reminder: Gross terms mean that the cost of loading and stowing are for the account of the vessel (the shipowners).

Rate of discharge: 3000 tonnes per weather working day, free discharge.

Reminder: Free discharge means that the cost of discharging is for the account of the consignee, not that of the shipowners.

Vessel data

The characteristics of the ship are identical to those given at the start of Lesson 2 and are as follows:

dwt. capacity	winter loadline	25 125	tonnes
	summer loadline	25 875	tonnes
	tropical loadline	26 625	tonnes
Grain space	Holds	1 205 000	cu.ft.
	Wing tanks	150 000	cu.ft.
	Total:	1 355 000	cu.ft.
Bunker capacity	(IFO and DO)	1760	tonnes

Bunkers use

At sea (15 knots)
36 tonnes IFO + 2 tonnes DO per day
Water used is 10 tonnes per day

In port
2 tonnes IFO + 1 tonne DO per day

Voyage data

Route: Rotterdam – Bahía Blanca (39°S) – St. Vincent (bunkers) – Rotterdam.

Route	Miles	Arrival	Sailing	Days at sea	Days in port
Rotterdam			Apr 10		
	6615			?	
Bahía Blanca		?	?		
	3998			?	
St. Vincent		?	?		?
	2568			?	
Rotterdam		?	?		?
Totals	**?**			**?**	**?**

Table 8–3: Rotterdam to Bahía Blanca to Rotterdam

Bunkering arrangements

Assume that the vessel leaves Rotterdam with sufficient bunkers on board for the passage from Rotterdam – Bahía Blanca – St. Vincent with a reserve for 6 days.

Whether it is a paying proposition to sail from Rotterdam with sufficient bunkers to reach La Palma or St. Vincent depends upon the prices for bunkers at Rotterdam, La Palma, and St. Vincent. It is true, calling at La Palma or St. Vincent outwards does not mean a deviation, but it is obvious that extra port charges will be incurred as well as extra delay, say one day. Even with cheaper fuel, the savings may not be enough to merit a call at La Palma or St. Vincent outwards. It is a question of calculation. In this case, enough bunkers is loaded in Rotterdam for the complete outward journey.

Questions:

1. What is the longest leg of the voyage with a full load of cargo? How long does it take?
2. What draft is the basis for calculating the deadweight available for cargo?
3. Complete Table 8–3.
   - Calculate times at sea to the nearest integer assuming an average speed of 15 knots.
   - Estimate the time for loading at the scheduled rate (no weather stops) and add two days for berthing, etc. Assume that the non-cargo deadweight will be about 1000 tonnes. Round off your estimate to the nearest day.
   - Allow 1 day for bunkering.
   - Estimate the time for discharge at the scheduled rate (no weather stops) and add two days for berthing, etc. Round off your estimate to the nearest day.
4. How many days are spent at sea and how many days in port?
5. What is a stowage factor for wheat in bulk?
6. What loadline must be observed at St. Vincent? St. Vincent is in the Cape Verde Islands at 16°N, 25°W.
7. Calculate the deadweight available for the cargo (grain). Use the estimated weight of stores = 250 tonnes. Assume a reserve of 6 days.
8. What is the volume in cubic feet of the cargo calculated in Question seven. Assume a stowage factor of 48 cu.ft. per long ton.
9. List eight disbursements in the *pro forma* account. Can you name two disbursements that will definitely not have to be paid in this case?
10. Make a *total consumption* report of fuel oil and diesel oil by completing Table 8–4 and Table 8–5.

		Days		Bunkers used and replaced				
Route	**Miles**	**at sea**	**in port**	**arrival**	**at sea**	**in port**	**refill**	**sailing**
Rotterdam								
	6615							
Bahía Blanca								
	3998							
St. Vincent								
	2568							
Rotterdam								*
Totals	13 181							

*Bunkers on discharge at Rotterdam

Table 8–4: Total consumption report

	IFO	**DO**	**Total (tonnes)**
days at sea			
days in port			
Total consumption:			

Table 8–5: Total consumption summary report

Answer keys

Lesson 1

1. The six steps are:
    1. Become familiar with the vessel's characteristics.
    2. Map out the proposed employment of the vessel.
    3. Estimate the cargo quantity and loading/discharging times.
    4. Calculate expenses.
    5. Calculate income.
    6. Calculate the net income (or loss) after taxes.

2. Any four of the following:
    - gross and net registered tonnage
    - fuel consumption and speed
    - deadweight
    - cargo capacity in tonnes, freight tons, TEUs, etc.
    - holds and hatches which affect loading, discharge, and stowage
    - overall length and draft
    - length between perpendiculars
    - moulded breadth
    - moulded depth
    - age and classification

3. Any four of the following:
    - distances and sailing times involved
    - weather conditions
    - availability and cost of bunkers in different locations
    - loadline zones
    - ports of call
    - canal tolls
    - canal transits
    - proximity to the route of ports able, if necessary, to replenish supplies and make repairs

4. You must deduct the weight of:
   - stores
   - freshwater
   - bunkers (IFO and DO)

5. b. false.

Lesson 2 Activity and Practice Exercise:

1. The longest leg of the voyage with a full load of cargo is from Bahía Blanca to St. Vincent. It will take 11 days.

   3998 miles at 15 knots = 11.1 days (11 days rounded off).

2. Draft on sailing from Bahía Blanca (39°S) in the South Atlantic is on the summer loadline.

3.

Route	Miles	Arrival	Sailing	Days at sea	Days in port
Rotterdam			April 10		
	6615			18	
Bahía Blanca		April 28	May 12		14
	3998			11	
St. Vincent		May 23	May 24		1
	2568			7	
Rotterdam		May 31	June 10		10
Totals	**13 181**			**36**	**25**

Table 8–3 completed: Arrivals and sailings

The values are obtained as follows:

6615 miles at 15 knots = 18.4 days (18 days rounded off)

summer loadline deadweight is 25 875 tonnes
non-cargo deadweight is 1000 tonnes (given)
cargo to be loaded = 25 875 – 1000 = 24 875 tonnes
load time at 2000 tonnes per day = 12.4 days
plus 2 days extra (given) = 14.4 days (14 days rounded off)

3998 miles at 15 knots = 11.1 days (11 days rounded off)

1 day bunkering (given)

2568 miles at 15 knots = 7.1 days (7 days rounded off)

cargo to be discharged = 24 875 tonnes
discharge time at 3000 tonnes per day = 8.3 days
plus 2 days extra (given) = 10.3 days (10 days rounded off)

4. 36 days at sea. 25 days in port

   From the completed Table 8–3

5. Stowage factor for wheat in bulk is 45–50 cu.ft. per long ton depending on the variety.

6. The applicable loadline at St. Vincent (16°N, 25°W) is tropical. However, in order to return to Rotterdam, the vessel will have to sail through a summer zone, so either answer is correct.

   In the North Atlantic, the seasonal tropical zone extends from latitude 10°N to 20°N, west of the 20°W meridian. Tropical regulations are in effect from November 1 to July 15.

7. Dwt. on summer loadline
   sailing from Bahía Blanca = 25 875 tonnes

   Time:

Bahía Blanca – St. Vincent	= 11 days
Reserve	= 6 days
Total	**= 17 days**
Bunkers @ 38 tonnes per day	= 646 tonnes
Water @ 10 tonnes per day	= 170 tonnes
Estimated weight of stores	= 250 tonnes
Total non-cargo requirements	= **1066 tonnes**

   Dwt. available for cargo = 25 875 – 1066 = 24 809 tonnes

8. 1 172 079 cu.ft.

