

North American Marine Environment Protection Association®



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2014 Lloyd's List Awards ENVIRONMENT AWARD WINNER

# Regulatory Opportunities and Challenges for Shipping and Ports

# Shipping's Size

- There are over 50,000 merchant ships trading internationally, transporting every kind of cargo. The world fleet is registered in over 150 nations, and manned by over a million seafarers of virtually every nationality.



# Shipping's Role in Global Trade

- Our marine transportation system delivers more than 90% of all global trade
- In 2008, for example, it is estimated that the industry transported a total volume of world trade by sea of over 32 thousand billion tonne-miles and nearly 50 thousand billion tonne-miles in 2014- an increase of 50% (Source: UNCTAD)



# Shipping is regulated by IMO



The shipping industry is principally regulated by the [International Maritime Organization \(IMO\)](#), which is the London based United Nations agency responsible for the safety of life at sea and the protection of the marine environment.

# Enforcement

- The principal responsibility for enforcing IMO regulations concerning ship safety and environmental protection rests with the flag states (i.e. the countries in which merchant ships are registered - which may be different to the country in which they are owned).
- Flag states enforce IMO requirements through inspections of ships conducted by a network of international surveyors. Much of this work is delegated to bodies called classification societies.

# Port State Control (PSC)

- Flag state enforcement is supplemented by what is known as Port State Control, whereby officials in any country which a ship may visit can inspect foreign flag ships to ensure that they comply with international requirements. Port State Control officers have the power to detain foreign ships in port if they do not conform to international standards. As a consequence, most IMO regulations are enforced on a more or less global basis.

# In the United States



# MARPOL Regulations

- The International Convention for the Prevention of Pollution from Ships (MARPOL): main international convention covering prevention of pollution of the marine environment by ships (operational or accidental)
- Currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes



# Refresher

- Annex I - Regulations for the Prevention of Pollution by Oil
- Annex II - Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
- Annex III - Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form



# Refresher (continued)

- Annex IV - Prevention of Pollution by Sewage from Ships
- Annex V - Prevention of Pollution by Garbage from Ships
- Annex VI - Prevention of Air Pollution from Ships

