

MARITIME ORIENTATION PACKAGE



Port Nelson



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Introduction

This 'Maritime Orientation Package' will introduce the complex Maritime industry to Health Protection Officers (HPOs) who may have to implement and apply health measures within it.

Background

New Zealand Public Health Units are designated as 'competent authorities' by the World Health Organisation for ensuring maritime Points of Entry (POE) comply with the standards required by the International Health Regulations (2005) (IHR) and the International Maritime Organisation. Most New Zealand Public Health Units have a Maritime POE in their region. The Maritime Environment comprises many unique factors and has its own language rich with acronyms. For a HPO to be competent and feel confident working in the maritime environment they need a basic understanding of:

- Vessel Types – their purpose and the possible public health issues associated with them.
- The layout of a ship – where to go and what to look for.
- Maritime Terminology – communication with the personnel on board and dockside in the lexicon.
- The sequence a vessel follows upon entering NZ waters and the ensuing processes;
 - gaining pratique,
 - berthing,
 - discharging and loading cargo,
 - replenishment of food and water,
 - refuelling, and
 - departure for another jurisdiction, and
- The suite of documents that ships maintain to show that management practices on board comply with international regulations and requirements.

Purpose

The purpose of this orientation package is to familiarise HPOs with some background information that will enable them to be able to confidently conduct their duties at the port. The package is in three parts;

- maritime terminology,
- an illustrated compendium of ship types that might be encountered in NZ waters, and
- a schematic showing the layout of a ship.

PART 1 - TERMINOLGY

SHIPS' GEOMETRY

Beam (B): The breadth of the ship at the widest point.

Draft (T): The depth from waterline to the keel.

Freeboard (F): Distance between the waterline and the uppermost watertight deck.

Depth (D): Total depth from the keel to the top of the watertight deck. $\text{Depth} = \text{draft} + \text{freeboard}$.

Length Overall (LOA): The extreme length of the ship, bow to stern.

Length on Waterline (LWL): The length at the waterline in the ship's loaded condition.

VESSEL TERMINOLGY

AFT: Toward the stern of the ship.

AMIDSHIPS: In or toward the centre of the ship.

BALLAST TANK: Tanks used to adjust the ship's trim by pumping water in or out

BILGE: The interior of the hull below the floor boards.

BOLLARD: is a short vertical post used on a ship or a quay, used principally for attaching mooring lines.

BOW: The forward part of a ship.

BOAT DECK: Deck on which the ship's lifeboats are stowed (Cruise Ships and Ferries).

BRIDGE: The location from which a vessel is steered and its speed controlled.

BULKHEAD: A vertical partition separating compartments.

CAPSTAN: Deck mounted stationery winch used to draw lines – a hazard when operating

DISPLACEMENT: The weight of water displaced by a floating vessel, thus, a ship's weight.

DRAFT: The depth of water a ship draws.

FATHOM: Six feet or 1.82 meters

FORPEAK: Furthest forward compartment (as opposed to AFTPEAK).

GALLEY: The ship's kitchen

GANGWAY: The area of a ship's side where people board and disembark.

HATCH: The opening in the deck of a vessel giving access to the cargo hold.

HEADING: The direction a vessel's bow points at any given time.

HEADS: Toilets.

HEADWAY: The forward motion of a ship. Opposite of **STERNWAY**.

HELM: The wheel or tiller controlling the rudder.

HULL: The main body of a vessel.

KEEL: The centreline of a ship running fore and aft; the backbone of a vessel.

LINES: Cables or ropes used to secure the ship to the dock/wharf.

KNOT: A measure of speed equal to one nautical mile, 6076 feet per hour.

LEE: The side sheltered from the wind.

LEEWARD: The direction away from the wind. Opposite of **WINDWARD**.

LEEWAY: The sideways movement of the ship caused by either wind or current.

MAIN DECK: The uppermost weatherproof deck, running the full length of a ship.