   24 809 tonnes is $\frac{24809}{1.016} = 24418$ *long tons*

   24 418 long tons @ 48 cu.ft. per ton = 1 172 0179 cu.ft.

   The answer 1 190 832 cu.ft. is also good (ignoring the difference between the tonne and long ton). Stowage factors are approximate.

   Yes.

   The grain capacity of the holds is 1 205 000 cu.ft.

9. Any eight of the following:
   - bunkers
   - port charges
   - canal dues
   - loading expenses
   - discharging expenses
   - cleaning expenses
   - insurance
   - commission and brokerage
   - miscellaneous expenses

   Canal dues and discharging expenses (free discharge) are not payable in this particular example.

10.

		Days		Bunkers used and replaced				
Route	**Miles**	**at sea**	**in port**	**arrival**	**at sea**	**in port**	**refill**	**sailing**
Rotterdam							1372	1372
	6615	18			684			
Bahía Blanca			14	688		42		646
	3998	11			418			
St. Vincent			1	228		3	269	494
	2568	7			266			
Rotterdam			10	228		30		198*
Totals	13 181	37	25		1368	75	1641	

*Bunkers on discharge at Rotterdam

Table 8–4 (completed): Total consumption report

Start with the requirement that the vessel must arrive at St. Vincent with 228 tonnes (6 days reserve @ 38 tonnes per day)

During the 11 days prior to arrival, the vessel will use 11 × 38 = 418 tonnes at sea

The vessel must therefore sail from Bahía Blanca with 228 + 418 = 646 tonnes

During the 14 days in port at Bahía Blanca the vessel will use 14 × 3 tonnes = 42 tonnes

The vessel must therefore arrive at Bahía Blanca with 646 + 42 = 688 tonnes

During the 18 days voyage from Rotterdam, the vessel will use 18 × 38 = 684 tonnes at sea

The vessel must leave Rotterdam therefore with 688 + 684 = 1372 tonnes

We note here that the bunker capacity of the vessel is 1760 tonnes, so there will be no problem carrying this amount of bunkers

Return now to the requirement that the vessel must arrive at Rotterdam at the end of the voyage with 228 tonnes (6 days reserve)

During the 7 days prior to arrival, the vessel will use 7 × 38 = 266 tonnes at sea

The vessel must therefore sail from St. Vincent with 228 + 266 = 494 tonnes

Since it arrived with 228 tonnes, and will use 3 tonnes during the 1 day stay, it must take on 494 + 3 – 228 = 269 extra tonnes.

After 10 days in Rotterdam, the remaining bunkers will be 228 – (10 × 3) = 198 tonnes.

	IFO	**DO**	**Total (tonnes)**
36 days at sea	1296	72	1368
25 days in port	50	25	75
Total consumption:	1346	97	1443

Table 8–5 (completed): Total consumption summary report

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Commercial Shipping

Unit 9 Passenger shipping

Passenger shipping has changed a great deal in the last century. Modern ferry and cruise ships deal with a very different clientele and must interface with other modes of transport efficiently.

The three lessons in this unit will cover the topics of:

- modern passenger shipping
- the logistics of passenger shipping
- marketing passenger shipping.

Unit 9 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition)
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes

When you have completed this unit you will be able to:

- Describe the main types of modern passenger shipping services (passenger, cargo/passenger, ferry, and cruise).
- Identify the types of ships used for passenger services.
- Describe the functions of cruise associations.
- Identify the main factors affecting the logistics of passenger shipping.
- Identify what is involved in marketing passenger shipping.
- Discuss the issues in market planning and using market research.
- Identify the issues involved in market pricing.

Lesson 1..... Modern passenger shipping

Until the 1920s, travel by sea was the accepted mode of international travel and passenger lines were profitable. The more famous passenger steamship companies were household names, and their ship commanders were considered to be at the peak of their profession. This has ended with the availability of cheap, fast air travel using jets. The slow pace of sea travel does not suit the modern business traveller or those with short holidays and long distances to travel. The future of passenger shipping lies in cruise ships and ferries.

Building and operating passenger ships

Building a new passenger ship is very expensive. One of the last great ones built, the passenger liner QE2 (*Queen Elizabeth the Second*), cost more than £500 (US $830) per tonne and this represents a huge investment of capital. Very few companies or countries have invested in passenger ships in recent years and governments no longer encourage the production of passenger ships as backups to carry troops during war, since they also are carried by air now.

Crewing of passenger ships

Passenger ships are labour-intensive and qualified crewmembers are hard to find and expensive, adding to increasing operating costs. Modern ship design allows more passengers to be carried comfortably with fewer crewmembers. In the last few years, the numbers have changed from one passenger per 50 tonnes gross to one passenger per 30 tonnes gross. The ratio of passengers to crew has gone from two-to-one to four-to-one.

Cargo/passenger ships

Up until the 1940s, cargo/passenger ships were very much in vogue. They carried several thousand tonnes of cargo with, say, two hundred passengers. However, because of increased costs of the passenger sections and slow turn-around in ports, they are no longer economic.

It may be that increased mechanization of cargo handling giving swifter turn-around may allow a return to this type of service. Some cargo lines currently carry small numbers of passengers.

Ferries

The first roll-on/roll-off (ro/ro) vessels were tank-landing aircraft in the second world war. Since the widespread introduction of ro/ro car passenger ferries in the 1960s, there has been huge growth in this service. In the same period drive-on/drive-off air ferry services have remained stagnant or decreased.

Ferry services also include foot passengers. Voyage times vary from 10 to 45 minutes for estuarial services, to 1.5 to 36 hours in short sea trades. Most are from 3 to 8 hours. Often, regular road hauliers are given priority over ordinary motor vehicles.

Fares are determined by:

- length of voyage
- competition (air and other shipping)
- port dues for passengers and vehicles
- fuel and crew costs
- agreements with other operators
- seasonal demand
- class of travel and concessions to age or youth
- group discounts
- size of vehicle and number of passengers in the vehicle
- government controls and charges
- revenues on board—food, drink, gifts, etc.

Ferry design

Ferries are designed to be as functional and versatile as possible and are called multipurpose vessels with vehicular capacity. They can carry cars, trucks, trailers, containers, and caravans. Many have passenger certificates for 2000 with about 200 to 300 berths. Some have cabins and some do not. Others may have capacity for 400 cars or 80 trucks/trailers. Some more recent vessels can carry up to 120 trucks/trailers. The ships are designed for quick turn-around and have bow and stern ramp loading, and a mezzanine deck so that car and truck combinations can be varied.

Cruise ships

The cruise ship industry is growing rapidly (10% per year) in the last few years as people in developed countries have increased their

leisure time and prosperity. In 1994, the global cruise market was four million passengers. The Mediterranean and the Caribbean are very popular cruise markets.

This type of service requires a different style of marketing and is susceptible to trends in consumer spending. It is very competitive in both prices and quality. It often includes the organization of connecting flights. Cruise ships are operated as floating hotels and prices include most on-board facilities.

In setting prices, a cruise line must take account of market conditions and costs. Voyage costs are broken down into the cost per passenger at a specific load factor (such as 80%), and then a profit margin is added.

Cruise ship design

Traditional passenger ships are not suitable for cruising. Cruise ships are extremely expensive to build and operate because they need modern luxurious amenities and have special requirements.

Some of the special requirements of cruise ship are:

- cruise ships must be able to enter romantic and beautiful old ports, so their draft is usually small
- they must be able to berth and unberth with limited assistance
- fuel consumption must be kept to a minimum at normal cruising speeds, while the ship must be able to reach 20 knots
- the vessels must carry many passengers in comfort and safety
- all noisy machinery must be sited away from public areas
- cabins must be located away from busy service areas
- considerable generating power is needed for air conditioning and other passenger needs.

