



4TH GLOBAL CONFERENCE ON OCEANS, COASTS, AND ISLANDS



ORGANIZATION OF WORKING GROUP ON MARINE TRANSPORTATION



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Global Forum on Oceans, Coasts, and Islands--Strategic Oceans Planning to 2016

The Global Forum on Oceans, Coasts, and Islands has undertaken a strategic planning effort for the period 2006-2016 to develop policy recommendations for specific next steps needed to advance the global oceans agenda aimed at governments, UN agencies, NGOs, industry, and scientific groups. To this effect, Working Groups have been organized around 12 major topic areas related to the global oceans commitments made at the 2002 World Summit on Sustainable Development and to emerging issues facing the global oceans community.

The Working Groups have been organized and coordinated by the Global Forum Secretariat, under the direction of Dr. Biliانا Cicin-Sain, Co-Chair and Head of Secretariat, Global Forum on Oceans, Coasts, and Islands, and involving the following staff from the Gerard J. Mangone Center for Marine Policy, University of Delaware: Miriam Balgos, Kateryna Wowk, Caitlin Snyder, Shelby Hockenberry, and Kathleen McCole.

Working Group on Maritime Transportation

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Global Forum on Oceans, Coasts, and Islands

Working Group on Maritime Transportation

**Organization of Working Group on
Maritime Transportation**

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Foreword

The challenges that face ports and maritime transport include policy, economic, and environmental issues. These include issues related to energy and the environment, shipping and fleet modernization, port capacity and performance measures, and international, national, and regional trade and policy issues. Of particular interest for marine ecosystem management are concerns about air pollution, marine biosecurity, including ballast water and invasive species, impacts of pollution accidents such as oil spills, marine litter, and dumping of waste, the establishment of Special Areas and Particularly Sensitive Sea Areas, ship breaking and recycling, seafarer competency and capacity building, and port and maritime transport security. The Working Group on Maritime Transportation is being organized to develop a venue for stakeholders to promote policy ideas that could address maritime transportation issues related to the accomplishment of WSSD goals on oceans, coasts, and small island developing States (SIDS). This Working Group will also be tasked to win support for policy ideas among the various stakeholders involved in the maritime industry.

The Global Forum Secretariat thanks with deep appreciation the efforts of Dr. Gerard J. Mangone and Dr. Jose Matheickal as they work towards organizing and mobilizing this important Working Group.

Biliana Cicin-Sain
Global Forum on Oceans, Coasts, and Islands

Overview of Marine Transportation Issues

Author: Gerard J. Mangone

Marine transportation is absolutely vital to the world economy. Since ancient times, the seas have provided the great highways most efficiently and least costly for trade between peoples. International trade is the lifeblood of modern states, allowing exchanges of vast quantities of commodities that promote economic development and raise standards of living. The most recent example is China which has undergone a renaissance of trade with the rest of the world by sea, importing raw materials and exporting finished goods. The United States obtains about 90 percent of its imports by sea, valued at 75 percent of all its imports. For developed states, the true path of progress will be an increase in trade, exploiting their resources by fair trade by sea with developed states.

The nature of shipping has changed rapidly from the old, slow, small vessels of pre-World War II times to the large and powerful fleets of today. Tankers of 17,000 tons carried the oil to the Allies in Europe. Today, tankers measure from 200,000 to 400,000 tons. 500 containers of 22 feet in length were first loaded in the 1950s. Today, vessels can carry 4,000 to 6,000 containers. Ships have become more specialized with refrigerated vessels, roll-on, roll-off auto carriers, and liquid natural gas tankers. Moreover, the fleet has grown enormously to 94,000 ships over 100 gross tons with a 650,000 tonnage capacity. In 2007 the fleet grew again with an increase of 4% in number and 7% in tonnage. Such an expansion of giant vessels requiring great power for their operations have long since changed from coal-steam power to hydrocarbon fuels for their mighty engines

The dynamic increase in world shipping has brought tremendous benefits to the people of the world through trade. But it has come at a price for the use and abuse of the world's ocean and coastal areas. Only in the 1950s did the first international convention, which was limited and slowly ratified, recognize the hazards of oil pollution. Over the last thirty years, through the

efforts of the International Maritime Organization through MARPOL and its annexes, states have begun to recognize the full implications of ship operations on the seas. Yet even as the mitigation of oil spills and dumping of wastes has been moving forward, other considerations about the marine environment have been raised and called for action.

There are several aspects of marine transportation that may be considered for the continued and profitable use of ships for trade by sea while ensuring the most compatible actions for protection of the marine environment:

First, pollution accidents by oil and other hazardous wastes, including dumping. Several conventions now cover these dangers and provide state regulations. Yet accidents, as seen in the Exxon Valdez or the Prestige, occur. There is a need for improving the preparedness of states for spills close to their shores and developing states especially need better equipment and personnel training to respond to spills.