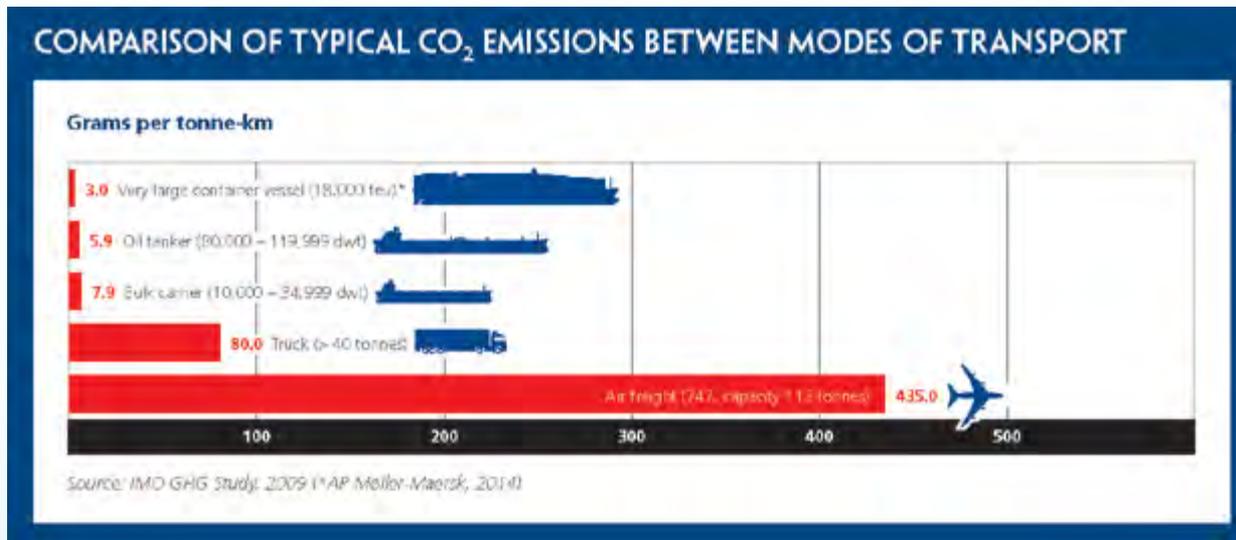


# Shipping is Environmentally Efficient

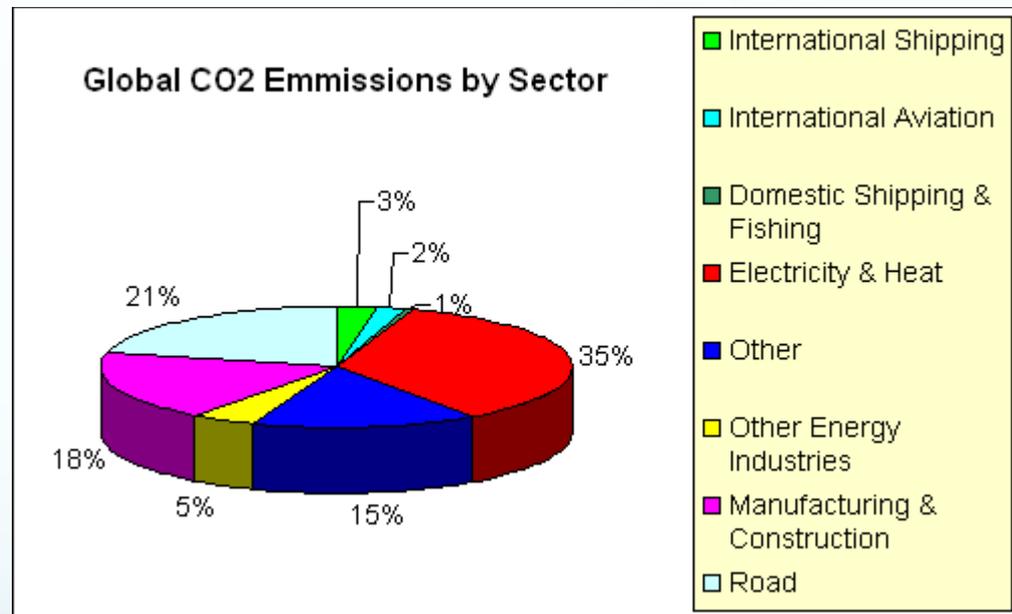
- Sea transport is one of the least environmentally damaging modes of transport and, when compared with land based industry, is a comparatively minor contributor to marine pollution from human activities.



# Comparable modes



# Comparable industries



# Industry Action

- 10% reduction in total CO2 (2007 – 2012)
- Carbon neutral growth
- Mandatory CO2 rules already in force globally
- 20% less CO2 per tonne/km than 2005
- 50% CO2 reduction by 2050

# IMO Action on Carbon

## IMO agreement on technical regulations will reduce ships' CO<sub>2</sub>

MARPOL Annex VI, Chapter 4 adopted July 2011, which entered into force in January 2013