Owners usually opt for two propulsion sets of twin, medium-speed diesel units. These can use less expensive, heavy bunkers and allow intensive in-service maintenance to reduce overhaul time. Each pair is connected to a controllable-pitch propeller via a reduction gearbox. This combines with bow or stern thrusters to increase manoeuvrability. As much waste heat as possible is used to generate power.

Cabins have little variation except for a few luxury ones. There is usually a wide choice of recreation facilities including at least one swimming pool. There are also several indoor and outdoor areas for

eating and drinking. Baggage handling equipment and internal transportation is designed to minimize crew. Catering is often run by a concession rather than seafarers. Launches are usually available to ferry passengers ashore.

The trend in recent years has been toward larger vessels with improved passenger accommodation and fewer passenger classes on board (first class and tourist class only).

Cruise associations

Positive economic reports and expanding popularity in the cruise market place have stimulated regulatory and legislative interest in the industry. The International Council of Cruise Lines (ICCL) is the main trade association to protect the interests of the cruise industry. It is a non-governmental consultative organization.

As North America provides the largest market for the cruise industry, the ICCL focuses extensively on legislative and regulatory maritime issues in the USA. The rapid growth of the cruise industry has caused some federal legislators to consider altering existing laws and adopting new provisions that change, frequently adversely, the way this international industry operates from US ports. Because many of the lawmakers are unaware of the intricacies of the industry, some of the legislative proposals would, perhaps unintentionally, harm cruise operations and impede future growth.

ICCL membership represents over 90% of the ocean-going, overnight, deep-sea, passenger cruise industry. Its charter covers the USA as well as other countries. The organization advises the International Maritime Organization (IMO) on issues that effect cruise line operations.

Another important group is the Cruise Lines International Association (CLIA). Some of their activities includes:

- programs to train agents to become more knowledgeable about cruises and sell them more efficiently
- research and statistical data about the cruise population. Today's new cruisers are younger (averaging 44 years old) with a moderate income of US $51 000. They are more inclined to travel with their children.

Activities

1. What types of passenger services operate at the port nearest to you? If there are none there, find out which ports they operate out of on your island.
2. How are the linkages with other forms of transport on the island made? What forms of transport are they?
3. How many passengers a year are handled by these services?
4. If there are ferry services, do they carry vehicles or foot passengers?

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. Explain briefly what has been the main cause of the decline of passenger shipping for business travel?

   _____

2. What is the modern ratio of crewmembers to passengers?

   a. two to one
   b. one to two
   c. four to one
   d. one to four

3. Name at least eight factors that affect ferry fares.

   a. _____
   b. _____
   c. _____
   d. _____
   e. _____
   f. _____
   g. _____
   h. _____

4. List at least four special requirements of cruise ships.

   a. _____
   b. _____
   c. _____
   d. _____

5. Name the two major associations that serve the cruise business.

   a. _____
   b. _____

Lesson 2..... Logistics of passenger shipping

The factors influencing the passenger's choice of cruise shipping have changed dramatically during the past decade. The business is based on the "total product" concept, including reliability, frequency, cost, transit time, quality of service (comfort, luxury, and fun), packaging, baggage and car/caravan handling, import duty, insurance and so on.

The passenger shipping business is multimodal with sea transport as the major leg of the overall transit. Logistics and just-in-time arrival and departure terminals play a major role in the operations. The way people and information can be moved through the complex system strongly affects how the ship owner can best meet the needs of the passengers.

Managing passengers and information

To operate passenger shipping means managing both the flow of passengers and information. Optimal customer service features are:

- specialized personnel who use their experience and professionalism to devise a solution to logistic problems
- payment in electronic form
- efficient organization of documents, tickets, and other paperwork
- good management of information provided on paper, or by telephone, telefax, telex or data network (covering, for example, where the passengers and baggage are located at any time, or the arrival time at a specific place).

A sophisticated information system is essential to the build-up of networks and integrated transport.

Cruise and ferry liner companies manage and control operations to provide a fully integrated service for each customer.

Queue length management

The most important logistical problem that each company has to resolve is the queues of waiting passengers embarking and disembarking. Passengers must queue (line up) at the boarding terminal, to disembark at visited ports, to re-board the vessel, and to

disembark at the end of the cruise. If a launch is used to ferry cruise passengers ashore, this also can create bottlenecks.

In an ideal situation there are no queues for the passengers and no idle time for the people serving them. A passenger arrives exactly at the time scheduled for "processing" and the terminal has just become available to perform the operation.

However, ideal conditions rarely exist in checking in and out. Queues must be planned to compensate for the uneven flow of incoming passengers and the variations in terminal processing times.

The objective of queue length management is to control lead-time and the stream of passengers, to obtain full use of bottleneck places, such as counters, and to avoid downtime in the flow. Determining the nature of queues at the critical centres is the first step in establishing meaningful queue length goals.

Typical queue distributions

The following are four different queue situations:

- **a controlled queue**: in this type the queue has a predictable average length and never goes above a certain maximum; the work centre is never idle and seldom overworked
- **an excessive queue length**: in this type, the queue length never goes below a certain length; this means that people are overworked and the queue could be substantially reduced without causing idle time. The flow to the location must be reduced
- **an uncontrolled queue**: these occur where unpredictable flows come from earlier centres elsewhere in the system. Analysis of the sources and processing patterns of incoming passengers should provide clues for possible remedies
- **substantial idle time** due to a short queue: where possible, work from overloaded centres should be moved to these locations.

Adjustments at earlier locations in the flow clearly affect flow downstream in the system. In most cases changes should be made gradually to minimize adjustment problems. Shortening the length of a queue will, in itself, affect the distribution elsewhere in the system–removing one backlog may cause another elsewhere. The subject of queue management is complex and has been closely studied. Its theory is beyond the scope of this course.

It is usually possible to reduce queue length by opening more processing centres, but this may not be cost effective. A shipping

company must look at the cost benefits of the whole flow before investing in the extra facilities and personnel.

Activity

Visit your local airport or cruise terminal and observe how queues are managed at service centres. Try to answer the following questions:

1. What do the authorities do to reduce unusually long queues?
2. What appear to be the major blocks and hold-ups?
3. What would you do to reduce them if you were in charge?

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. The passenger shipping business is:
   a. independent of other modes of transport
   b. concerned only with ferries and cruise ships
   c. multimodal

2. What two flows must be managed in passenger shipping?
   a. _____
   b. _____

3. Describe in a brief sentence what the ideal situation in queue management is.

   _____

   _____

4. Which situation at a service centre is improved by reducing the flow?
   a. controlled queues
   b. excessive queue length
   c. uncontrolled queues
   d. substantial idle time

5. What is the main disadvantage in removing a backlog at a service centre?
   a. increased idle time at the centre
   b. formation of uncontrolled queues
   c. possibility of causing a backlog elsewhere
   d. overworked processing staff at the centre

Lesson 3:..... Marketing passenger shipping

Although formal marketing departments are relatively new in shipping the basic principles have always been considered by good management. Marketing, in shipping as in any other business, involves product analysis, traffic and market development, promotions, and product development.

