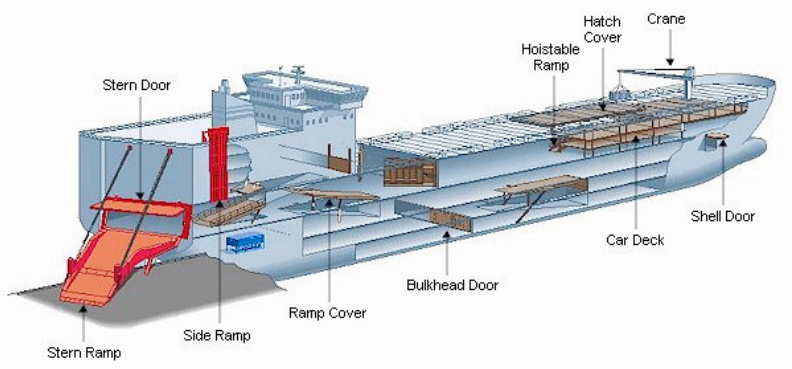
Unit 8

TYPES OF SHIPS 3

Roll-on/Roll-off Ships, Vehicle Carriers and Specialized Craft

Roll-on/roll-off (**ro-ro**) ships



Ro-ro ships are vessels designed to carry wheeled cargo, such as automobiles, trucks, semi-trailer trucks, trailers, and railroad cars, that are driven on and off the ship on their own wheels or using a platform vehicle, such as a self-propelled modular transporter (called tugmaster). This is in contrast to Lift-on/Lift-off (LoLo) vessels, which use a crane to load and unload cargo.

RORO vessels have built-in ramps that allow the cargo to be efficiently rolled on and off the vessel when in port. While smaller ferries that operate across rivers and other short distances often have built-in ramps, the term RORO is generally reserved for larger oceangoing vessels. The ramps and doors may be stern-only, or bow and stern for quick loading. The ro-ro ship is different from lo-lo (lift on-lift off) ship that uses a crane to load the cargo.

MS Ulysses (largest capacity car ferry in the world)

There are various types of ro-ro vessels, such as ferries, cruise ferries, cargo ships, and barges. The ro-ro vessels that are exclusively used for transporting cars and trucks across oceans are known as Pure Car Carriers (PCC) and Pure Truck & Car Carriers (PCTC) respectively. Unlike other cargos that are measured in metric tonnes, the ro-ro cargo is measured in a unit called lanes in meters (LIMs). LIM is calculated by multiplying cargo length in meters by the number of decks and by its

width in lanes. The lane width will differ from vessel to vessel and there are a number of industry standards.

The largest ro-ro passenger ferry is MS Color Magic. It weighs 75,100 GT (Gross Ton). It entered the service in September 2007 for Color Line. It was built in Finland by Aker Finnyards. The ferry is 223.70 m long, 35 m wide and can carry 550 cars as well as 1270 lane meters of cargo.

The ro-ro passenger ferry with the greatest car-carrying capacity is the Ulysses. The ferry was named after a novel by James Joyce and is owned by Irish Ferries. It entered the service on 25 March 2001 and operates between Dublin and Holyhead. It weighs 50,938 GT and is 209.02 m long and 31.84 m wide. It can carry 1342 cars and 4101 lane meters of cargo.

Exercise 1

Complete the sentences below:

1. Ro-ro ships are vessels designed to carry wheeled cargo, such as ……..,
2. The cargo is driven on and off the ship on their own ……
3. In contrast to Lift-on/Lift-off (LoLo) vessels use a crane …….
4. RORO vessels have built-in ramps that allow the cargo ……...
5. Smaller ferries operate across …….. and …….. and have …….
6. The ramps and doors may be …….
7. The ro-ro ship is different from lo-lo (lift on-lift off) ship that uses …….

Exercise 2

Fill in the missing term:

There are various types of _____, such as ferries, cruise ferries, cargo ships, and barges. The ro-ro vessels that are exclusively used for transporting cars and trucks across oceans are known as _____ (PCC) and _____ (PCTC) respectively. Unlike other cargos that are measured in metric tonnes, the ro-ro cargo is measured in a unit called _____ (LIMs). LIM is calculated by multiplying cargo _____ in meters by the number of _____ and by its _____ in lanes. The lane width will differ from vessel to vessel and there are a number of industry standards.

Exercise 3

Cloze (supply the missing word: every fifth wors is omitted):

The largest ro-ro passenger _____ is MS Color Magic. _____ weighs 75,100 GT (Gross Ton). It _____ the service in September _____ for Color Line. It _____ built in Finland by _____ Finnyards. The ferry is 223.70 m _____, 35 m wide and _____ carry 550 cars as _____ as 1270 lane meters _____ cargo.

The ro-ro passenger ferry _____ the greatest car-carrying capacity _____ the Ulysses. The ferry _____ named after a novel _____ James Joyce and is _____ by Irish Ferries. It _____ the service on 25 _____ 2001 and operates _____ Dublin and Holyhead. It _____ 50,938 GT and is _____ m long and 31.84 _____ wide. It can carry _____ cars and 4101 lane _____ of cargo.

Advantages of a ro-ro ship

A ro-ro ship offers a number of advantages over traditional ships. Some of the advantages are as follows:

1. For the shipper, the advantage is speed. Since cars and lorries can drive straight on to the ship at one port and then drive off at the other port within a few minutes of the ship docking, it saves a lot of time of the shipper.

2. It can also integrate well with other transport development, such as containers. The use of Customs-sealed units has enabled frontiers to be crossed with the minimum of delay. Therefore, it increases the speed and efficiency for the shipper.

3. The ship has also proved extremely popular with holiday makers and private car owners. It has significantly contributed to the growth of tourism. A person can take his car from one country to another by sea with the help of a ro-ro vessel.

Exercise 4

Pair* work. Speaking skills. Take written notes of the text on the Advantages of a ro-ro ship *(use keywords, etc.) and make an outline of the text. Then tell the story about the advantages to your partner. Here is an example of a possible outline (given in parts only; work out the rest fro yourself; add as many headings and sub-headings as you find appropriate)

1.