MARINE ENGINEERING: Propulsion and systems within the ship. (Pumps, power generation, air & water systems etc.)

MHE. Mechanical Handling Equipment – mobile plant that handles cargo, includes straddle carriers, fork lifts, log loaders, front end loaders, mobile grabs, but not fixed derricks, gantry's or cranes.

MIDSHIP: Approximately the location equidistant from the bow and stern.

NAUTICAL MILE: One minute of latitude; approx 6076 feet: 1/8 longer than the statute mile of 5280 feet.

PORT: The left side of a ship looking forward.

QUARTER: The sides of a ship aft of amidships.

RINGBOLT: a. Deck Fastening for cables or lines, OR b. a freeloading/non-paying passenger

STANCHION: Vertical support (a bar or post) for chains or ropes, as in marine applications

STARBOARD: The right side of a ship when looking forward.

STEM: The front of the ship.

STERN: The back of the ship.

SCUPPERS: Area where there is the collection and conduit of water runoff off the decks.

UPPER DECK: The highest deck of the hull, extending from stem to stern.

WATERLINE: A notional line of the level of water against the ship's side when it is properly trimmed.

WAY: Movement of a vessel through the water such as headway, sternway or leeway.

GLOSSARY OF MARITIME TERMS

Advance Notice of Arrival (ANA). All commercial and cruise ships must submit an advance notice of arrival form not less than 48 hours prior to their entering New Zealand territorial waters (12 mile limit). The ANA includes information regarding health on board and the currency of the vessel's Ship Sanitation Exemption Certificate.

Astern. – Behind a vessel or – Move in a reverse direction.

Break Bulk. – Any non-containerized cargo, either loose or packaged.

Cargo. Freight loaded into a ship.

Cargo Manifest. A manifest that lists all cargo carried on a specific voyage.

Competent Authority. The authority responsible for the implementation and application of the International Health Regulations 2005. In NZ this is the Regional Public Health Service.

Container. A Cargo container. Containers may be ventilated, insulated, refrigerated, (Reefer), flat rack, vehicle rack, open top, bulk liquid or equipped with interior devices. A container may be 20 feet, 40 feet, 45 feet, 48 feet or 53 feet in length, 8'0" or 8'6" in width, and 8'6" or 9'6" in height.

Container Terminal. An area of the port designated for the stowage of cargoes in container; usually accessible by truck, railroad and marine transportation. Here containers are picked up, dropped off, maintained and housed.

Deadweight tonnage (also known as **deadweight** abbreviated to **DWT, D.W.T., d.w.t., or dwt**) is a measure of how much weight a ship is carrying or can safely carry. It is the sum of the weights of cargo fuel, fresh water, ballast water, provisions, passengers, and crew

Demurrage. A penalty charge against shippers or consignees for delaying the carrier's equipment or vessel beyond the allowed time.

Devanning. The unloading of a container or cargo van, can occur dockside or at a devanning site.

Dunnage. Any material or objects utilized to protect cargo. Examples of dunnage are wooden blocks, boards, burlap and paper. Can provide a good environment for vertebrate or invertebrate pests.

Evidence Report Form (ERF). Documentary evidence of public health risks detected on a ship and the prescribed control measures; see SSCC & SSEC below.

Flat Rack/Flat Bed Container. A container with no sides and frame members at the front and rear which can be loaded from the sides and top.

Flo Flo: Float on Float off – a submersible ship/dock that can carry heavy items of equipment.

Freight Forwarder. A person whose business is to act as an agent on behalf of the shipper. A freight forwarder frequently makes the booking reservation.

Handysize. Any vessel between 10000 to 30000 tons dead weight. These vessels make up the majority of the world's short haul fleet.

Harbour. Any place to which ships may resort for shelter, or to load or unload passengers or goods, or to obtain fuel, water, or supplies. This term applies to such places whether proclaimed public or not and whether natural or artificial.