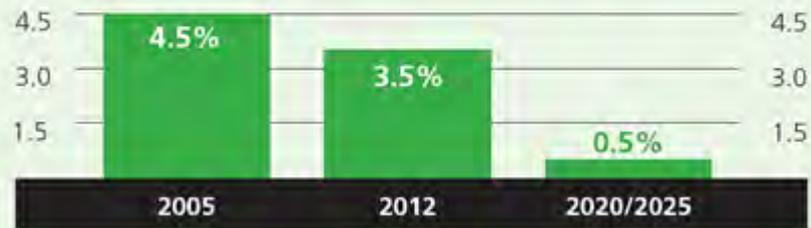
# IMO Action on SOx

## IMO AGREEMENT TO REDUCE ATMOSPHERIC POLLUTION FROM SHIPS

Sulphur content of fuel permitted in Emission Control Areas



Sulphur content of fuel permitted outside Emission Control Areas

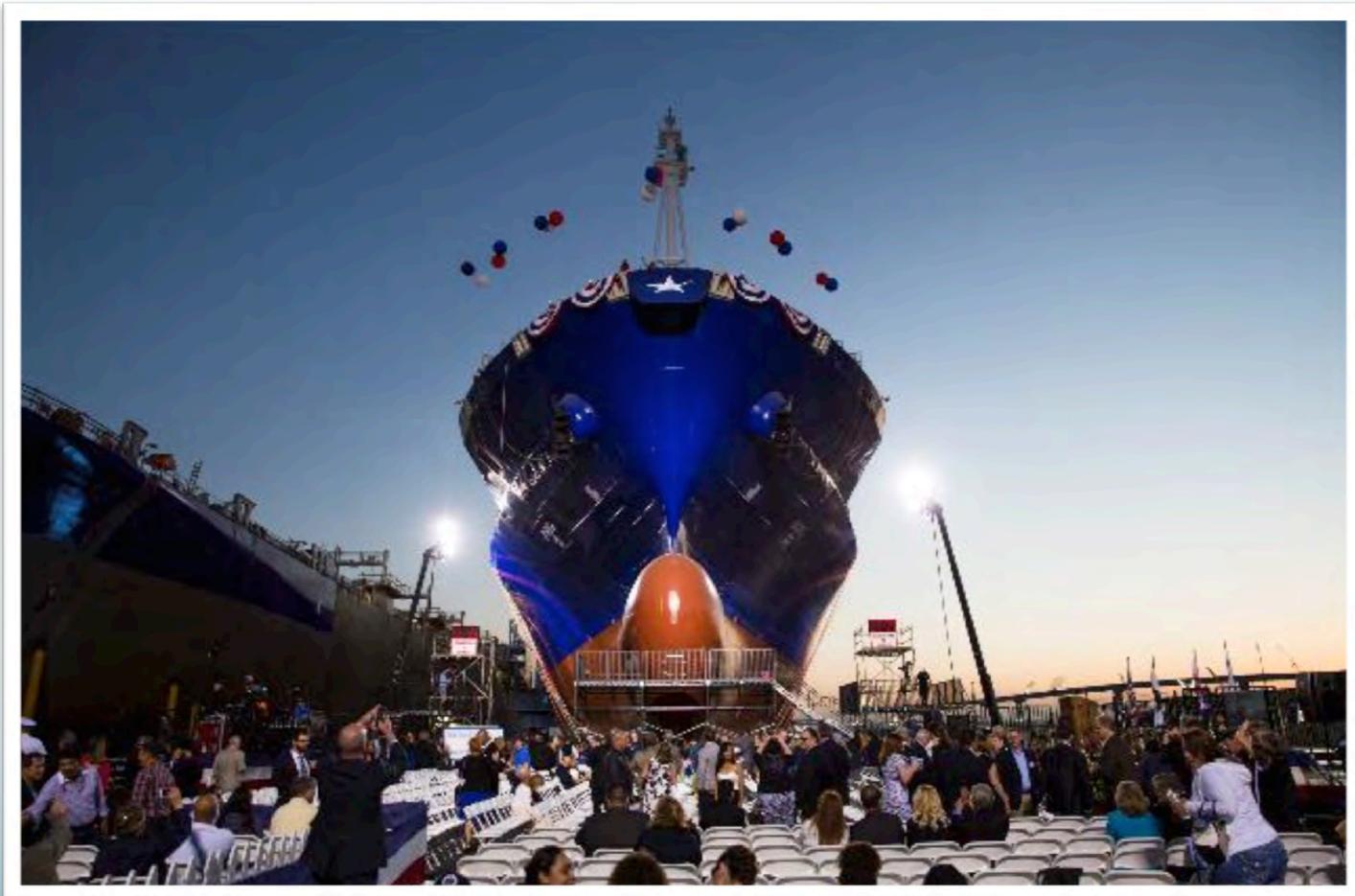


# Strategies for Emissions

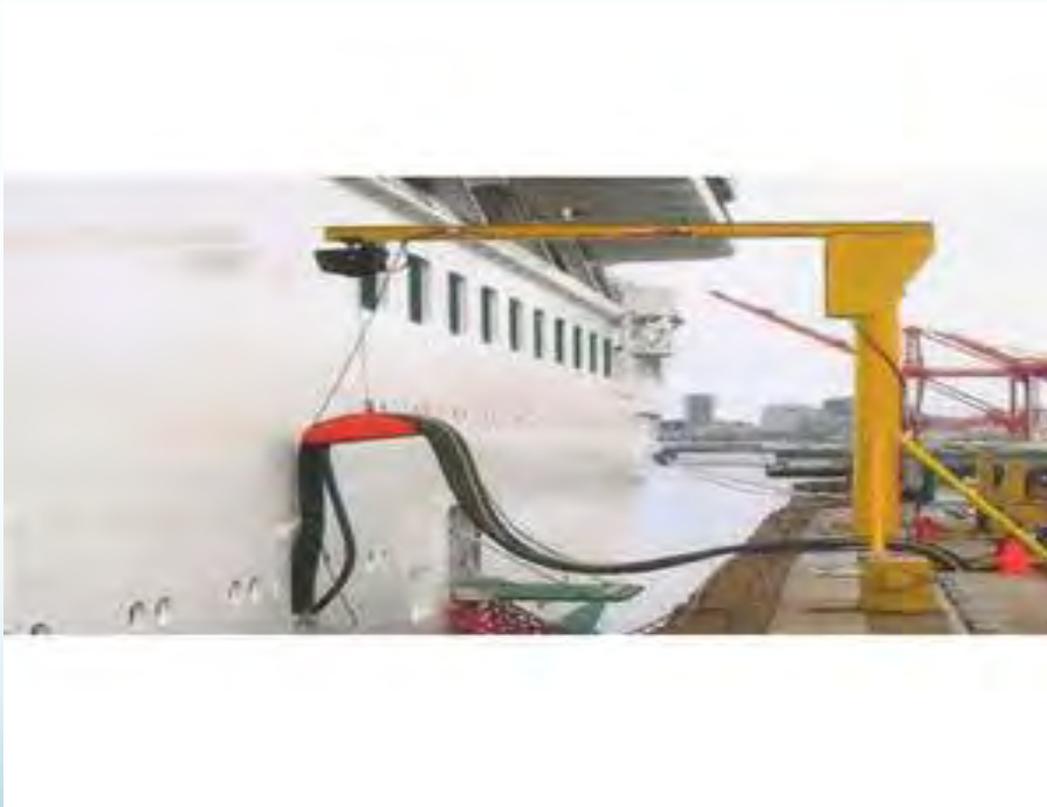
- Use of low Sulphur fuels
- Scrubber technology



# LNG for Ships



# Cold Ironing



# Practical Resource Generation Appliance



Terragon is revolutionizing waste management by **enabling the generation of resources with a simple and economical appliance.**



**MAGS: Micro Auto-Gasification System**



Terragon is developing unique appliances that can be operated anywhere and by anyone to **safely and practically use waste to generate resources locally.**