1.1 driving strainght to the ship

1.2

1.3

1. etc.

2.

3. …

Variations of a ro-ro ship

The certain variations of a ro-ro ship are as follows:

1. **ROPAX**

   ROPAX is an acronym for roll on/roll off passenger. It is a ro-ro vessel built for freight vehicle transport with passenger accommodation. The vessels with facilities for more than 500 passengers are often referred to as cruise ferries.

2. **ConRO**

   The ConRo vessel is a hybrid between a ro-ro and a container ship. This type of vessel uses the area below the decks for vehicle storage while stacking containerized freight on the top of the decks.

3. **RoLo**

   RoLo is an acronym for roll-on lift-off vessel. It is also a hybrid vessel type with ramps serving vehicle decks but the other cargo decks are accessible only by crane.

Types of RORO vessels include ferries, cruiseferries, cargo ships, barges, and RoRo service for air deliveries. New automobiles that are transported by ship are often moved on a large type of RORO called a pure car carrier (PCC) or pure car/truck carrier (PCTC).

Exercise 5

Group work. Discuss the acronyms (RoPax, ConRO, RoLo) for the types of ro-ro ships above.

SC ASTREA - RO-RO VESSEL

http://www.sea-cargo.no/wp-content/uploads/2013/12/Productsheet-Astrea.pdf

1. VESSEL PARTICULARS	2. MAIN DIMENSIONS
Owners: Sea-Cargo Skips AS **Class**: DNV 1A1 1CA/1A **Type:** General cargo carrier RO-RO **Builder**: Langsten Slip & Båtbyggeri **Built**: 1991 **IMOnumber**: 8917895 **Main engine:** Wärtsila VASA 12V32E 4856 kW **Aux engines**: Cat 2 x 431 kW **Bunkers:** 380cSt, 19 mt HFO at sea **Communication**: GSM phone, fax, email **Service Speed:** 13,5 knots	DWT: 7,301 mts Draught (SW): 6,70 m Length overall: 129,00 m Moulded breadth: 21,00 m Gross tonnage: 9,528 mts Net tonnage: 2,858 mts

3. HATCH COVERS:	4. HATCHES AND RAMPS
Type: MacGregor Navire Stacking type **Clear opening** 79.10 x 17.72 m **Strength** 1.75 tons/m2 **Containers**: 224 x 20' + 21 x 40', or alternat. 133 x 40' + 9 x 20' Stack load: 37 tons per 20' stack 48 tons per 40' stack (Intakes always subject to weights/stability/trim) **Reefer sockets** 10 **Stern ramp**: MacGregor Navire **Length** 13.0 m + flaps 2.0 m x width 14.97 m **Width of drive way**: 13.74 m **Max. load** 120 mtons **Clear opening** (B x H): 14.97 x 6.92 m	**Ramp to LH** Length: 56 m, width: 4.5 m, free height 4.5 m, angle 7.00°. Flush hatch covering ramp opening. **Lower hold** Height: 4.5 m – abt. 810 sq.m., abt. 260 l.m. Air changes 10 a/c per hour (at sea) 21 a/c per hour (at port) **Main deck/hold** Height max 6.7 m basis RoRo access Bulk head door opening: 17.7 x 6.7 m (WxH) Height 7.6 m in hold under hatchcovers (LoLo) abt. 1 833 sq.m., abt. 600 l.m. Containers: 207 x 20' or 99 x 40' basis LoLo Stack load: 48 tons per 20' stack 60 tons per 40' stack (Intakes always subject to weights/stability /trim) 3 reefer sockets Air changes 10 a/c per hour (at sea) 20 a/c per hour (at port) Box shaped cargo hold – 11.070 CBM gr/bale Deck strengths MD/LH 20'/40' rolltrailer, axle load 14/24 tons Fork lift truck 4 wheels/axle, 50 tons Fork lift truck 6 wheels/axle, 60 tons Road trailer double tyres, 2 axles, axle load 17 tons

Exercise 6

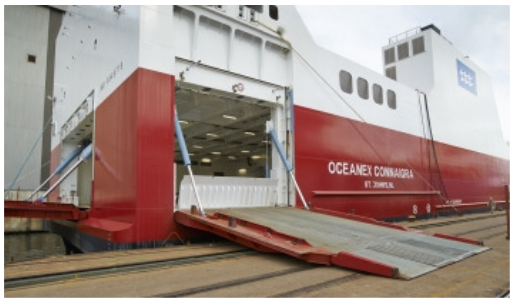
Speaking and writing skills. Pair work. Find missing information/data. Divide the class into pairs: A and B. Give the students A the card containing only the information shown in bold (Tasks 1, 2, and 3 in the above table). Students B have cards with

the complete text. Student A asks as many questions as necessary to fill in the missing information on his card in writing.

Exercise 6

1. ***Group work. Discuss the details about*** **HATCHES AND RAMPS** ***and the characteristics of the ramp, lower hold and main hold of a ro-ro ship. Prepare a group dictionary of terms on hatches, ramps, holds an decks. Try and establish your own language equivalents for the terms on the ro-ro ship.***

The **roll-on/roll-off** type of vessel was developed after the Second World War, and is frequently termed a **vehicle ferry**. It was designed for the conveyance of road haulage[1] vehicles and private cars. At each terminal, a ramp or link span (i.e. hydraulic shore ramp) is provided enabling the vehicle to drive on or off the vessel. This, of course, eliminates cranage and allows a quick turn-round. It also permits through-transits, eliminates cargo handling, and reduces pilferage to a minimum. This type of vessel operates both in the deep-sea and short sea trade.



Exercise 7

Pair work. Describe the images above to your partner.

[1] Road haulage – transport by road

Car-ferries

Ferries are types of boats which are very commonly found in areas where the main modem of transportation happens through water. In such areas, ferries are used not just to transport passengers from one shore to another but to carry cargo as well. Ferries are native to Greece and over the centuries have made their presence known not just in Greece and Europe but wide across the world.