Harbour Master. The official who is responsible for the construction, maintenance, operation, regulation, enforcement, administration and management pertaining to marinas, ports and harbours.

HACCP. Hazard Analysis Critical Control Point.

HAZ MAT. An industry abbreviation for "Hazardous Material."

International Health Regulations. Purpose – "to prevent, protect against, control and provide a public health response to the international spread of disease.....and to avoid unnecessary interference with international traffic and trade"

Jacob's Ladder. A rope ladder suspended from the side of a vessel and used for boarding.

Jettison. Act of throwing cargo or equipment (jetsam) overboard when a ship is in danger.

Lighter. An open or covered barge towed by a tugboat and used mainly in harbours and inland waterways to carry cargo to/from a vessel.

Manifest. Document that lists in detail all the bills of lading issued by a carrier or its agent or master for a specific voyage. A detailed summary of the total cargo of a vessel. Declared for Customs purposes.

Maritime Declaration of Health. To be completed and submitted to the competent authorities by the masters of ships arriving from foreign ports. Provides a medical “history” of the vessel’s voyage.

Nautical Mile. Distance of one minute of longitude at the equator, roughly 6,076 feet. The metric equivalent is 1852 metres.

No Change of Health Status Notice. The ship’s master must send a “no change in health status” notice 12–24 hours before free pratique can be granted.

Panamax Vessel. The largest size vessel that can traverse the Panama Canal. Up to 80000 tons dead weight

Plimsoll Mark. A series of horizontal lines, corresponding to the seasons of the year and fresh or saltwater, painted on the outside of a ship marking the level which must remain above the surface of the water for the vessel’s stability.

POD - Abbreviation for: – Port of Discharge, or – Port of Destination

Point of Origin. The place at which a shipment is received by a carrier from the shipper.

POL - Abbreviation for: – Port of Loading or – Petroleum, Oil, and Lubricants

Port. The left side of a ship when facing the bow.

Pratique Certificate. Lifts temporary quarantine of a vessel; granted by a Health Officer.

Quarantine. A restraint placed on an operation to protect the public against a health hazard. A ship may be quarantined so that it cannot leave a protected point. An orange flag depicting a ‘Q’ is hoisted during the quarantine period.

“Ro/Ro”. Abbreviation of the term, “Roll On/Roll Off.” A method of ocean cargo service using a vessel with ramps which allows wheeled vehicles to be loaded and discharged without cranes. Also refers to any specialized vessel designed to carry Ro/Ro cargo.

Ship’s Manifest. A statement listing the particulars of all shipments loaded for a specific voyage.

Ships Sanitation Exemption Certificate (SSEC). Issued when no evidence of public health risk is found on board and the ship is free from infections and contamination including vectors.

Ships Sanitation Control Certificate (SSCC). Issued when there is evidence of a public health risk detected on board and the required control measures have been satisfactorily completed. If necessary an Evidence Report Form (ERF) is attached to the SSCC.

Starboard. The right-hand side of a ship when facing the bow.

Stern. The tail end of a vessel, opposite of bow.

Stevedore. Individual or firm that employs watersiders and who contracts to load or unload the ship.

Straddle Carrier. Mobile cargo handling equipment with the capacity for lifting a container within its own framework. Operators of straddle carriers have very limited visibility – avoid them when operating.

Suezmax. Largest size vessel that can make passage through the Suez Canal – up to 150,000 tons

Terminal. An assigned area of a port where containers are prepared for loading into a vessel, train, truck, or airplane or are stacked immediately after discharge from the vessel.

Trade Single Window (TSW). Digital platform for the rendering of Advanced Notices of Arrival, hosted by NZ Customs. Will replace current analogue paper based notification systems, due for introduction in 2013.