# Reducing drag with bubbles



# Port Initiatives-trucks

## Get a New Truck

Grants Available to Eligible  
Truck Owners to Purchase  
Newer Vehicles

REGIONAL TRUCK REPLACEMENT PROGRAM

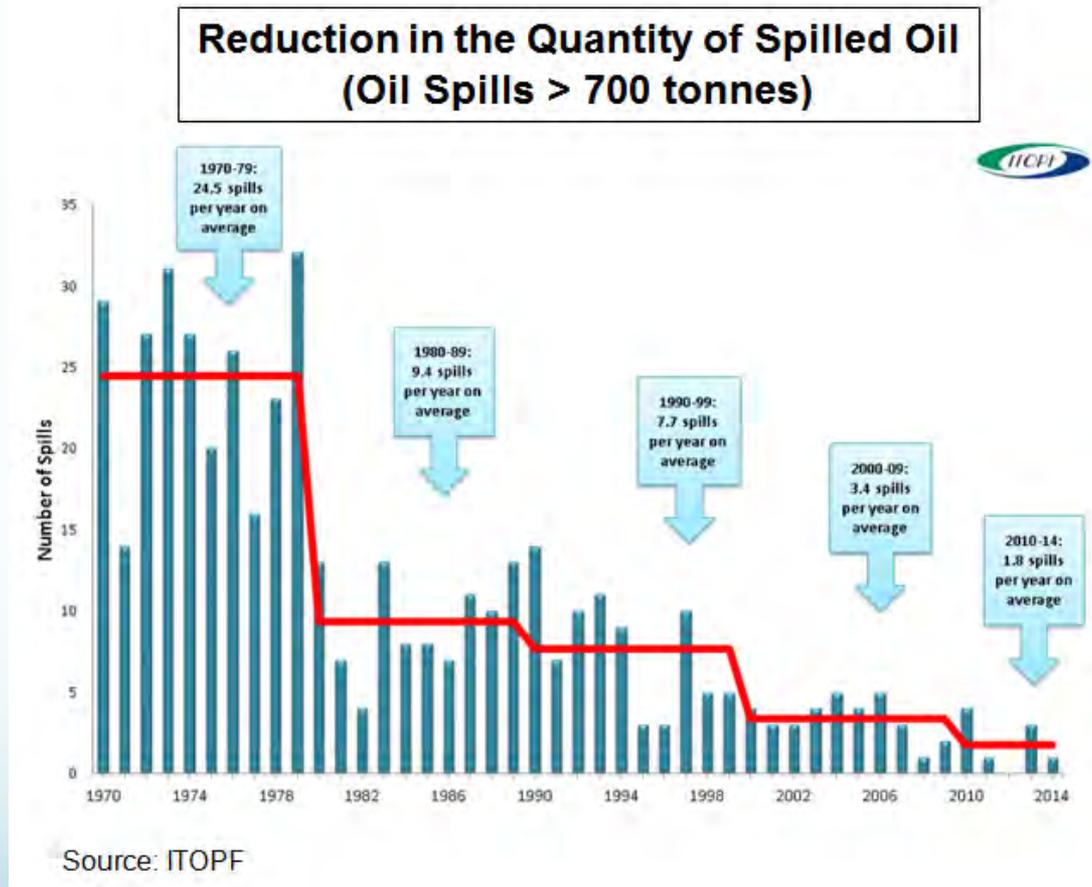


Seaport Truck **Sc**rappage and  
**R**eplacements for **A**ir in **P**uget **S**ound

# Cargo handling



# Zero Spillage the Goal



# The Human Element

- The human element is the principle cause of incidents and accidents in all technology industries; hence it is evident that an understanding of the interaction between humans and technology is crucial to the effective management of risk. Despite this, no tested model that explicitly and quantitatively includes the human element in risk prediction is currently available.
- Reduction of risk through regulation is key.

# Safety at Sea

- SOLAS- Safety of Life at Sea (ship safety standards)-first version response to Titanic- today, has 159 contracting States, which flag about 99% of merchant ships around the world in terms of gross tonnage
- STCW- Standards of Training, Certification and Watchkeeping (seafarer requirements)- By 2014, the STCW Convention had 158 Parties, representing 98.8 per cent of world shipping tonnage.
- MLC (2006)- Maritime Labour Convention (well being of mariner)- As of March 2016, the convention has been ratified by 71 states representing over 87 per cent of global shipping.

# The Marine Industry has a Voice

North American Marine Environment Protection Association®

**NAMEPA**

The logo for NAMEPA features the acronym in a bold, dark blue serif font. Below the text are several horizontal wavy lines representing water. To the right of the acronym, there is a circular graphic composed of several concentric, slightly overlapping lines, resembling a stylized wave or a circular seal.