However, the term “ferry” is a very generic one. There are many different types of ferries that are in existence today. The name by which each ferry is known is unique and is named so because of its major characteristic or feature. Some of the main types of ferries can be listed as follows:

- **Catamarans:** Catamarans are generally operated as passenger boats and are exceedingly popular wherever they are used. Speed is the major feature of a catamaran. One of the most famous catamaran services are operated in the UK by the shipping company Stena Line.
- **Car Ferries:** Car ferries are basically cargo ferries that help carry cars and other automobile vehicles on short hauls between the mainland and the nearby islands. Car ferries have two different interpretations. In the United States, car ferries are used to ferry railway carts or cars.
- **Roll-On/Roll-Off Ferries:** These ferries are also known as Ro-Ro ferries. They are a very useful ferry type especially when it comes to cargo hauling in the form of other vehicles. This type of ferry is mainly used in the United Kingdom. There are also certain other ferries that use such Ro-Ro ramps for boarding of vehicles in addition to the ferrying of passengers. Such ferries are called as cruise ferries.

Exercise 8

In the following text the verbs are missing. Supply the verbs in the brackets below in the right place of the text.

Ferries types of boats which are very commonly in areas where the main modem of transportation happens through water. In such areas, ferries are not just to transport passengers from one shore to another but to cargo as well. Ferries are native to Greece and over the centuries have their presence known not just in Greece and Europe but wide across the world.

However, the term “ferry” a very generic one. There many different types of ferries that are in existence today. The name by which each ferry is is unique and is named so because of its major characteristic or feature.

(are, found, used, carry, made, is, are, known)

Vehicle / Car Carriers

Every day, thousands upon thousands of new cars are being transported overseas on ships. They are carried by car carriers. Many car carriers carry over 4,000 vehicles, some closer to 6,000. As an example, here are the stats for one infamous car carrier, the MV Cougar Ace:

- length: 652 ft. 11 in. / 199 meters
- beam (width): 105 ft. 10 in. / 32.26 meters
- decks: 14
- capacity: 5,542 vehicles
- engine: 15,683 horsepower
- speed: 18.6 knots / 21 mph
- cost: over $100 million

Fruit carriers are similar in design to refrigerated vessels. Cool air systems are installed in the holds to keep the fruit from over-ripening. Such vessels convey apples, citrus fruits, and bananas, and are often owned by the cargo owners. Fast voyage times are essential, otherwise the fruit over-ripens and deteriorates. Refrigerated vessels, or reefers are designed for the carriage of chilled or frozen meat, butter or eggs and other perishable cargo. Such vessels operate on liner cargo and tramp services, and are provided with large insulated holds with refrigerating machinery to control the temperature of the cargo.

http://www.marineinsight.com/marine/marine-news/headline/carlos-fischer-the-fruit-juice-carrier/

The most noteworthy characteristic about the vessel is the storage module devised to successfully transport the intended cargo. Considering that the vessel carries juices, a perishable commodity, its refrigeration and storage system is state-of-the-art and specially built to ensure the longevity of the cargo transited.

Four refrigeration compartments house four-juice storage tanks each, providing a total storage area of over 37,000 tonnes of juice. The juices which are stored at a temperature of 0°Celsius, in order to preserve the quality, are transferred from the pipelines into the containers at a temperature of -10° Celsius, in a slush-like state instead of being completely liquid.

- Cylindrically shaped, the storing tanks are deeper in depth and taper on their top. The depth ensures that at the time of relieving the cargo, no residual juices remain in the tanks. The tapered top-portion of the storing tanks is equipped with various technological systems like temperature and radar gauges and nitrogen piping.

  Along with three electrical compressing systems, the refrigeration for the storing tanks is provided by way of ammonium and brine. The refrigeration compartments are suitably constructed and placed in such a way that air-passage is amply provided to them and in-turn to the storing tanks.

Exercise 9

Compiling your own maritime dictionary. Underline the words in the text on fruit carriers that you would list as fruit carrier terms and find your own language equivalents for these terms. Two terms have been underlined for you: cool air systems; over-ripening.

Timber carriers are provided with large unobstructed holds and large hatches to facilitate cargo handling. They are frequently called three-island vessels and incorporate a raised forecastle, bridge and poop, thereby facilitating the stowage of deck cargo which is usually packaged.

Exercise 10

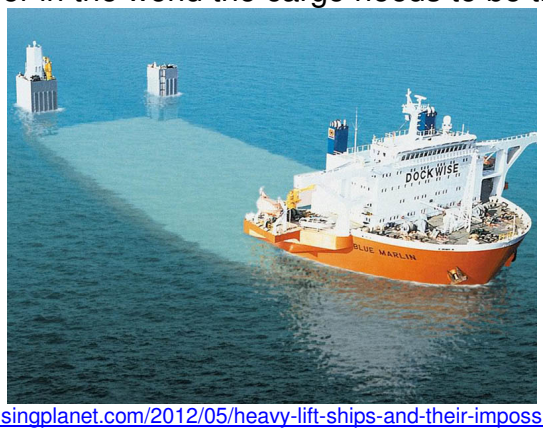
The features of timber carriers:

-
-
-

Heavy lift ships

Heavy lift ships are designed to transport unusually heavy or bulky cargoes which are likely to be troublesome or impossible to carry for the ordinary liner cargo vessel. These ships are equipped with jumbo derricks, which are capable of lifting over 500 tons.