More enforcement is required for the Oil Preparedness and Hazardous Waste Recovery plans aboard vessels. Moreover there is a lack of reception facilities that should be provided by states for ships to unload their wastes. An enormous increase in cruise vessels, literally floating hotels, must be supervised for their discharges of waste water, including garbage, plastics, and photographic chemicals.

Second, the designation of Special Areas and Sensitive Seas should be encouraged. Some 14 of these have already been established to recognize the peculiar ecological, environmental, and socio-economic importance of certain coastal areas and narrow passages. To absolutely limit any discharges in these areas, and in places to require a compulsory pilot, will

definitely protect and benefit the marine environment.

Third, the reduction of alien species invading a state by ballast water needs attention. Ships that have discharged cargo, or are empty, load water into their bottoms to stabilize the vessel at sea. Approaching a coastal area, the foreign water is discharged with its alien species. In their new habitat they may cause considerable ecological damage. An international convention to require states to develop management plans for ballast water on their vessels has been signed, but to date only 10 ratifications have been received. Every effort should be made to obtain ratification by 30 states with a minimum 35% of world tonnage.

Fourth, port and maritime transportation security must be improved to meet the possibilities of terroristic attacks. There is great need for a long range tracking and identification system for all vessels on the world ocean with complete collaboration by states. Examination of ships' manifests need to be improved, with special attention to the origins. This is particularly difficult in the ports of developing states where not only additional scanning materials may be required, but personnel must be trained in the detection of weapons. Some 34,000 cargo transport units were inspected for deficiencies in construction, safety, and other hazards. Some 8,000 were found with deficiencies, not necessarily related to security, but potentially so.

Fifth, the supply and competency of seafarers must be improved. Although the Standards of Training, Certification, and Watchkeeping Convention sets standards, its application may be limited. Some audit of meeting the requirements may reveal weaknesses. In particular, developing states should be assisted with recruiting and training seamen, either through local academies or enrolment in other academies. Standard teaching materials should be prepared, while competency in the English language can be most helpful in international shipping relations. Modern vessels require far more sophistication in their crews about safety and environment issues than the able-bodied seamen of the past needed.

Sixth, the beneficial achievement of double-hulls for all future tankers must be followed by improved practices in ship construction. Performance goals could be established by naval architects in the construction of ships to fit the special needs of the vessel –whether tanker, container, roll-on, roll-off, refrigerated, or passenger. This would include designs not only for their mission, but internal structure and machinery least likely to offend the environment. An important development for hulls has been the achievement of a convention to eliminate toxic paint used to cover the bottom and sides of vessels to repel barnacles and other biota clinging to the vessel. Unfortunately such paint also infected or killed other marine organisms. The International Convention on the Control of Harmful Anti-fouling Systems on Ships comes into effect September 17, 2008, ratified by 25 states with 38% of the world's tonnage. Other states must be encouraged to ratify this important convention.

Seventh, the deconstruction of vessels after their life utility has been exhausted also needs attention. Over the next thirty years, some 40,000 ships may need to be broken up and disposed of.

Little attention has been paid to this matter, especially as the developed states have tended to send their ships to China, India, Bangladesh, and less developed states for deconstruction and to save costs. With modern vessels invested with many kinds equipment that contain noxious substances, such as mercury and cadmium, as well as contaminated metal structures, hazards are endemic for both the waters in which the ship may be destroyed as well as the workers performing the tasks. Much more information is required about the number, extent, and facilities for ship deconstruction. Training for the workers who are largely unaware of the dangers in breaking up structures and equipment must be developed. Study should be given immediately for an international convention setting standards for the deconstruction of vessels.

Eighth, the air emissions of ships from the combustion of engine fuel has become a current problem for the environment. In fairness, ships may contribute only about 10% of air pollution

while carrying a very large volume of world transportation. But the emission of sulphur dioxide and nitrogen dioxide from their stacks can have a deleterious effect on air quality. This is especially true in crowded shipping areas close to the coasts of the world. Remedies are to be found in the change of the fuel mix for engines, which has costs, and already vessels in some states have been using port generators for running their engines when loading and unloading cargo. This practice should be encouraged. Annex 6 of MARPOL to reduce polluting emissions from ships is now under consideration by states. One drawback is the convention may be voluntary whereas it should be mandatory.

Finally, note should be taken of efforts to preserve the cultural heritage in the world's

oceans. Many shipwrecks of the past contain not only treasure but invaluable artifacts of civilization that should be spared from the ravages of searching for gold, money, and jewels. Traditionally salvors have been encouraged to save ships in peril or to recover sunken vessels, generally receiving an award for their efforts. Cultural considerations were overlooked and extraordinary damage was done to a vessel that could reveal much about the past. Judges in some admiralty courts have begun to require salvors to take responsibility for historical artifacts and require proper disposition of them to museums and other institutions. This should be encouraged. Furthermore the Underwater Cultural Heritage Convention, which seeks a balance between the salvor's rights and responsibilities should move forward with eventual ratification by all states.

