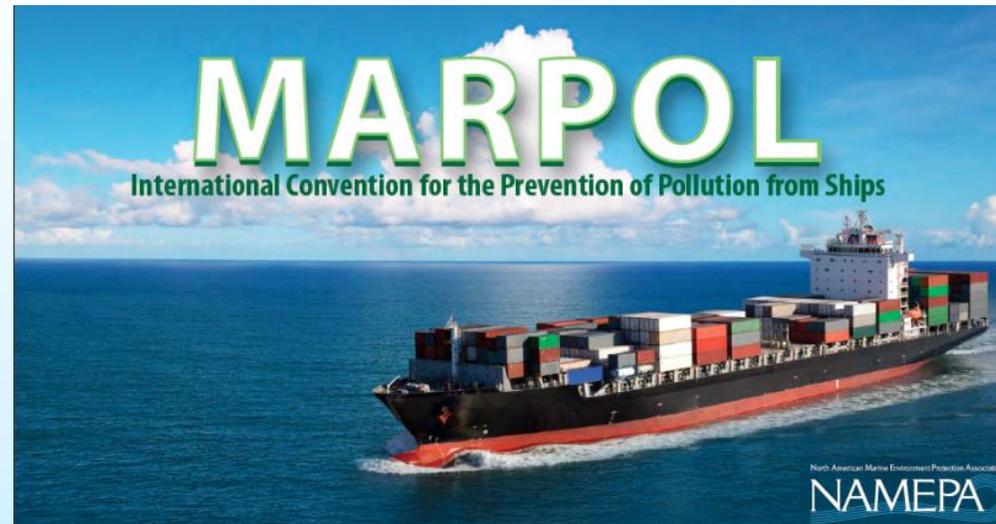


# MARINE POLLUTION



# NAMEPA's Mission

- Preserve and **protect** the marine environment
- Demonstrate **maritime commitment** to environmental protection and pollution prevention
- Support the **marine industry**
- Engage maritime businesses, government and public to **"Save our Seas"** by promoting sound environmental practices
- **Educate** on importance of protecting marine resources



**MARPOL** was developed and implemented to control the pollution of the seas by ships. Members of the International Maritime Organization developed six **annexes**, each covering a different type of pollution. We will cover five in this lesson.



# Annex 1 - Oil Pollution



When oil is dumped into the water, it may kill plants and animals, or disrupt their ability to eat or reproduce.

The following procedures have been put in place to help protect marine life from oil contamination:

- Any discharge into the sea of oil or oily mixtures from ships of 400 gross tons or greater shall be prohibited except when a number of process conditions have been satisfied.
- Any discharge into the sea of oil or oily mixtures from the cargo area of a vessel shall be prohibited except when a number of conditions are satisfied.
- All vessels should be fitted with a standard discharge connection for safe discharge of oil or oily mixtures to an approved reception facility
- If there is an oil spill, refer to your Shipboard Oil Pollution Emergency Plan (SOPEP) manual and Vessel Response Plan (VRP) to see how to handle it safely, and communicate effectively with proper parties.
- Entries of such items as oil and oily waste discharges, internal transfers and bilge water processing are to be accurately recorded in the Oil Record Book.



# Annex II – Noxious Liquid Substances



Many chemicals are poisonous to sea life, so great care should be taken before dumping any liquid into the water.

Some noxious liquid substances contain chemicals which may be poisonous to sea life. Great care should be taken when handling any liquid substance around water. Some helpful guidelines are below:

A complete list of noxious substances is listed in the International Bulk Chemical Code (IBC) book. Beware of how these substances are classified and what this means regarding how you should handle them.

- Category X – Major hazard; do not discharge into sea
- Category Y – Hazardous; only limited discharging is permitted
- Category Z - Minor hazard; only minor restrictions on discharging.
- Category OS (other substances) – no hazard restrictions

Every bulk liquid should be stored properly and completely contained.

Record all information regarding cargo loading, discharge of liquids, internal transfer, and cargo tank washing and ballasting in the Cargo Record Book.



# Annex IV - Sewage



When untreated sewage is discharged into the sea, plants and animals may become sick, and people relying on seafood to eat or fresh water to drink may become sick too.

Sewage is any drainage and waste from toilets and urinals, medical areas, sick bays and any area containing living animals. If untreated sewage is discharged into the sea, animals may become sick. People eating this seafood can become sick.

- Ships over 400 gross tons or carrying more than 15 passengers must have a sewage treatment system or holding tank
- Seagoing vessels must have standard discharge connections to pump sewage or treated wastewater to a shore side reception facility.
- Treated waste can be discharged from ship 3 nautical miles from land. Untreated sewage can be discharged 12 miles from sea a moderate rate while ship is underway.
- More stringent regulations apply for mixed wastes

# Annex V - Garbage



Garbage, especially plastics that do not degrade quickly, may entangle or kill animals, and poses a severe threat to marine environments. While the biggest source of coastal pollution is from people ashore, ships need to do their part to minimize the impact.

While most garbage comes from land-based sources, people on the oceans lakes and rivers must also do their part to help the environment. Garbage – especially plastics – may kill animals when eaten, and poses a severe threat to marine environments. Animals may also become entangled in fishing nets and other refuse.

Specific rules vary on discharging garbage based on type of garbage, location of vessel and distance from land. Certain key procedures apply globally, however:

- Anywhere at sea, it is illegal to discharge
  - Plastics and materials containing plastic
  - Synthetic lines and fishing nets
  - Ash from incineration of garbage that contains plastics
  - Residues from the cargo section of an oil tanker
  - Residues from the cargo section of any vessel that are deemed dangerous or harmful to the environment
  - All vessels must have a Garbage Management Plan.
  - Records of garbage incineration, discharged into the sea, or sent to reception facilities ashore shall be accurately recorded in the ships Garbage Record Book.

# Annex VI – Air Pollution



People and animals breathing polluted air may develop respiratory and heart problems; air pollution may also affect Earth's climate in harmful ways.

Ships have to burn fuel to run engines and generators for power which does produce air emission that are harmful to the environment and to people. Although among the lowest sources of harmful exhaust, ships need to do their part in minimizing the impact of these emission. People and animals breathing polluted air may develop respiratory and heart problems. Furthermore, releasing other chemicals into the air may affect Earth's climate, raising temperatures to unsafe levels and upsetting the balance of the world's ecosystems. The following regulations should be followed to protect Earth from air pollution.

- Ship operating in designated Emission Control Area (ECAs) are required to comply with more stringent fuel, sulfur, and engine nitrogen oxides (NOX) limits.
- Chlorofluorocarbon (CFC) and Halon chemicals, which are found in common refrigerants and extinguishing agents shall not be released into the air. Records should be kept showing delivery, use and landing ashore of all CFC and Halon Chemicals.
- Most vessels now have International Air Pollution Prevention (IAPP) certificates. When engines are repaired or replaced, you should use only approved materials. Additionally, many engines are now being made that greatly reduce the release of sulfur, nitrogen, and other chemicals into the air.
- PVC plastics may only be burned in specially approved shipboard incinerators.
- Garbage and sludge may not be burned in ports, harbors, or estuaries.



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