Heavy lift or heavy load ships are of two types: **semi-submerging** capable of lifting another ship out of the water and transporting it; and vessels that augment unloading facilities at inadequately equipped ports. Semi-submerging are more commonly known as a "flo/flo" for float-on/float-off. These vessels have a long and low well deck that can go down under water allowing oil platforms, other vessels, or other floating cargo to be moved into position for loading. The tanks are then pumped out, and the well deck rises higher in the water, lifting its cargo, and is ready to sail wherever in the world the cargo needs to be transported.



http://www.amusingplanet.com/2012/05/heavy-lift-ships-and-their-impossibly.h tml

Exercise 11

Complete the following text:

- **Heavy lift ships** are designed to ……
- They are equipped with ……...
- The features of **semi-submerging** type of heavy lift ships are: .....
- "flo/flo" stand for .....
- These vessels have a long and low well deck that can go down ..... allowing oil platforms, other vessels, or other floating cargo to .....
- The tanks are then .....

Tugboats

A tugboat (tug) is a boat that maneuvers vessels by pushing or towing them. Usually they are divided into harbour and salvage (ocean-going) tugs. Tugs move vessels that either should not move themselves, such as ships in a crowded harbor or a narrow canal, or those that cannot move by themselves, such as barges, disabled ships, log rafts, or oil platforms. Tugboats are powerful for their size and strongly built, and some are ocean-going. Some tugboats serve as icebreakers or salvage

The fixed or spring-loaded towing hook is at the after end of the superstructure. The transverse, curved steel hoops known as towbeams or strongbacks, are fitted so that the towline does not foul the after-deck fittings. The tug's engines need to be very powerful and, to increase manoeuvrability, the controllable pitch propeller and Kort's nozzle are now commonly fitted.

Every port has at least one (harbour) tug equipped with fire fighting apparatus, which consists of foam and fire monitors working from a platform on the mast. American tugs/towboats differ in appearance as regulations for crew accommodation result in a longer superstructure. Moreover, these tugs usually push and nose ships about harbours instead of towing them.

The capacity of a tug is measured by the **bollard pull**, i.e. the force (in tons or kiloNewtons (kN)) exerted by a vessel under full power, on a shore-mounted bollard through a tow-line, commonly measured in a practical test (but sometimes simulated) under test conditions that include calm water, no tide, level trim, and sufficient depth and side clearance for a free propeller stream.

Harley Marine z-drive

Harley Marine Services of Seattle took delivery in August 2013 of the z-drive *Ahbra Franco* from Nichols Bros. Designed by Jensen Maritime, *Ahbra Franco* is the eighth in this Nichols/Jensen series.

Brian Gauvin

The 100-foot *Ahbra Franco* named for the daughter of Harley Marine Services founder Harley Franco, performs ship-assist and escort duties in the ports of Oakland and San Francisco for HMS subsidiary Starlight Marine Services.

Ahbra Franco is powered by two Caterpillar C-175 Tier 3 engines with a total of 6,890 hp at 1,800 rpm. The engines are coupled with Rolls-Royce US 255 FP z-drives turning four-blade fixed-pitch propellers, producing 90 Ton Bollard Pull for exceptional maneuverability.

Deck machinery includes a Markey ship-assist bow winch and a Markey tow winch with 2,600 feet of 2.25-inch wire. Fendering is from Schuyler and Shibata.

Exercise 11

Match the sentences in the two columns below:

1. A tugboat (tug) is a boat that	*A. harbour and salvage (ocean-going) tugs*	1E
2. Usually they are divided into	*B. as icebreakers or salvage.*	
3. Some tugboats serve	*C. is at the after end of the superstructure.*	
4. The fixed or spring-loaded towing hook	*D. towbeams or strongbacks, are fitted so that the towline does not foul the after-deck fittings.*	
5. The transverse, curved steel hoops known as	*E. maneuvers vessels by pushing or towing them.*	
6. The tug's engines need to be very powerful and, to increase manoeuvrability,	*F. which consists of foam and fire monitors working from a platform on the mast.*	
7. Every port has at least one (harbour) tug equipped with fire fighting apparatus,	*G. nose ships about harbours instead of towing them.*	
8. American tugs/towboats usually push and	*H. by the bollard pull.*	
9. The capacity of a tug is measured	*I. kiloNewtons (kN)) exerted by a vessel under full power, on a shore-mounted bollard through a tow-line.*	
10. The bollard pull is the force (in tons or	*J. the controllable pitch propeller and Kort's nozzle are now commonly fitted.*	

Salvage Tug

The ocean-going salvage tug is the largest of the family and she may be employed in towing a floating dock halfway round the world, or an oil rig from shipyard to drilling station. But most of her time is spent patrolling the international shipping lanes, just waiting for a distress signal. When this is received, the tug and other craft which have heard the signal, race to the disabled ship to compete for the salvage work.

Assistance to ships in distress

SMIT Salvage is involved in emergency response, wreck removal operations and environmental care services. SMIT Salvage is one of world's largest salvage companies offering worldwide marine emergency response coverage.

The track record of SMIT Salvage is without parallel. The company maintains specialized equipment and expert personnel in a state of round-the-clock readiness to respond to incidents anywhere in the world. It does this by operating out of four locations which are strategically situated in relation to the main international shipping routes: Rotterdam, Houston, Cape Town and Singapore.

SMIT's communication centres in Rotterdam, Houston, Cape Town, and Singapore provide a 24-hour link to customers, vessels, SMIT Group offices and agents around the world. This communication system guarantees an immediate response and rapid service. In addition, SMIT Salvage can rely on an extensive worldwide network of co-operation agreements with tug suppliers. http://www.smit.com/services/salvage.html

Oil Rig Supply Vessels

These ships can be seen in various ports associated with underwater drilling for oil. The main functions of the ship are to carry stores, fuel oil, drilling water, cement, drilling gear and personnel to the offshore rigs, and to tow the rigs themselves to new stations and to handle their heavy anchor gear. All this work may have to be done in extremely bad weather and, therefore, these ships must be seaworthy and powerful.

A primary function of a platform supply vessel is to transport supplies to the oil platform and return other cargoes to shore. Cargo tanks for drilling mud, pulverized cement, diesel fuel, potable and non-potable water, and chemicals used in the drilling process comprise the bulk of the cargo spaces. Fuel, water, and chemicals are almost always required by oil platforms.