- **Product analysis** means assessing:
  - supply and demand for the shipping service
  - costs of such a service.
- **Traffic and market development** is concerned with how to deploy resources. For example, in cruising the following questions are considered:
  - how long should the cruises be?
  - where should the cruises go?
  - for which age group, class, and nationality is it designed to cater?
- **Product development** deal with:
  - analysing mistakes and passengers' complaints—in logistics, this is called *constraints management*
  - shore excursions
  - food and entertainment.
- **Promotion** of a ship owner's business involves four basic elements:
  - advertisement of the service
  - pricing policy with regard to passenger fares
  - publicity (press releases and general relations with the press)
  - direct selling of the company's services by forwarding travel agents or by shipping company salesmen negotiating contracts with clients.

Although marketing of passenger shipping is considered in this lesson, most of the information also applies to other forms of commercial shipping.

Marketing plans

Marketing policy strongly influences the success of any company. The object of a marketing plan is to identify the products that the company wishes to sell and to win the maximum market share consistent with profitability. A passenger shipping company's annual marketing plan should be adopted at the same time as the budget and support its goals.

The details of the marketing plan depends upon the type of ship operator and trade, and the level of competition. Competitors' programmes are monitored and an attempt is made to keep the company in the public eye throughout the year. Great stress is laid on the advantages of the service over its competitors. Timing plays an important role in achieving the maximum impact.

Increasingly, passenger ship operators are collaborating with tourist boards, hoteliers' associations, and local businesses in the joint promotion of inclusive tours.

Marketing budgets and revenues

The marketing budget for a service should be in proportion to the budgeted gross revenue derived from the service. This is usually up to 3%, although the figure will be higher for the promotion of a new service. The marketing plan includes a detailed breakdown of the year's marketing budget according to country, commodity, and medium.

Agents and personnel responsible for executing the plan should be allotted realisable revenue targets. Incentives may be offered in the form of annual awards for outstanding results. Reports on achievements in individual countries or services should be prepared at regular intervals where practicable.

Advertising

Possible advertising media are: newspapers, trade journals, commercial radio, television, brochures, sales conferences, trade fairs, promotions, etc. In general, only large shipping companies advertise on television and radio.

It is essential that a promotion be launched to coincide with the availability of the product, and this could involve a lead-time of up to 12 months from the time the plan is first discussed.

Advertising agencies

Large shipping companies engage advertising agencies to develop their promotions. They may use separate agents in each country to reflect different advertising customs and techniques.

Close liaison between advertising agency and shipping company is essential throughout an advertising campaign so that the response can be monitored and the campaign modified if necessary.

Market research

Before promotions, market research assesses market potential and determines the factors that cause passengers to use the service. Relatively simple surveys may be carried out to discover, for instance, where motorists learned of a particular ferry service. At the other end of the scale, specialist consultants may conduct research that will result in far-reaching developments. (An example of this is the use of market research to determine service patterns and tonnage requirements for deep-sea container services when that sector was being established.)

Simple market surveys may be carried out by:

- **questionnaire** distributed by mail or to all passengers on a cruise. Questions may relate to the reasons for taking the cruise, good and bad points about the cruise, and age, income bracket and profession of the respondents
- **desk research**, extracting information from trade journals, newspapers, government reports, and publications of chambers of commerce and the like
- **direct personal interview** in a field survey; this is the most expensive but most reliable method of obtaining data from individual prospective customers.

Market structure and market share

Knowledge of the composition, profile or structure of the existing market both at home and overseas enables the ship operator to plan the promotion and development of new tonnage and tariff structures. Market share is an important consideration in a general market analysis. However, the paramount concern in the long term must be the degree of profitability that each market share commands.

Market forecasting

A market forecast plays an important role in formulating future strategy, both in the product (the shipping service) and the market. Market forecasting of an international market is a difficult task. It involves obtaining as much statistical data as possible.

Obtaining data

The forecaster must be well acquainted with the economic, political, cultural, and business background of the overseas markets relevant to the service in question. Much reliable data can be obtained by the overseas agent or sales representative, who can include it in regular sales reports.

Some other sources of data for forecasting are:

- trade associations
- overseas marketing boards
- trade journals
- the International Chamber of Commerce
- tourist boards
- international banks
- overseas Governments' statistics
- Export Intelligence Service (EIS)
- economic trading blocs (such as ASEAN, EU, NAFTA)
- advertising agencies.

Ensuring reliability and tracking changes

To be sure of the reliability of market research data, the forecaster must take into account any likely changes in

- exchange rates
- import and export controls, tariff structures, and customs arrangements
- free trade or bilateral trade agreements
- flag discrimination
- new competition through new operators entering the trade or existing ones modernizing their fleets
- new technology
- government policy.

Market pricing

An increasing number of ship owners in passenger trades are using the technique of market pricing. This is essentially the practice of correlating passenger and freight tariffs to potential market demand and sensitivity. This is done to maximize cash flow, attain high passenger loads, counter competition, stimulate market growth, and improve profitability. An example of market pricing is the different fares charged on short sea passenger services and car ferries at various times of the year.

The basic tariff must cover direct costs and make a major contribution to indirect costs. The reduced tariff should at least cover direct costs if possible. The formulation of graduated tariffs requires careful evaluation of existing tariffs, costs, competition, agreements with other operators and, above all, market sensitivity.

In adopting market pricing policy, care must be taken to ensure that full-rate traffic is not diverted to the lower rate in endeavouring to generate a higher volume of business. If the market for the service does not particularly care about the price (within limits), reducing the price may bring only a few extra passengers while reducing the revenue from regular customers.

Market pricing policies that lead to a tariff war should be avoided. They may generate additional traffic, but the average rate will fall and there may be little prospect of increasing revenue for any company.

Activities

1. Imagine you are planning an important change in the availability of one type of passenger shipping in your area. List your main goals for this change and whom you think might be affected by it. Draft a rough marketing plan.
2. Contact your local Tourist Board, Chamber of Commerce, and Shipping Associations and see what data you can get from them that might help you in making your marketing plan.

Practice Exercise for Lesson 3

Test your understanding of Lesson 3 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. What four things are involved in promoting a passenger shipping business?

   a. _____

   b. _____

   c. _____

   d. _____

2. Advertising promotions are best timed…

   a. right near peak product use
   b. a year before availability
   c. whenever the opportunity arises
   d. when the product is available

3. Name the basic three ways that market surveys may be done.

   a. _____

   b. _____

   c. _____

4. List at least eight possible sources of data for market research.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

   g. _____

   h. _____

5. Which of the following defines market pricing?
   a. cutting prices to beat the competition
   b. covering basic costs
   c. varying prices according to demand
   d. reducing prices at peak travel times

Answer keys

Lesson 1

1. availability of cheap, fast air travel

2. c. four to one

3. Any eight of the following:
   - length of voyage
   - competition (air and other shipping)
   - port dues for passengers and vehicles
   - fuel and crew costs
   - agreements with other operators
   - seasonal demand
   - class of travel and concessions to age or youth
   - group discounts
   - size of vehicle and number of passengers in the vehicle
   - government controls and charges
   - revenues on board food, drink, gifts, etc.

4. Any four of the following:
   - cruise ships must be able to enter romantic and beautiful old ports, so their draft is usually small
   - they must be able to berth and unberth with limited assistance
   - fuel consumption must be kept to a minimum at normal cruising speeds, while the ship must be able to reach 20 knots
   - vessels must carry many passengers in comfort and safety
   - all noisy machinery must be sited away from public areas
   - cabins must be located away from busy service areas
   - considerable generating power is needed for air conditioning and other passenger needs

5. – International Council of Cruise Lines (ICCL)
   – Cruise Lines International Association (CLIA).

Lesson 2

1. c. multimodal

2. – passengers
   – information

3. In an ideal situation, there are no passenger queues and no idle time for the people serving the passengers.

4. b. excessive queue length

5. c. possibility of causing a backlog elsewhere.