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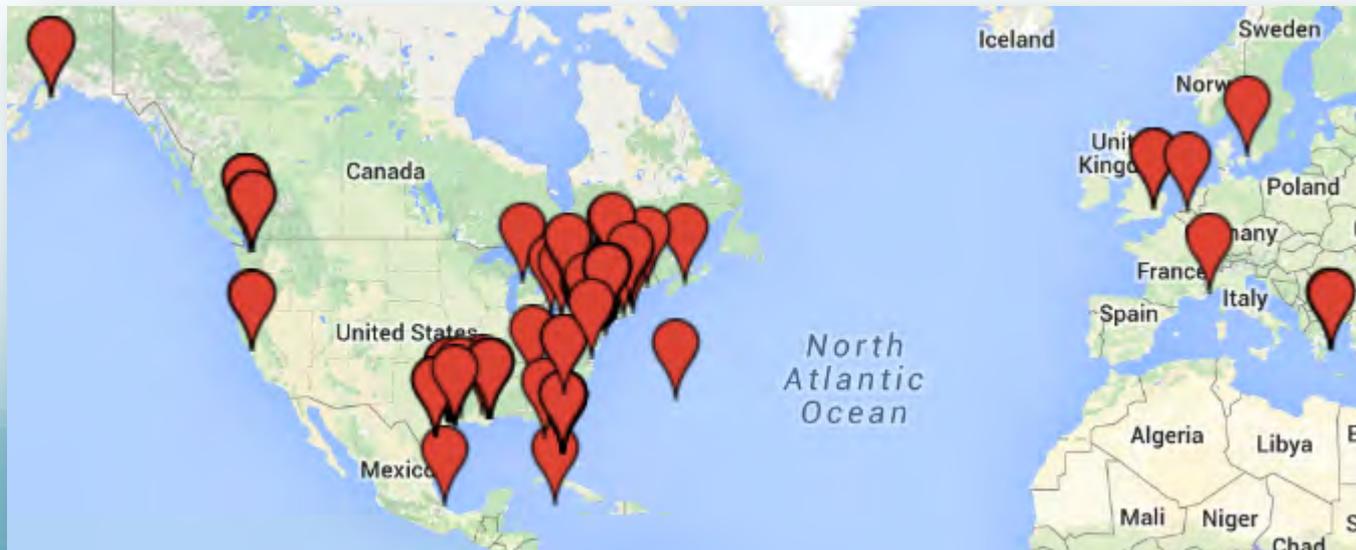
# NAMEPA's Mission

- Preserve and protect the marine environment
- Demonstrate maritime's commitment to environmental protection
- Support the marine industry
- Engage maritime businesses, government and public to “Save our Seas” by promoting sound environmental practices
- **Educate the public about the value proposition of the marine industry**



# Membership Composition

- Corporate, academic and individuals engaged in the marine industry
- Intersection of industry, regulatory agencies, environmental groups and education
- Both international and domestic members, sponsors and partners



# Events

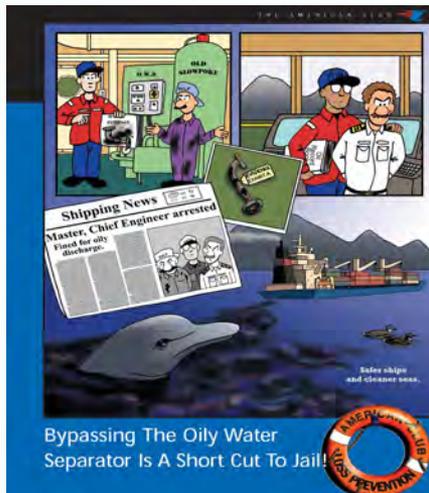
- Host and participate in industry conferences and seminars including:
  - Environmental Intelligence in Maritime Seminars in Houston, Norfolk, Anchorage, New Orleans, Seattle, Long Beach
  - World Maritime Day Observance in NYC, Canada and Mexico
  - National Maritime Day Seminar in Washington DC
  - Connecticut Maritime Association Conference and Exhibition
  - Shipping & Offshore Corporate Social Responsibility Fora