A **platform supply vessel** (often abbreviated as PSV) is a ship specially designed to supply offshore oil platforms. These ships range from 20 to 100 meters in length and accomplish a variety of tasks. The primary function for most of these vessels is transportation of goods and personnel to and from offshore oil platforms and other offshore structures.

In the recent years a new generation of Platform Supply Vessel entered the market, usually equipped with Class 1 or Class 2 Dynamic Positioning System

Exercise 12

Fill in the missing terms

Oil Rig Supply Vessels

These ships can be seen in various ports associated with underwater _____ for oil. The main functions of the ship are to carry _____, fuel oil, drilling water, _____, drilling gear and _____l to the offshore rigs, and to _____ the rigs themselves to new stations and to _____ their heavy anchor gear. All this work may have to be done in extremely bad weather and, therefore, these ships must be _____ and powerful.

A primary function of a platform supply vessel is to transport _____ to the oil platform and return other cargoes to _____. Cargo tanks for drilling _____, pulverized cement, diesel fuel, _____ and non-potable water, and chemicals used in the drilling process comprise the bulk of the cargo spaces. Fuel, water, and _____ are almost always required by oil platforms.

A _____ (often abbreviated as PSV) is a ship specially designed to supply offshore oil platforms. These ships range from 20 to 100 meters in length and _____ a variety of tasks. The primary _____ for most of these vessels is transportation of goods and personnel to and from offshore _____and other offshore structures.

In the recent years a new generation of Platform Supply Vessel entered the market, usually equipped with Class 1 or Class 2 _____ System

Icebreakers

In Canada and in the Baltic many ferries and other craft have hulls which are strengthened for navigation in ice, but harbour and seagoing icebreakers are specially constructed to clear passages for other ships. The all-welded hull is different from any other type of vessel.

Characteristics of Ice Breakers

- Ice breakers have the features of ice strengthened ships and then some of their own too.
- They are heavy for their size, to make them more effective at breaking through ice when they are pushed up above it by their engines.
- They are designed with very gradual upwards slope at the bow, particularly at the water line to allow the bow to ride up over ice before the weight breaks through.

- Hull made from special steels is designed for optimum strength at low temperatures Air bubbling systems assist ice-breaking. Air is forced under pressure from 2m or so below the water line where ice is met, helping to break it and move it out of the way.
- Heated water jets below the waterline are provided to help when breaking through ice.
- Ability to rapidly move large amounts of water ballast within the ship to shift the weight when needing to break ice. The ships can be rocked from side to side in this manner.
- Hull divided by bulkheads into a series of watertight compartments in case it is holed.
- Extra thick steel at the bow, the stern and at the waterline.
- An "ice horn" to protect the rudder and propeller when in reverse, and an "ice knife" in front to protect it when in forwards motion.
- Electric propulsion to the propellers. Electric motors can apply torque when not actually turning or when only turning slowly, so hitting a large piece of ice will not stop the engine.
- Extra strong propellers with replaceable blades. There may also be a propeller inspection well to examine them in operation and the facility to change blades while at sea.
- Very powerful engines. The engine may be diesel possibly with extra power supplied by gas turbines for ice breaking or be nuclear powered.
- Powerful searchlights for use in dark winter conditions. http://www.coolantarctica.com/Antarctica%20fact%20file/ships/icebreaker.htm

Grab Dredger and Hopper

The **grab dredger** is in its simplest form a pontoon with a slewing and hoisting crane capable of operating a double-chain grab. Many improvised craft are like this, but others have a seaworthy hull and propelling machinery. The grab dredger has an advantage over the bucket dredger in docks and basins, as it can work in awkward corners.

Grab hopper dredgers are generally used for maintenance dredging and in particular small-scale applications for port authorities responsible for maintaining smaller national ports. These dredgers are important for their multipurpose characteristics and capability of being operated independently. Mechanical dredgers share a number of common features, such as being economical to operate and designed to achieve the specified production level.

Bucket Ladder Dredger

The bucket ladder dredger has no hopper space, so the spoil must be transferred to hopper barges alongside. It may or may not be self-propelled. The endless belt of buckets moves round and, as each bucket

reaches the bottom, it scoops up some spoil and carries it to the top of the ladder.

Fishing Vessels:

Trawler

The trawler is a fishing vessel and is engaged in all-the-year-round fishing, often in some of the stormiest waters in the world, and must therefore be a strong, sturdy vessel able to work in the worst of weather.

Trawling is a method of fishing that involves pulling a fishing net through the water behind one or more boats. The net that is used for trawling is called a **trawl**.

The boats that are used for trawling are called trawlers or draggers. Trawlers vary in size; from small open boats with only 30 hp engines to large factory trawlers with over 10,000 hp. Trawling can be carried out by one trawler or by two trawlers fishing cooperatively (pair trawling).

Trawling can be contrasted with trolling, where baited fishing lines instead of trawls are drawn through the water. Trolling is used both for recreational and commercial fishing whereas trawling is used mainly for commercial fishing. Trawling is also commonly used as a scientific sampling, or survey, method.

Trawling can be divided into bottom trawling and midwater trawling, depending on how high the trawl (net) is in the water column. Bottom trawling is towing the trawl along (benthic trawling) or close to (demersal trawling) the sea floor. Midwater trawling is towing the trawl through free water above the bottom of the ocean or benthic zone.

Midwater trawling is also known as pelagic trawling. Midwater trawling catches pelagic fish such as anchovies, shrimp, tuna and mackerel, whereas bottom trawling targets both bottom living fish (groundfish) and semi-pelagic fish such as cod, squid, halibut and rockfish.

The gear itself can vary a great deal. Pelagic trawls are typically much larger than bottom trawls, with very large mesh openings in the net, little or no ground gear, and little or no chaffing gear. Additionally, pelagic trawl doors have different shapes than bottom trawl doors, although doors that can be used with both nets do exist.