Lesson 3

1. – advertising
   – pricing policy
   – publicity such as press releases
   – direct selling

2. d. when the product is available

3. – questionnaires
   – desk research
   – personal interviews

…continued on next page

4. Any eight of the following:
   - overseas agents
   - sales representatives
   - trade associations
   - overseas marketing boards
   - trade journals
   - the International Chamber of Commerce
   - tourist boards
   - international banks
   - overseas Governments' statistics
   - Export Intelligence Service (EIS)
   - economic trading blocs (such as ASEAN, EEC, NAFTA)
   - advertising agencies

5. c. varying prices according to demand.

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Unit 10 Politics and organizations

Governments influence the shipping industry directly through the liner conferences and via the intervention of the United Nations Conference on Trade and Development (UNCTAD).

Shipping organizations watch over the interests of trade in general and the interests of their members in particular. They enhance understanding and co-operation between their members, and give them advice and information. They consult and co-operate with other associations and organizations directly concerned with the shipping industry and the promotion of world trade.

The three lessons in this unit will cover the topics of:

- the role of UNCTAD
- political aspects of shipping
- services performed by the principal shipping organizations.

Unit 10 .....Activities and expectations

Agenda

To complete this unit, you will:

1. Read and study the text in this unit, and any assigned passages in the course textbook or Student Reader.
2. Apply the information by performing the Activities.
3. Test yourself by doing the Practice Exercises and checking your answers.

Resources

The textbooks for this course are:

Elements of Shipping (7th edition).
Author: Alan E. Branch Publisher: Chapman and Hall

Sea-Trading, Volume 3: Trading
Author: William V. Packard Publisher: Fairplay Publications Ltd.

Learning outcomes:

When you have completed this unit you will be able to:

- Identify the objectives of the Shipping Committee of UNCTAD.
- Describe the meaning of flag discrimination and flags of convenience.
- Identify some effects of shipping subsidies and tax incentives.
- Identify some significant shipping organizations.
- Describe the role of each of these in shipping.

Lesson 1..... The role of UNCTAD

A conference was established by the General Assembly of the United Nations in 1964. This was the United Nations Conference on Trade and Development. Its aims were to help modify the traditional patterns of international trade so that the developing countries would be able to play their part in world commerce.

Committees were established to deal with:

- commodities
- manufactures
- invisibles such as insurance, intellectual property, and information; and trade finance
- shipping
- transfer of technology
- economic co-operation among developing countries
- trade preferences.

UNCTAD directed the committees to seek internationally acceptable solutions to problems of international trade and development faced by developing countries. This included related transportation concerns, such as ocean shipping.

The objectives were to:

- elaborate support measures for the commodity market in order to arrest the deterioration of the terms of trade for developing countries
- establish ways to improve the external environment for the development of these countries.

UNCTAD and conferences

Developing countries were particularly interested in the liner trades, which were usually self-regulated by the cartel-type system of liner conferences. UNCTAD's Shipping Committee sought to encourage closer consultation between shippers and conferences in regard to the running of shipping services in developing countries through:

- international financing
- technical assistance for improving port operations
- providing favourable terms and conditions for developing connected inland transport facilities
- encouraging development of merchant marine services.

UN code of conduct

One important decision of UNCTAD was the establishment of the *UN Code of Conduct for Liner Conferences*.

UNCTAD proposed the 40/40/20 rule. This gave each of the trading partner countries the right to carry 40% of the liner cargoes generated by their own trade, leaving the remaining 20% to third-flag carriers.

UNCTAD was primarily concerned with:

- commodity price stabilization
- devising support measures for the terms of trade
- the level and structure of freight rates
- the protection of shippers' interests
- consultation machinery.

UNCTAD Shipping Committee tasks

The UNCTAD VI session directed its Shipping Committee to:

- ensure the orderly development of liner and multimodal transport services to the general satisfaction of the affected governments, operators, carriers, and shippers
- establish an equitable basis for the participation of developing countries in the carriage of bulk cargoes
- establish a regime that would facilitate funding on favourable terms for construction and purchase of ships by developing countries
- establish equitable laws, that take account of the interests of affected parties (for example carriers, operators, shippers, insurers, assurers, and third parties affected by maritime and related contracts)
- ensure that the trade of developing countries is not stifled as a result of inadequate port capacity
- foster management and technological expertise in shipping and ports in developing countries.

Specific actions resulting from UNCTAD committee work and recommendations

There are several ways in which UNCTAD recommendations are being translated into actions to improve conditions in the shipping industry:

Liner trades adoption of the Code of Conduct for Liner Conferences 1974.

Multimodal transport
adoption of the Multimodal Convention.

Law revisions adoption of the Hamburg Rules for carriage of goods by sea and ongoing work on international maritime legislation.

Bulk trades ongoing investigation of market practices and procedures.

Open registry operations
drawing up model clauses for international use.

Insurance reform (hull and cargo marine)
drawing up model clauses for international use.

Port operations increasing the efficiency of existing facilities and developing new facilities for changing volumes and types of traffic.

Technical assistance and training accelerated implementation of effective programmes from developing countries.

More recent UNCTAD initiatives

Details of new areas of interest in commercial shipping emerging at UNCTAD VIII are as follows:

- promotion of transparent maritime services (transparency means there are no organizational or paperwork barriers to free flow.)
- promotion of competitive maritime services
- development of infrastructure including ports
- analysis and monitoring of developments in multimodal transport, including technological development and containerization.
- further work on marine legislation
- strengthening human resources development.

Other inter-governmental groups

In 1992, an inter-governmental group of experts on ports began the following two main tasks:

- Port organization, including issues relating to privatization, commercialization, deregulation, and legislation.
- Port management, including issues relating to human resources, development and sustainability, strategic planning, marketing, and investment.

This involves the promotion of transparency in shipping, ports, and multimodal transport, and fostering competition in marine transport services.

Activities

1. Collect information on recent technological and structural changes in shipping operations to accommodate multimodal transport in the port nearest to you.
2. Try to identify and examine any laws, regulations, activities, and policies aimed at enhancing co-operation in shipping, port services, and multimodal transport.

Practice Exercise for Lesson 1

Test your understanding of Lesson 1 by answering these questions. Check your answers and re-read any parts you found difficult. The answer key is at the back of this unit.

1. What were the two main UNCTAD objectives for developing countries?

   a. _____

   _____

   _____

   b. _____

   _____

   _____

2. Which of the following explains the 40/40/20 rule?

   a. Trading partners who are conference members each get 40% of the trade, leaving 20% for a developing country's liner cargo.
   b. Trading partner countries can each carry 40% of their trades' liner cargo, leaving 20% for third-flag carriers.
   c. Trading partner countries can carry 40% of their trades' liner cargo, leaving 20% for conference members.
   d. non-conference members can carry 40% of a trade. Conference members can carry only 20%.

3. List at least four specific actions resulting from UNCTAD work and recommendations.

   a. _____

   b. _____

   c. _____

   d. _____

4. List at least three things that make it difficult for developing countries to compete in international shipping.

   a. _____

   b. _____

   c. _____

5. Which of the following Codes does not belong to the new areas emerging at UNCTAD VIII?
   a. the settlement of trade disputes
   b. further work on maritime legislation
   c. strengthening human resources development
   d. promotion of transparent maritime services

Lesson 2 .....Political aspects of shipping

Many political situations and controls affect the shipping industry. Changes of government, political ideology, colonialism, and political alignment all cause changes in trading patterns. Governments can pass laws to protect their own fleets and thus exert influence on the flow of trade.