COMMON SHIP TYPES

Vessels are typed in general categories as follows:

- ***Oil Tankers***
Designed for transporting crude oil
- ***Bulk Carriers***
Designed to carry bulk solids such as grains, fertilizer and ores or bulk liquids such as refined petroleum products, chemicals and orange juice
- ***General Cargo Ships***
Designed to carry break bulk cargo
- ***Containerships***
Designed to transport standard-sized ocean freight containers
- ***Other Types of Ships***
Liquified gas carriers
Chemical tankers
Miscellaneous tankers
Ferries and passenger ships
Other miscellaneous ships

Combination Passenger and Cargo Vessels: Ships with a capacity for 13 or more passengers.

Freighters:

- Break-bulk vessels both refrigerated and unrefrigerated,
- containerships,
- partial containerships,
- roll-on/roll-off vessels,
- barge carriers,
- car carriers,
- cattle carriers,
- pallet carriers, and
- timber carriers

Barge Carriers: Ships designed to carry barges.

Car Carriers: Roll-on/roll-off vessels designed to carry vehicles and equipment (e.g. construction plant). Usually has a low deck head to maximise the number of vehicles that can be carried

Cruise Ships: Passenger vessels with complements up to 2000 PAX & Crew

Full Containerships: Ships equipped with permanent container cells, with little or no space for other types of cargo.

Partial Containerships: Multipurpose containerships where one or more but not all compartments are fitted with permanent container cells. Remaining compartments are used for other types of cargo.

Roll-on/Roll-off vessels: Ships specially designed to carry wheeled containers or trailers using interior ramps. Deck heads are high to accommodate oversized items and trailers with containers.

Tankers: Ships fitted with tanks to carry liquid bulk cargo such as: crude petroleum and petroleum products, chemicals, Liquefied gasses (LNG and LPG), wine, molasses, and similar products.

Very Large Crude Carrier (VLCC). These are very large crude oil carriers that transport crude oil between 150,000 to 300,000 tons dead weight

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PART 2 - Ship Recognition

Depicted below are examples of the of vessels that may visit NZ waters which may have to comply with IHR 2005, International Maritime Organisation, NZ Maritime and Public Health requirements. Public Health Officials should have a cursory knowledge of the various ship designs and the possible Public Health risks associated with the cargo they carry or the ports they may have visited before reaching NZ.



1. **SUPER YACHT.** The terms **luxury yacht, super yacht** and **large yacht** refer to very expensive, privately owned yachts which are professionally crewed. Range from 25m upward in length. Giga yachts are over 100m in length. Public Health Risks should be low given high maintenance standards.



2. **CAR CARRIER.** Vessel designed to carry vehicles. Most come from Japan bring new and used cars. Backload cargo includes Medium Density Firewood pallets. Some risks with used plant and other equipment which may be contaminated with mosquito bio mass.



3. **TRAWLER.** A number of these vessels come to NZ under charter, predominantly from South Asia. Their legal position can be somewhat obscure given the charter arrangements.



4. **BULK CARRIER.** These ships are common in NZ waters. Carry homogenous cargo such as fertiliser, grain, coal etc. Vessels carrying grain may have rodent or other pest infestations in the holds.



5. **OFF SHORE WORK SHIP.** Small vessels that service offshore platforms. Common found in New Plymouth where they service the offshore platforms. Of interest when they arrive inbound from off shore ports of embarkation.



6. **LIVESTOCK CARRIER.** Currently no longer seen in NZ since the live sheep trade was banned. Still operate out of Australia to the Middle East and Indonesia.



7. **Large Crude Carrier (LCC).** An **oil tanker**, also known as a **petroleum tanker**, mostly seen at Marsden Point and Port Taranaki. Designed for the bulk transport of petroleum products. There are two types of oil tankers; the **crude tanker** and the **product tanker**. Crude tankers move large quantities of unrefined oil from its point of extraction to refineries. Product tankers, generally much smaller, are designed to move product from refineries to points near consuming markets.