Exercise 13

Writing skills. Read the text above to find the necessary information and then complete the following sentences in writing:

- the trawler must be ……
- trawling is a method of ……..
- trolling means ……
- the trawl is ……
- trawling can be divided into ……
  (describe the two types) ……
- benthic, demersal and pelagic trawling differ in that …….
  ……
- midwater trawling catches such kinds of fish as …….
  ……
- bottom trawling targets the following kinds of fish

Seiner

The seine net is shot, and hauled in, over the stem of the seiner. It is therefore necessary to have a clear space between the wheel-house and the stem.

Seine fishing (or seine-haul fishing) is a method of fishing that employs a **seine** or **dragnet**. A seine is a fishing net that hangs vertically in the water with its bottom edge held down by weights and its top edge buoyed by floats. Seine nets can be deployed from the shore as a beach seine, or from a boat.

Boats deploying (i.e. lowering or shooting) seine nets are known as **seiners**. There are two main types of seine net deployed from seiners: *purse seines* and *Danish seines*

Exercise 14

Fill in the missing words:

Seiner

The seine net is _____, and _____ in, over the stem of the seiner. It is therefore necessary to have a clear space between the wheel-house and the _____.

Seine fishing (or _____ fishing) is a method of fishing that employs a **seine** or _____. A seine is a fishing net that _____ vertically in the water with its bottom edge held down by _____ and its top edge buoyed by _____. Seine nets can be _____ from the shore as a beach seine, or from a boat.

Freezer Trawler and Factory Ship

On the normal trawler the crew wash and gut the fish, and pack it on ice in boxes, where it will remain fresh for about fourteen days. The time which a vessel remains at sea is therefore restricted.

The freezer trawler can remain at sea for many weeks longer than this as the catch is sorted, washed, gutted and then frozen into about 40 kg-blocks and retained at a temperature of about -28℃, until port is reached. The fish is then thawed out and either sold as fresh fish or kept in storage. The fish factory trawler carries the work a stage further while still at sea. The catch is not only cleaned and gutted, but also filleted, skinned and processed ready for the market

Cruise Ships

A cruise ship in Dubrovnik

A **cruise ship** or **cruise liner** is a passenger ship used for pleasure voyages, where the voyage itself and the ship's amenities are a part of the experience, as well as the different destinations along the way. Transportation is not the prime purpose, as cruise ships operate mostly on routes that return passengers to their originating port, so the ports of call are usually in a specified region of a continent. There are even "cruises to nowhere" or "nowhere voyages" where the ship makes 2-3 day round trips without any ports of call.

By contrast, dedicated transport oriented ocean liners do "line voyages" and typically transport passengers from one point to another, rather than on round trips. Traditionally, an ocean liner for the transoceanic trade will be built to a higher standard than a typical cruise ship, including high freeboard and stronger plating to withstand rough seas and adverse conditions encountered in the open ocean, such as the North Atlantic. Ocean liners also usually have larger capacities for fuel, victuals, and other stores for consumption on long voyages, compared to dedicated cruise ships.

Although often luxurious, ocean liners had characteristics that made them unsuitable for cruising, such as high fuel consumption, deep draught that prevented them from entering shallow ports, enclosed weatherproof decks that were not appropriate for tropical weather, and cabins designed to maximize passenger numbers rather than comfort (such as a high proportion of windowless suites). The gradual evolution of passenger ship design from ocean liners to cruise ships has seen passenger cabins shifted from inside the hull to the superstructure with private verandas.

The modern cruise ships, while sacrificing qualities of seaworthiness, have added amenities to cater to water tourists, and recent vessels have been described as "balcony-laden floating condominiums".

Exercise 15: State whether the following statements are true or false. Give the correct answer in case the statement is false	***true***	***false***
A cruise ship or cruise liner is a cargo ship used for pleasure voyages. *Transportation is not the prime purpose, as cruise ships operate mostly on routes that return passengers to their originating port.* *The ports of call are not usually specified in the voyage plan.* *In "cruises to nowhere" or "nowhere voyages" the ship makes 2-3 day round trips without any ports of call.* *Dedicated transport oriented ocean liners typically transport passengers from one point to another, rather than on round trips.* *Traditionally, an ocean liner for the coastal trade will be built to a higher standard than a typical cruise ship.* *Ocean liners have high freeboard and stronger plating to withstand rough seas and adverse conditions encountered in the open ocean, such as the Black Sea.* *Ocean liners also usually have larger capacities for fuel, victuals, and other stores for consumption on long voyages, compared to dedicated cruise ships.*		

The distinction between ocean liners and cruise ships has blurred, particularly with respect to deployment. Differences in construction remain. Larger cruise ships have also engaged in longer trips such as transoceanic voyages which may not return to the same port for months (longer round trips). Some former ocean liners operate as cruise ships, such as *Marco Polo*. This number is diminishing. The only dedicated transatlantic ocean liner in operation as a liner (as of December 2013) is the *Queen Mary 2* of the Cunard fleet. She also has the amenities of contemporary cruise ships and sees significant service on cruises.

The world's largest cruise ships are Royal Caribbean International's *Oasis of the Seas* and its sister ship *Allure of the Seas*.

http://en.wikipedia.org/wiki/Cruise_ship

Exercise 15:

Find the general information on the Oasis of the Seas (or any other cruise liner of your choice) on the web and prepare a ten-minute ppt presentation.

Other on-board facilities. Most modern cruise ships feature the following facilities:

- Casino — Only open when the ship is at sea to avoid conflict with local laws
- Spa
- Fitness center
- Shops — Only open when ship is at sea to avoid merchandising licensing and local taxes
- Library
- Theatre with Broadway style shows
- Cinema
- Indoor and/or outdoor swimming pool with water slides
- Hot tub
- Buffet restaurant
- Lounges
- Gym
- Clubs
- Basketball courts
- Pool tables
- Ping pong tables

Some ships have bowling alleys, ice skating rinks, rock climbing walls, miniature golf courses, video arcades, ziplines, surfing simulators, basketball courts, tennis courts, chain restaurants and/or ropes obstacle courses.