Special taxation and government restrictions can have profound effects such as with the growth of the use of *flags of convenience*.

Political ideology may cause a government to restrict trade. A recent example of this is the restrictions on ships visiting Cuba if they wish to trade with the USA.

Effects of wars

Wars cause losses of ships and the need for rapid rebuilding. They produce a considerable stimulus to research and shipbuilding capacity. The effects on trade can also be colossal as artificial demands are created and routes lengthened, as in the closure of the Suez canal.

Blacklisting can occur and ships trading to one country may not be allowed to visit another.

When there is the possibility of war, nations do not like to be dependent on the ships of other nations for the delivery of essential supplies.

Flags of discrimination

During recent years, an increasing number of countries have introduced various forms of trade protection for their own national fleets. Flags of countries that give various forms of trade protection to their ships are sometimes referred to as *flags of discrimination*. Flag discrimination occurs when ships sailing under a specified flag are boycotted in one way or another.

The reasons for flag discrimination vary—for example, a developing nation might wish to build up its fleet. At the other end of the scale, the high operating costs of US ships make it difficult for them to compete in an open market with ships of other maritime nations. Some nations may feel justified in helping their fleets for military or strategic reasons, or because it is felt that this is a useful way of earning foreign currency.

Types of discrimination or protection

Unilateral actions taken by a nation to protect its shipping include:

- cabotage—this is the reservation of the coastal trade either to ships flying that nation's flag or to include also ships owned by nationals but operating under a flag of convenience
- reduced customs dues on goods imported on her own flag ships
- restriction of credit if goods are not carried in national ships
- various forms of import/export licence control
- priority for the nation's own ships in loading and discharging
- reduction in harbour dues, light dues, etc., for the nation's own ships
- preference on inland transport charges
- government sponsorship and reservation for certain types or quantities of cargo on national ships
- persuading exporters to sell CIF (cost, insurance, and freight) and importers to buy f.o.b. (free on board). The result of this is the control of transport of goods entering or leaving the country.

Disadvantages of protectionism

Although these measures undoubtedly protect a nation's shipping, the overall effect on the country's economy may not be so advantageous. Shipments may have to wait for a suitable ship and as the best possible use cannot be made of shipping space, the shipping services to and from that country cannot operate at maximum efficiency. Therefore shipments take longer and become more expensive.

One measure that can be adopted to partially overcome these measures is to transship cargo to a nearby foreign port. This again not only increases the cost and time but also increases the danger of cargo getting lost, broken, or pilfered.

The International Chamber of Commerce has made the observation that developing countries would be better to invest their money in trying to establish good modern ports and inland transport systems rather than simply protecting their shipping.

Flags of convenience (open registry)

All ships must be registered somewhere and the ship acquires the nationality of the state in which it is registered. It flies the flag of

that state and is governed by its laws. An international agreement states that:

> *Each state shall fix the conditions for the grant of its nationality to ships for the registration of ships in its territory and for the right to fly its flag.*

Convention of the high seas implies that there must be a genuine link between the state and the ship but this seems to be open to very vague interpretation. In some countries, the right to fly the national flag is subject to stringent conditions and involves responsibilities.

A *flag of convenience* is the flag of a country whose laws make it easy for ships owned by foreign nationals to fly their flag. Another term used for flags of convenience is *open registry*. Flags of convenience are mainly used for tankers and bulk carriers, but also used on some cruise ships.

The outstanding example of a flag of convenience country is Liberia, whose merchant fleet has grown from virtually nothing in the early fifties to the largest fleet in the world. Other examples are Panama and Bermuda.

A flag of convenience country may possess some or all of the following features:

- It may be a small, poor country having very few resources with which to raise foreign currency.
- Manning by non-nationals may be permitted.
- There may be a very low tax levy.
- No adequate administrative machinery may exist to enforce international safety regulations.

Advantages to ship owners of flags of convenience

Some reasons ship owners use flags of convenience are:

- freedom from taxation—a major advantage during profitable periods
- greater operating freedom with few government-imposed restrictions
- possible reduction in operating costs, particularly for owners in developed countries due to the high cost of their crews
- avoidance of specific disadvantages, restrictions, and discriminations caused by operating under one's own flag.

General disadvantages of flags of convenience

There are disadvantages in the use of flags of convenience, for the shipping industry, for individual nations, and for the international community.

For the shipping industry:

- Tax avoidance gives ship owners an unfair trading advantage and can discourage the responsible national ship owner.
- Without national registration and support, it may be difficult to obtain satisfaction in just legal claims.
- Many shipowners operating under flags of convenience take their responsibilities seriously and the governments of countries offering flags of convenience are increasingly aware of the need to improve safety standards. It would be wrong to assert that all flag of convenience ships are unsafe compared with ships operating under a traditional maritime flag. The casualty record of flag of convenience countries is, however, worse than the world average. Further, the thoroughness of the investigations carried out by some flag of convenience countries into casualties is not always as rigorous as it might be.

For individual nations:

- From the points of view of taxation and control, it is obviously better for any country to have ships registered in that country. Ship owners require tax concessions and more consideration from their governments to keep their ships from registering under flags of convenience.

For the international community

- A large volume of tonnage without traditional, national ties or international involvement means that they do not carry their fair share of responsibility in the world shipping community. Most flag of convenience countries are members of IMO but they are not noticeably active. Few are members of the International Chamber of Shipping.
- Vessels without national ties are not concerned with the expensive problem of training local seafarers, as they can gain their crews by poaching from other, traditional, maritime countries. Further, when times are bad, they accept no responsibility for the crews who then return to accentuate any unemployment problems in their native countries.

Shipping subsidies

Another way of helping the nation's shipping is by subsidies. These can take several forms:

- operating subsidies
- construction subsidies
- indirect subsidies.

State-owned fleets enjoy all these subsidies automatically or at least have the comfort of knowing that these resources are there to help them when times are bad.

Operating subsidies

Operating subsidies occur when direct financial assistance is given to help the nation's ships compete on the international shipping markets. With these subsidies certain conditions are usually attached such as that the ships must be built in the home country. With direct operating subsidies there is the danger of encouraging inefficient management.

Construction subsidies

Construction subsidies are various types of financial help in meeting the high capital cost of building a ship. They can take several forms such as building grants, long term loans with easy terms, customs duty exemptions, or rebates on imported materials or parts, or financial help with expensive research.

Indirect subsidies

Indirect subsidies also occur, such as various forms of tax concessions like free depreciation. These subsidies have the merit that they encourage successful and resourceful management.

Indirect subsidy can also be used to stimulate new growth in the industry by having profits reinvested rather than just dispersed to the shareholder.

Tax incentives

Government may permit accelerated depreciation allowances, low or zero corporation tax, or tax-free reserves. The actual value of depreciation allowances and tax-free reserves depends on the usual rate of corporation tax—the higher the tax rate, the greater the

benefit to the company. There may also be favourable tax treatment of individuals and partnerships investing in shipping.

OECD policy on shipping subsidies

The Organization for Economic Co-operation and Development (OECD) Maritime Transport Committee concluded it would not be practical or acceptable to phase out subsidies to shipping. These subsidies have the following positive purposes:

- To ensure the maintenance of a national flag or nationally owned fleet for security or strategic purposes.
- To maintain employment of national seafarers in order to secure marine know-how and a pool of personnel in case of need.
- To maintain a relatively free shipping market and preserve the freedom of shippers' choice.
- To make available shipping services to remote communities in the country's territory which are otherwise not commercially viable.
- To assist their operators in competing with other fleets who are in a favourable economic position. This may be due to non-commercial advantages granted by another state or to particular characteristics of their national economies.
- To increase the contribution of shipping to the balance of payments.
- To modernize their fleets, make them more competitive or ease structural adjustment.