8. **A Roll-On/Roll-Off (RO/RO) ship** is specifically designed to carry wheeled and tracked vehicles as all or most of its cargo. Vehicles are driven or towed on and off the ship by means of either the ship's own ramps or shore-based ramps. Because it is designed to accommodate cargoes which cannot be stacked but which vary in height, below-deck space and volume utilization is generally less efficient than on a containership



9. **Lighter Aboard Ship (LASH Ship).** The LASH system is the practice of loading barges or Lighters aboard a larger vessel for transport. It was developed in response to a need to transport lighters, a type of unpowered barge, between inland waterways separated by open seas.



10. **CABLE SHIP.** A cable layer or cable ship is a deep-sea vessel designed and used to lay underwater cables for telecommunications, electric power transmission, or other purposes. Cable ships are distinguished by large cable sheaves for guiding cable over bow or stern or both.



11. Specialized Heavy Lift Ships, also known as Float-on/Float-off (FLO/FLO) or semi-submersible ships, provide the capability to load, transport and offload oversized cargo independent of port equipment. Traditionally used for handling large or extremely heavy cargo, such as tug boats, barges, landing craft, floating cranes, and single anchor leg mooring systems.



12. DREDGE. Generally operate in local harbours. Not normally engaged in international travel except for delivery voyages.



13. LNG CARRIER. Liquefied Natural Gas Carrier. Infrequent visitors to NZ. There are usually four to six tanks all along the center line of the vessel. Surrounding the tanks is a combination of ballast tanks, cofferdams and voids. These areas give the vessel a double-hull type design.



14. CRUISE SHIP. Large Vessels that work on regular schedules. Carry up to 2000 passengers and a 1000 or more crew. Frequently there have been outbreaks of gastro intestinal infections and in particular Nor virus. Cruise Lines should have well developed response plans for such outbreaks.



15. Load on Load Off vessel (LO LO SHIP). Self-loading of cargo and so independent of dockside cranes. Smaller Lo Lo Vessels are common working the SW Pacific routes back to the Auckland Hub. Hi risk for Biosecurity since their cargo is often contaminated, and the vessel itself may harbour vectors. Also, the operation of these vessels is often conducted at a lesser standard of management than other vessels.



16. **BANANA SHIP.** Specialised reefer vessels for Banana transportation. Owned by major producers – Bonita and Dole.



17. **CHEMICAL CARRIER.** A specialised vessel designed for the transport of bulk liquid chemicals. Treated with respect since their cargo is hazardous. The coating or cargo tank material determines what types of cargo a particular tank can carry; stainless steel tanks are required for aggressive cargoes such as sulphuric and phosphoric acid, while 'easier' cargoes - e.g. vegetable oil can be carried in epoxy coated tanks.



19. **CONTAINER VESSEL.** The workhorse of the Global Supply Chain. The shipping container is a “truck deck” size load, a Twenty foot Equivalent Unit (TEU). Smaller ships are Feeders (less than 3000 TEUs). Many hub out of Singapore to NZ. Panamax are vessels that can navigate the Panama canal and can carry up to 5000 TEUs.



20. **OFFSHORE PATROL VESSEL.** NZ Navy Protector series. Multi role, helicopter capable vessels with a complement of up to 50 pers.



21. **LOG CARRIER.** Frequent visitors to all NZ Ports. Usually Lo Lo capable. Public Health risks are usually low but the log loading operations are extremely hazardous.



22. NAVAL REPLENISHMENT SHIP. A one stop shop for fuel and supplies. A replenishment ship can transfer cargo and fuel whilst at sea and “under way.



23. OCEAN GOING TUG is a ship that maneuvers vessels by pushing or towing them. Tugs move vessels that should not move themselves or those that cannot move themselves, such as barges, disabled ships or oil platforms. Ocean going tugs often transit the tropics where there are opportunities to collect unwanted biomass. Public Health Risks include their potential as a possible pathway for vectors.

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Part 3 – Layout of a ship