A. Comprehension & vocabulary

A.1 *State whether the statements below are true or false:*

	TRUE	FALSE
1. The hooks at the after ends of tugs prevent the towing line from fouling the deck fittings.		
2. Harbour tugs are used in deep sea salvage.		
3. Salvage tugs are available for assistance in cases of distress.		
4. Oil rig supply boats cannot handle the heavy anchor gear of the rig.		
5. Supply boats are seaworthy and powerful.		
6. Icebreakers are strengthened for heavy strains.		
7. A trawler can keep the catch for a month.		
8. The seine net is shot and hauled over the bow.		

A.2 *Supply the following missing word:*

• towing line • harbour • tug-boat • propellers • ocean-going
• tow-boat • unberthing • towage • engine • feature • confined

Tug-boats

A tug is a relatively small and heavily built vessel of considerable l. _____ power, used for the 2. _____ of ships at sea or to assist ships in manoeuvring in 3. _____ waters, particularly when berthing and 4. _____ . The full name for a tug is a 5. _____ or 6. _____ in American English. Tugs can generally be divided into 7. _____ or short-haul tugs and 8. _____ or long-haul tugs. A special 9. _____ of all tugs is the very pronounced over-hang of the counter. In this way, if the 10. _____ parts or falls slack into the water, it cannot foul the tug's 11. _____ .

A.3 *Which types of ships are described below:*

1. _____ : a vessel with specially shaped how to make a navigable lane by cutting ice.
2. _____ : a strongly built and fully engined vessel designed for hauling, assisting, servicing and pushing other ships.
3. _____ : a craft for fishing with seine net.
4. _____ : a vessel fitted with buckets engaged for deepening and cleaning a channel, fairway or an area.
5. _____ : a vessel fitted for catching fish with trawls and for sorting, washing, gutting, freezing, filletting and processing fish.
6. _____ _____ : a vessel engaged for assisting disabled vessels at sea, fighting fires and other types of assistance.

A.4 *Answer the questions below:*

1. What are the actions performed by a tug-boat?
2. What is the purpose of the towbeam?
3. What are the means of propulsion in modern tugs?
4. What are the fire-fighting appliances on board a tug?
5. Where and when are salvage tugs employed?
6. What are the main functions of an oil rig supply vessel?
7. Where are icebreakers employed?
8. What are the commonest types of dredgers?
9. What is the advantage of grab hoppers?
10. How does a normal trawler differ from a freezing trawler or a factory ship?
11. How is a seine net handled?

B. Grammar

B.1 *Put the verbs in brackets into correct tenses:*

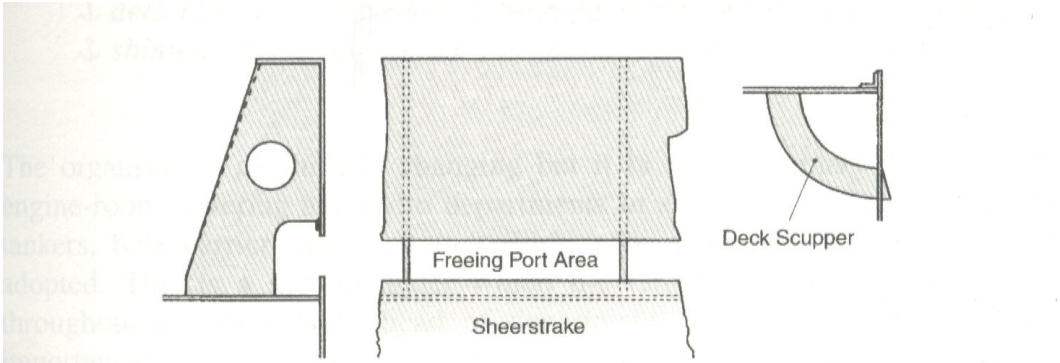
Fishing

Fisheries can *(divide)* 1. _____ into three main categories. Drift net fishing *(employ)* 2. _____ mainly in relatively shallow waters and *(prefer)* 3. _____ to *(catch)* 4. _____ fish which normally *(not lie)* 5. _____ on the bottom. The most usual types of such fish *(be)* 6. _____ herring, mackerel and pilchard.

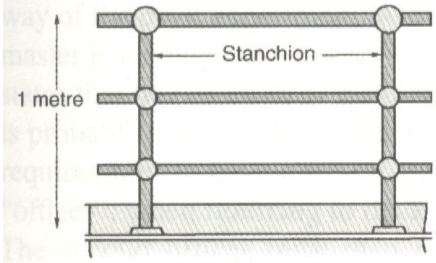
In line fishing hooks *(attach)* 7. _____ at three to four foot intervals to a long line. The hooks *(bait)* 8. _____ and then *(lay)* 9. _____ in the sea. This method *(use)* 10. _____ for bottom-lying fish such as cod.
The more usual method *(employ)* 11. _____ for bottom-lying-fish *(be)* 12. _____ the trawl which *(operate)* 13. _____ by a trawler.

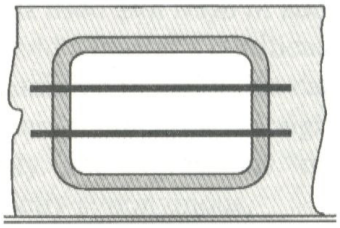
Bulwarks

_____



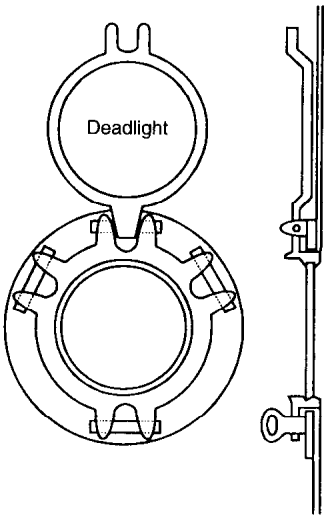
Ship's Rail *Freeing Port*





Port Hole

_____


Deadlight

Supplements

Sinking of the MV *Sewol*

From Wikipedia, the free encyclopedia
(Redirected from 2014 South Korean ferry capsizing)

The **sinking of the MV *Sewol*** occurred on 16 April 2014 en route from Incheon to Jeju. The Japanese-built South Korean ferry capsized while carrying 476 people, mostly secondary school students from Danwon High School (Ansan City). The 6,825-ton vessel sent a distress signal from about 2.7 kilometres (1.7 mi) north off Byeongpungdo at 08:58 Korea Standard Time (23:58 UTC, 15 April 2014).