The OECD is discussed further in Lesson 3.

Activities

1. Jamaican natural resources can only be carried in Jamaican-owned or -chartered vessels. Liner cargoes are not, however, affected by this ruling.

   Find out when and why these rulings were made. Think about the advantages and disadvantages of the rulings and decide whether you think they are a good idea.

2. Imagine you are the owner of a small fleet of cargo ships in your country. Write down all the reasons you can think of for and against registering them under a flag of convenience.

Practice Exercise for Lesson 2

Test your understanding of Lesson 2 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. What are flags of discrimination?
   a. flags of boycotted ships
   b. flags of countries whose trade has been boycotted by other countries
   c. flags of countries whose laws make it easy for ships owned by foreigners to fly their flags
   d. flags of countries that offer trade protection to their fleets

2. What determines the nationality of a ship?
   a. the flag it flies
   b. where it is registered
   c. which country offers trade protection
   d. where most of its trade takes place

3. Flags of convenience are also called:
   a. Lloyd's register
   b. open account
   c. open conference
   d. open registry

4. What is cabotage?

   _____

   _____

5. What are four possible advantages of flags of convenience?
   a. _____
   b. _____
   c. _____
   d. _____

6. Name four types of construction subsidy given by governments to shipping businesses.

   a. _____

   b. _____

   c. _____

   d. _____

Lesson 3: .....Shipping organizations

Council of European and Japanese National Shipowners' Association (CENSA)

The primary objective of CENSA is the promotion and protection of the interests of its membership through the development of sound shipping policies, such as:

- elimination of restriction on, and interference with, international transport and trade
- promotion of a system free, so far as possible, from governmental discrimination or regulation and which preserves for shippers the freedom of choice of vessel
- development of a system of fair-trading between providers and users of shipping services on the basis, as far as possible, of self-regulation.

International Association of Independent Tanker Owners (INTERTANKO)

INTERTANKO is a non-profit organization whose aims are to:

- promote internationally the interests of independent tanker owners in matters of general policy
- promote a free and competitive tanker market
- work for safety at sea
- protect the marine environment
- co-operate with other technical, industrial or commercial interests or bodies on problems of mutual concern to its members and to such interests
- take part in the deliberations of other international bodies.

INTERTANKO works closely with organizations such as IMO, OECD, the Worldscale Association, and UNCTAD.

International Maritime Organization (IMO)

The International Maritime Organization is the specialised agency of the United Nations concerned solely with maritime affairs. Its interest is mainly in ships used in international services.

IMO is a forum where members can exchange information on, and endeavour to solve, problems. Its aims are to facilitate co-operation among governments on:

- technical and legal matters affecting shipping
- safety at sea
- prevention of marine pollution from ships.

IMO administers numerous international conventions and codes. Current IMO developments include measures related to cargoes, stability and load lines, ship design and equipment, radio-communications, the prevention of pollution by oil and other substances, the promotion of technical assistance, and many others.

The Worldscale Association

The Worldscale Association keeps track of freight rates. The *Worldwide Tanker Nominal Freight Scale* is a schedule of freight rates applying to tankers carrying oil in bulk. The term *nominal* indicates that the freight rates that Worldscale provides are intended only as a standard of reference or guideline.

The Worldscale freight rates

It is the custom to express market levels of freight as a direct percentage of these published scale rates instead of as a plus or minus percentage. Thus:

- Worldscale 100 (W100) means the rate as calculated and published
- Worldscale 250 (W250) means 250% of the published rate
- Worldscale 40 (W40) means 40% of the published rate.

An owner assesses the likely costs involved on a particular voyage and decides whether or not the level of Worldscale on offer has any attraction, bearing in mind the loading and discharging options required by the charterer.

The principal advantage of using a scale system is that it can greatly simplify the negotiation of tanker charters. A single reference in the charter is sufficient to cover all the voyages that are possible within the designated trading areas of that charter.

Extensions to the rates

Worldscale has developed various extensions in freight rates, such as :

- rates for voyages between one loading and one discharging port
- rates for multiport voyages
- rates involving transshipment areas (These are places, often many miles out at sea, where large ships transfer all or part of their cargo to smaller vessels.)
- a list of demurrage rates between 10 000 and 550 000 tonnes dwt in 120 size ranges.

Comparisons of fixtures in different trades can be readily made.

The basic voyage and standard vessel

The rates are calculated on the basis of a round voyage from loading port or ports to discharge port to ports and back to the first loading port. The rates are by reference to a *standard vessel* of 19 500 tonnes dwt having a speed of 14 knots and a daily bunker consumption of 28 tonnes of fuel oil.

The main calculation elements of each rate are as follows:

- the fixed hire element of US$1800 per day—this element does not change and represents the stable continuity factor of the scale
- bunker costs—based upon bunker prices over a stated period
- port costs
- lay time allowance of 72 hours for loading or discharging
- port time (not counting as lay time) of 12 hours for each port involved in the voyage.

International Cargo Handling Co-ordination Association (ICHCA)

ICHCA is a professional coordinating body unique in the international transport world. It is non-political, non-commercial, and non-profit making. Its membership spans the entire spectrum of professions and occupations that have an effect on, or are affected by, technological changes in the physical distribution of goods through world transport. ICHCA also acts as a forum for passing on important research findings.

The Baltic and International Maritime Conference (BIMCO)

BIMCO is world's largest private shipping organization. It groups ship owners, ship brokers, protection and indemnity clubs, defence associations, national associations of ship owners and national association of ship brokers in many countries.

BIMCO provides an unparalleled shipping forum in which members from both developed and undeveloped countries can discuss problems of mutual interest on an equal footing.

Because BIMCO is both non-political and non-governmental, its opinions are widely respected in the international world of shipping and commerce in general, and the organization has consultative status with international bodies such as UNCTAD and IMO.

BIMCO documentation

A very large percentage of the total world transportation of goods take place on the basis of charter parties and other documents prepared by the Documentary Council of BIMCO, or on charter party conditions which have been recommended by BIMCO.

Throughout its existence, BIMCO has endeavoured to prepare modern, reasonable and balanced documents that are acceptable to all parties. All these documents use standard, precise terminology in an effort to avoid or reduce disputes over interpretation.

BIMCO documents are available for transportation of:

- general cargoes
- ore, coal, and timber
- liquid gas, and chemicals
- vegetable oils
- fertilizers.

BIMCO information services

Providing detailed information for its members has been an integral part of BIMCO's activities since its foundation. Equipped with what is possibly the finest collection of data on port conditions and charges, the Information Bureau in the BIMCO office feeds a constant stream off data to its members by internet, telephone, mail, and fax, or through its regular publications.

International Labour Organization (ILO)

ILO was set up in 1919 to bring governments, employers, and trade unions together for joint action in the cause of social justice and better living conditions.

ILO activities in the field of shipping includes the adoption of the following international labour standards:

- minimum standards in merchant ships—ratifying countries have the right to report on sub-standard working condition on board ships calling at their ports and the right to have poor conditions rectified in ships which are "clearly hazardous to safety and health"
- minimum annual leave with pay for seafarers—this is set at 30 calendar days after one year of service
- a recommendation for national policies to encourage the provision of continuous, regular employment for qualified seafarers as far as is practicable
- recommendations for the protection of seafarers aged less than 18 (excluding those in warships, fishing vessels, or training vessels)—in such matters as health, morals, and safety, and to promote their vocational guidance and training.