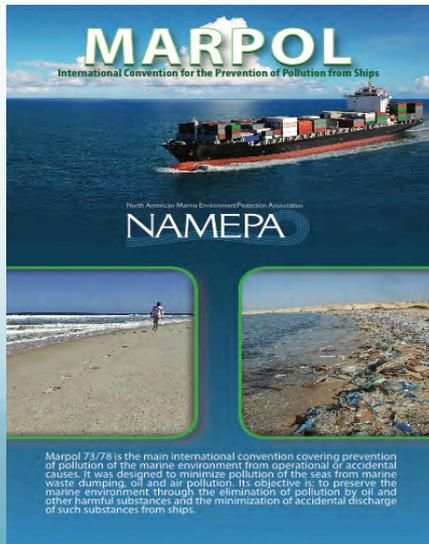
# Education Initiatives

## Seafarers

- NAMEPA works with seafarers to augment their existing knowledge about marine environment protection
- Through our relationship with the North American Maritime Ministry Association (NAMMA), NAMEPA distributed over 12,000 copies of the American Club's environmental crimes poster
- Developed a MARPOL/Marine Science seafarer training program with over 10,000 programs disseminated throughout ports in North America including the Caribbean



Bypassing The Oily Water Separator Is A Short Cut To Jail!

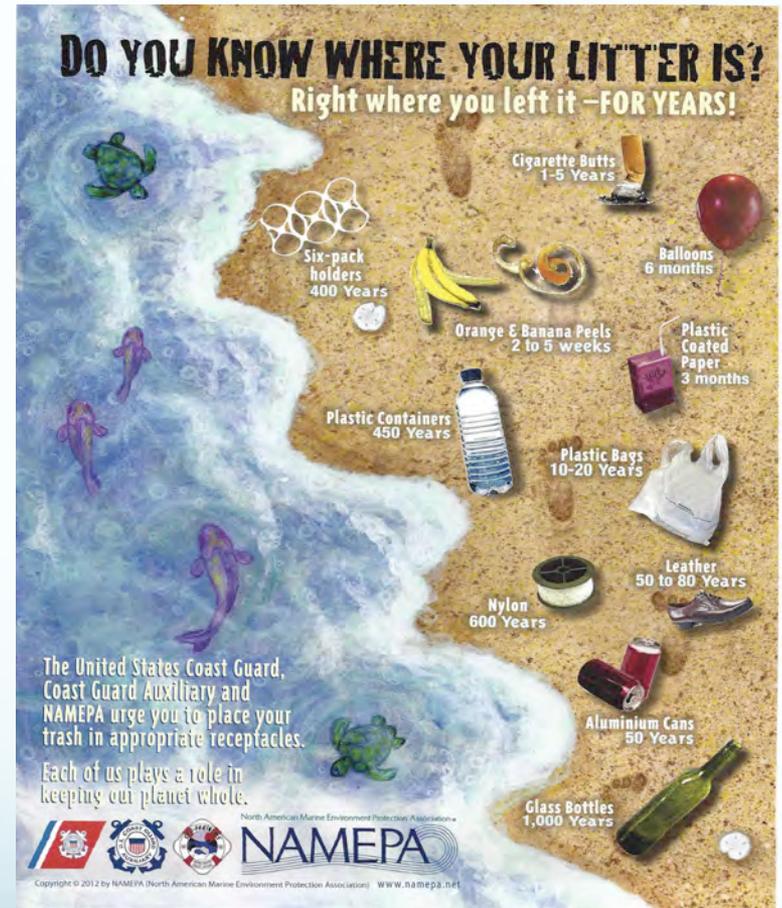


Marpol 73/78 is the main international convention covering prevention of pollution of the marine environment from operational or accidental causes. It was designed to minimize pollution of the seas from marine waste dumping, oil and air pollution. Its objective is to preserve the marine environment through the elimination of pollution by oil and other harmful substances and the minimization of accidental discharge of such substances from ships.