Capsizing

The ship departed Incheon on 9 p.m. of 15 April after a two-and-a-half-hour fog delay. The frequently-traveled 400-kilometre (250 mi) route from Incheon to Jeju usually took 13.5 hours. The vessel did not deviate from previous routes.

The capsizing began about 25 kilometres (16 mi) off the southwest coast. From 8:48 to 8:49 am (KST), there was a 36-second power outage. One minute after the blackout, the ship made a 45-degree turn and began drifting sideways. Soon afterwards, the ship began to take on water. The sinking has been attributed to making the sharp turn, being overloaded, having unsecured cargo, and being affected by past renovations. A passenger later testified that lights went out after the ferry started listing. Passengers reported feeling a tilt of the ship and hearing a loud 'bang.'

Near the time of the accident, the ship was navigating a channel. Conditions were calm and the area did not contain rocks or reefs. However, the area has been described as 'treacherous.

At the time of the accident, the captain was in his private cabinand the third mate was at the helm. The captain is reported to have returned to the bridge and attempted to re-balance the ship immediately after the accident. At 8:52, Choi Duk-ha, a student, called the national emergency service number and was connected to the Jeollanam-do fire station and reported that the ship was capsizing. Choi was connected to the Mokpo coast guard and talked for 6 minutes. At 8:55 a.m., the ferry established contact with the Jeju vessel traffic service and asked the Jeju VTS to notify the coast guard that the ship was rolling and in danger. At 8:56 a.m., the Jeju VTS called the Jeju Coast Guard.[69] At 8:58 a.m., the Mokpo Coast Guard dispatched a patrol vessel as a response to Choi's call. During this time, the captain told passengers to stay in their rooms. The communications officer, using the ship's intercom, repeatedly ordered passengers not to move.

On 9:07 am, the ship began communicating with the Jindo VTS, which was closer to her location. At this point, the crew confirmed to VTS that the ferry was capsizing. At 9:14 a.m., the crew stated that the ship's angle of heel made evacuation impossible. At 9:18 a.m., the crew reported that the ferry had heeled more than 50 degrees to port. The heeling was later confirmed by the *Central Disaster Countermeasure Headquarters*. At 9:23 a.m., VTS ordered the crew to inform the passengers to wear personal flotation devices. When the crew replied that the broadcasting equipment was out of order, VTS told them to personally order the passengers to wear life jackets and more clothing. At 9:25 a.m., VTS asked the captain to decide quickly whether to evacuate the ship, stating that VTS did not have enough information to make the decision. When the captain inquired about the rescue, VTS replied that patrol boats were due to arrive in 10

minutes and a helicopter in one minute. The captain then replied that there were too many passengers for the helicopter.

Around 9:30 a.m., the captain gave orders to evacuate the ship, though the order may not have been relayed to all the passengers. At 9:33 a.m., after confirming that nearby ships had volunteered to help in the rescue operations, VTS told all ships to drop lifeboats for the passengers. At 9:38 a.m., all communications were cut off between VTS and the ferry. About three minutes after all communications were cut, about 150 to 160 passengers and crew jumped overboard.

The *Sewol* took two and a half hours to sink. By around 11:18 a.m., the bow of the ship was submerged, with a section of the hull about 2 metres (6 ft 7 in) high and 20 to 30 metres (66 to 98 ft) long showing above the water. At 9:00 a.m. on 18 April, only 50 centimetres (20 in) of the bulbous bow was above water. As of 1:03 p.m., the ship was completely submerged.

Oasis of the Seas at Nassau, Bahamas, in January 2010

Career	
Name:	*Oasis of the Seas*
Owner:	Royal Caribbean International
Operator:	Royal Caribbean International
Port of registry:	Nassau, Bahamas[1]
Route:	Caribbean
Ordered:	February 2006
Builder:	STX Europe, Turku, Finland[2]
Cost:	US$1.4 billion (2006)[3]
Yard number:	1363[4]
Laid down:	12 November 2007[5]
Launched:	21 November 2008 (float-out)[6]
Christened:	30 November 2009[7]
Completed:	28 October 2009[4]
Maiden voyage:	5 December 2009[7]
Identification:	Call sign: C6XS7 IMO number: 9383936 MMSI number: 311020600
Status:	In service
General characteristics	
Class & type:	*Oasis*-class cruise ship
Tonnage:	225,282 GT[8] 242,999 NT[8] 15,000 DWT[8]
Length:	361.6 m (1,186.5 ft) overall[9]
Beam:	47 m (154 ft) waterline[8] 60.5 m (198 ft) max beam[8]

Height:	72 m (236 ft) above water line[10]
Draught:	9.3 m (31 ft)[8]
Depth:	22.55 m (74 ft)[8]
Decks:	16 passenger decks[2]
Installed power:	3 × 13,860 kW (18,590 hp) Wärtsilä 12V46D 3 × 18,480 kW (24,780 hp) Wärtsilä 16V46D
Propulsion:	3 × 20 MW (27,000 hp) ABB Azipod, all azimuthing 4 × 5.5 MW (7,400 hp) Wärtsilä CT3500 bow thrusters[10][11]
Speed:	22.6 knots (41.9 km/h; 26.0 mph)[2]
Capacity:	5,400 passengers at double occupancy[2] 6,296 maximum[2]
Crew:	2,165 on maiden voyage[2] 2,394 as of July 2012[9]