Proposed Organization of the Working Group on Maritime Transportation

Background

The challenges facing ports and maritime transportation include political, economic, and environmental issues. These include obstacles to the free circulation of trade through the liberalization of maritime-related services and the promotion of compatible competition policies; the practice of sub-standard shipping; maritime security and safety; and the protection of the marine environment.

Terms of Reference

The Working Group on Maritime Transportation is being organized to develop a venue for policy entrepreneurs to promote policy ideas that could address maritime transportation issues related to the accomplishment of WSSD goals on oceans, coasts, and small island developing States (SIDS). This “think tank” will also be tasked to win support for policy ideas among the various stakeholders involved in the maritime industry. The Working Groups are intended to:

--bring together the range of perspectives needed to consider the issue/theme, insuring good cross-sector representation of experts from developing and SIDS countries, developed countries, the government sector, international organizations, nongovernmental organizations, private sector, and scientific groups;

--examine the major issues involved on the topic with the aim of summarizing the findings and making recommendations for specific next steps that should be taken by the international community on the topic,

indicating the international venues/processes that should be targeted.

Members of the Working Group will be invited to:

--organize and prepare short papers (approximately two pages) on the issues with discussion of policy implications for discussion by the Group;

--make recommendations on the composition of the Working Group addressing the issue;

--help organize and provide guidance for conducting structured multistakeholder dialogues on the issue in various fora/meetings. The structured dialogues will use the short paper(s) as a starting document, and work to reach consensus on recommended next steps and/or implementation plans. The Working Group Co-chairs will oversee the drafting of a summary statement on the issue for consideration by the Global Forum Steering Committee.

--help ensure follow-up from the working group and deliberations following meetings.

The Working Group will name co-chairs, one from a developing country and one from a developed country.

Current Issues to be Addressed

The following is a brief list of current issues in the maritime industry. It has not been made in an order of importance as such judgment could be subjectively influenced by the evaluator's opinion and bias. This is followed by a more detailed discussion of topics perceived to be of relevance to the Global Forum on Oceans, Coasts and Islands.

1. Marine Transportation, Energy, Environment
 - 1.1. Air Emissions
 - 1.2. Marine Biosecurity (ballast water, invasive species)
 - 1.3. Toxic Hull Coatings
 - 1.4. Ship breaking / recycling
 - 1.5. Vessel Safety and Risk Assessment
2. Shipping and Fleet Modernization
 - 2.1. Flag-state Growth and Renewal
 - 2.2. Technology Trends (size, power, speed, configuration)
 - 2.3. Seafarer Competency and Supply
 - 2.4. Ship Construction
3. Port Capacity and Performance Measures
 - 3.1. Energy and Environmental Performance Measures
 - 3.2. Capacity and Throughput Improvements
 - 3.3. National Strategies for Port Efficiency (hub and feeder concepts)
 - 3.4. ICM and Marine Transportation
4. International, National, and Regional Trade and Policy Issues
 - 4.1. Trade Growth and Maritime Demand
 - 4.2. Market-based Policy Actions to Accelerate Improvements

- 4.3. Tension between International, Multinational, National, and Regional Issues
- 4.4. International Treaty and Maritime Law Mechanisms
- 4.5. EEZ, ICM, Resource Management, and Navigation

Following are the issues that could be of particular interest:

1. **Ship breaking/recycling:** Although ship recycling offers an environmentally sound way to dispose of old ships, the majority of ship breaking yards are not in a position to safely dismantle retired vessels. Most ship breaking takes place in China, India, Bangladesh, and Pakistan, where stringent standards governing environmental protection or worker safety are either not in place, or are not enforced. When a vessel is inadequately cleaned prior to being dismantled, both ship breakers and the coastal environment are put at risk. , Workers often go without basic protective gear for health and safety, and accident rates are high. Often the ships that come in for "breaking" change their names, flags and registry just before they are beached in an attempt to hide their actual identity. The required phase out of single hulled tankers by 2010 is expected to increase the demand for proper ship dismantling. Ship breakers have begun to insist that the onus for delivery of "safe" ships (free of oily waste & toxins, such as asbestos) be put on the original owners. There is a move on the part of IMO to come up with a convention governing ship breaking, but environmental groups have

criticized the current draft as being unlikely to bring about any significant improvements (Greenpeace 2006).