# Education Initiatives

## Port Communities

- Distribute educational materials including marine debris and MARPOL brochures – over 200,000 copies of marine debris poster to date (now in Spanish too) within Western Hemisphere
- Host events with regional orientation suiting local communities' interests and concerns



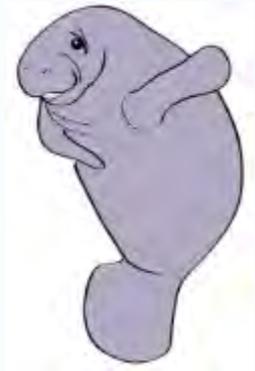
# Education Initiatives

## Students

- Developed second learning guide: “Educator’s Guide to the Marine Environment”
- Partners include NOAA, Sea Research Foundation (SRF), USCG, Ocean Conservancy, OAS-CIP and maritime academies
- Drawing Contest with the USCG & Sea Research Foundation, reaching over 2.5 million students
- Co-sponsor of Marine Science Fair with American Salvage Association



# Education Initiatives



## Students Cont'd.

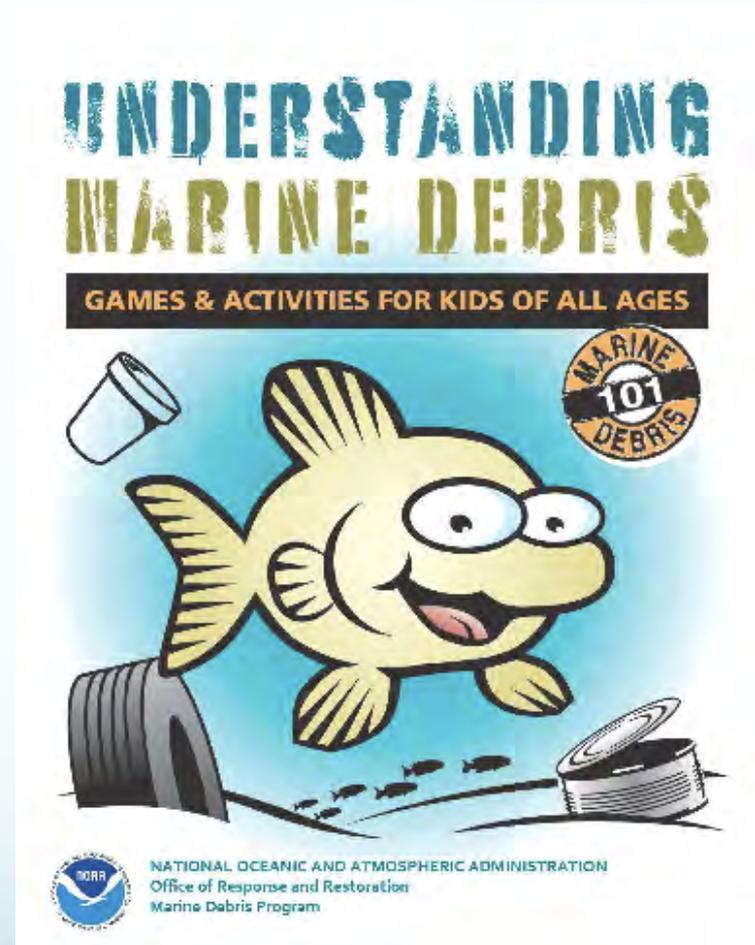


Beach cleanup with local Boys & Girls Club

- Learning institutions include Boys & Girls Clubs of America, New England Science and Sailing, schools, Mystic Aquarium, etc.
- Participate in the Ocean Conservancy's International Coastal Cleanup and National Marina Day
- Continuing to develop new materials and distribute throughout North America and the Caribbean in collaboration with OAS-CIP and others
- NAMEPA Junior website ([www.namepajr.net](http://www.namepajr.net))

# Partnerships & Strategic Alliances

- USCG & Auxiliary, Sea Partners Program of USCG
- NOAA
- American Salvage Association
- International Maritime Organization
- OAS-CIP
- Sea Research Foundation
- National Geographic
- Shedd Aquarium, Chicago
- INTERTANKO/BIMCO
- ITOFF
- Ocean Conservancy: Clean Marina Day
- United States Power Squadron
- Wildlife Conservation Society
- Many more!



# Moving Forward in 2016

- Continue to expand partnerships and member base including the Caribbean
- Deliver original STEM/NGSS-enhanced curricula to educational institutions and after school programs
- Distribute programs and materials nationally and internationally, and in multiple languages
- Develop college/academy chapter programs



North American Marine Environment Protection Association



Advocate, Educate, Activate!

Visit [www.namepa.net](http://www.namepa.net)!