Organization for Economic Co-operation and Development (OECD)

The aims of the OECD are to promote economic and social welfare throughout the OECD area. It tries to:

- assist members' governments in the formulation and co-ordination of appropriate policies
- stimulate and harmonize members' efforts on behalf of developing countries.

The OECD's activities relating to the shipbuilding and shipping industries are conducted through Council Working Party No. 6 on Shipbuilding and the Maritime Transport Committee.

Working Party No. 6 on Shipbuilding

Working Party No. 6 on Shipbuilding is the forum for discussions between governments on short-term and long-term policies and problems affecting the shipbuilding industry.

One short-term problem considered is that of the world distribution of ship orders. Discussions are aimed at avoiding an unfair

concentration of the few new orders available in one country or group of countries.

Long-term policies relate to the needed restructuring of the industry to take into account changes in the market. They seek to avoid the burden of crisis being shifted to one country or group of countries.

Monitoring the understanding on export credits for ships is also a task of the working party.

International Chamber of Shipping (ICS)

The ICS is an organization of national ship owners' association in many countries, representing shipping interests that operate on the basis of free enterprise. Its members represent some two thirds of the world's merchant tonnage.

The aims of ICS are to promote the interests of its members by:

- providing a forum for the discussion of a wide range of matters of mutual concern
- seeking to co-ordinate members' views
- representing those views nationally and internationally.

ICS has consultative status with a number of inter-governmental bodies, notably the IMO, and has close ties with many other international organisations at industry level.

The work of ICS encompasses containers and multimodal transport, facilitation and trade procedures, marine insurance, marine pollution, marine safety, maritime law and oil tanker, chemical and gas carrier operations.

ICS has produced a number of publications, chiefly in the fields of safety, pollution, and facilitation. Several of these have been prepared in conjunction with the Oil Companies International Marine Forum.

Classification societies

The American Bureau of Shipping (ABS)

ABS is a ship classification society that certifies the soundness of merchant ships and other marine engineering structures. Its hundreds of surveyors include specialists in all aspects of the design, building and engineering operation of ships and offshore structures. They discuss original ideas, submit specific proposals for vessels,

monitor the ship throughout its construction, and ensure that the Bureau's rules are carried out. The Bureau is authorised to assign Load Lines and Safety of Life at Sea Certificates.

Bureau Veritas (BV)

BV is an international organisation with offices in many countries. It exists to ensure that materials and equipment used in ships, buildings, industrial activities, electrical, electronic or nuclear projects, etc., reach the required standards.

The BV periodically issues rules for the guidance of engineers and construction companies. These rules take into account the progress made in various fields and the experience of the Bureau's Inspection Department.

Lloyd's Register of Shipping

Classification by Lloyd's Register of Shipping is accepted by owners, underwriters, charterers, and national authorities as a guarantee of structural and mechanical efficiency. The Lloyd's Register employs thousands of full-time engineers, naval architects, metallurgists, and other professionals all over the world to provide technical inspections and advisory services. It is used primarily for ships but increasingly for engineering projects of many kinds, marine and non-marine.

Besides designing ships to meet its classifications, and then ensuring they are built in a proper manner, Lloyd's also

- classifies ship machinery
- surveys vessels both on the high seas and in dry dock
- publishes a detailed register of shipping with monthly supplements giving details of alterations, additions, new vessels, and survey records
- classifies and certifies the state of offshore facilities, submersibles, buoys, and diving complexes
- industrial surveys, giving impartial assessments of all sorts of industrial complexes
- is represented on many national and international committees.

Protection and indemnity (P&I) clubs and marine insurance

P&I clubs are mutual insurance clubs which ship owners have formed to meet the financial liabilities that they could not insure with Lloyd's or with any of the large insurance companies.

If a ship sinks, the marine insurance will pay up to the value of the ship but the ship owner is left with the responsibility of perhaps having to remove the wreck. This would be paid for by the P&I club. P&I insurance also covers the ship owner for:

- damage done by his ship to docks, piers and other fixed objects
- claims made by the crew for loss of life, personal injury, hospital and medical expenses while abroad, and all repatriation expenses
- extraordinary medical expenses such as an outbreak of the plague
- many of the fines that might be imposed by governments
- claims for loss, short delivery, pilferage or damage to cargo.

In other words, P&I clubs cover claims and losses incident to the business of ship owning which the committee considers come within its scope.

The London Pool

The majority of the clubs work together in what is known as the London Pool. All large individual claims go into the pool and are shared. The pool is in turn reinsured at Lloyd's for any large catastrophic claims.

Activities

Find out:

1. Why most ship owners voluntarily pay the considerable expense of having their ships "classed" by a classification society.
2. How these Societies ensure that the vessels to which they assign "class" maintain required standards.
3. What the significance of P&I clubs in sea transport is in your area.
4. What you do in case of oil pollution in your area (using IMO).

Practice Exercise for Lesson 3

Test your understanding of Lesson 3 by answering the following questions. Check your answers and read over any parts you found difficult. The answer key is at the back of this unit.

1. Which organization is a UN body concerned only with maritime affairs?

   a. IMO
   b. UNCTAD
   c. ILO
   d. BIMCO

2. What does Worldscale 150 mean with respect to bulk oil tanker freight rates?

   a. a market rate that is 50% of the published rates
   b. a market rate that is 150% more than the published rates
   c. a market rate that is 50% more than the published rates
   d. a change of 150% in the published rates

3. Which international transport organization is non-profit and has no political affiliations?

   a. IMO
   b. BIMCO
   c. ICHCA
   d. CENSA

4. Name the three main classification societies.

   a. _____
   b. _____
   c. _____

5. Explain briefly what P&I clubs are.

   _____

   _____

Answer keys

Lesson 1

1. To:
   - elaborate support measures for the commodity market in order to arrest deterioration of the terms of trade for developing countries
   - establish ways to improve the external environment for the development of developing countries

2. b. Trading partner countries can carry 40% of their trades' liner cargoes, leaving 20% for third-flag carriers.

3. Any four of the following:

   Liner trades adoption of the Code of Conduct for Liner Conferences.

   Multimodal transport
   adoption of the Multimodal Convention.

   Law revisions adoption of the Hamburg Rules for carriage of goods by sea and ongoing work on international maritime legislation.

   Bulk trades ongoing investigation of market practices and procedures.

   Open registry operations
   drawing up model clauses for international use.

   Insurance reform (hull and cargo marine)
   drawing up model clauses for international use.

   Port operations
   increasing the efficiency of existing facilities and developing new facilities for changing volumes and types of traffic.

   Technical assistance and training
   accelerated implementation of effective programmes from developing countries.

4. – cost of building ships
   – cost of building ports and other infrastructure
   – getting reasonable terms and conditions

5. a. the settlement of trade disputes.

Lesson 2

1. d. flags of countries that offer trade protection to their fleets

2. b. where it is registered

3. d. open registry

4. reservation of coastal trade to nationals flying their own flag or, sometimes, flags of convenience

5. – freedom from taxation
   – greater operating freedom (few government restrictions)
   – reduced operating costs (cheaper crew)
   – avoidance of restrictions of their own national flag

6. – building grants
   – long-term loans
   – customs duty exemptions or rebates on materials and parts
   – financial aid for research.

Lesson 3

1. a. IMO

2. c. a market rate that is 50% more than the published rates

3. c. ICHCA

4. – American Bureau of Shipping (ABS)
   – Bureau Veritas (BV)
   – Lloyd's Register

5. Mutual insurance clubs for ship owners who cannot insure with large companies.