2. **Air pollution:** MARPOL Annex VI places limits on ship air emissions; however, many scientists and environmentalists argue that the current level of permitted emissions are too generous. At the prescribed level, with the current forecasted growth in maritime transport, the level of emissions would again reach the current level in the near future (Corbett 2007). Annex VI is undergoing a review, and the IMO is considering proposals advocating more stringent measures to control air emissions. Several of these proposals, for example the required use of distillate fuel in place of the traditional marine bunker fuel, have created a great deal of controversy and discussion at the global level. More work needs to be done to identify economically and practically suitable operational or technological solutions to air emissions. Examples include market driven incentive programs that encourage ship managers and operators to go beyond set mandatory emission limits and the refinement of scrubber technology.
3. **Seafarer competency and supply:** The Standards of Training, Certification & Watchkeeping Convention (STCW 95) sets standards of training and certification of mariners and watchkeepers. Despite these requirements, mariners cannot achieve competency in a classroom or through exams, rather they benefit more from on-the-job

experience. The maritime industry and maritime nations need to develop a forward looking policy that achieves one of two logical alternatives: 1) ensure a continued supply of reliable labor or 2) improve work conditions and management techniques so that seafarers are less inclined to seek land-based employment. Topics to include may relate to onboard work conditions, fatigue, and other factors contribute to human error, which is responsible for 70 – 80% of the accidents. The International Labour Organization (ILO) adopted the Maritime Labour Convention in 2006 in an effort to clarify and improve work expectations and conditions for the mariner community.

4. **Ballast water/invasive species:** Ships use ballast water to control trim and draft, provide stability, and enhance voyage safety. Ships take on ballast when off-loading cargo and discharge ballast when loading cargo. Ballast water contains thousands of organisms and pathogens present in the aquatic environment from which the ballast originated. Although the majority of these organisms will perish during transit, the risk of survival exists and a number of invasive species are believed to have been introduced via ballast water. The introduction of marine invasive species has been cited as one of the top four threats to the marine environment. On 13 February 2004, the IMO adopted the International Convention for the Control and Management of Ships' Ballast Water & Sediments, which sets ballast water discharge

standards. Reliable and practicable ways of achieving these standards remain under development. Several research efforts, including the IMO's GloBallast programme, exist and a number of pilot projects are running onboard commercial vessels. Many ship-owners consider mid-ocean ballast water exchange to be ineffective, as well as hazardous for ship stability, so the drive to find an ecologically-friendly way to treat ballast water continues (Wallenius Marine nd).

- 5. Ship construction:** Just as the single hull tankers are being scrapped, double hulls are now being constructed. Vietnam has already secured orders for constructing double hull tankers. It is being considered as the next suitable place for ship construction after China. There is currently a move towards "goal-based ship construction standards", which sets a performance goal and then builds the ship to satisfy that goal, as opposed to building one that satisfies prescriptive requirements. (This approach is similar to Formal Safety Assessment (Hoppe 2005).) This move is bound to have a positive impact on the vessel and environment safety. It would perhaps be good idea for a new entrant in to the ship construction market to try developing the required skills. Discuss the increased demand for larger ships, e.g. Suezmax, Malaccamax, etc.

- 6. Special Areas and Particularly Sensitive Sea Areas**

The designation of Special Areas and Particularly Sensitive Sea Areas

under MARPOL guidelines is an approach to marine pollution management that is gaining ground. Their effectiveness and advantages, along with lessons learned in their establishment and implementation have to be documented and used in future designations. There is current concern over PSSA designation of the Torres Strait, specifically Australia's decision to introduce compulsory pilotage, for example, does this violate a ship's right to transit passage through an international strait?

- 7. Impacts of pollution accidents such as oil spills and dumping of waste**

Oil spills are among the most damaging forms of marine pollution. Oil pollution poses a serious threat to the integrity of marine ecosystems and must be avoided at all costs. Dumping of waste in the marine environment adds to the pollution problem, which leads to a host of economic impacts. Quick action by governments and rough seas could minimize the damage in the case of oil spills. Many different types of equipment and methodologies are available for use in cleaning up oil pollution. However, there is a need to promote the adoption of preventive approaches to oil spills and other forms of marine pollution.

Many shipping companies complain about the lack of adequate reception facilities and cite this as a contributing factor to a ship's decision to illegally dump waste overboard.

8. Port and maritime transportation security

The poor state of seaport and maritime security, even in the face of the industry's importance in world trade is commonly attributed to low operating budgets, in addition to tools and protocols for conducting inspections, collecting and mining data, and sharing information among the border enforcement agencies that have not kept pace with the size, speed, and complexity of the international networks that transport people and goods. There is a need for maritime countries to begin the development of secure maritime transportation systems to support their sustained ability to trade with the world.

9. Shipwrecks

The exploration of abandoned shipwrecks involve the resolution of national and international issues that include ownership and potential claimants, identification, location, shipwreck event, cargo, permit for exploration, legality of exploration, salvage history, history, competition and cooperation, costs, timing of exploration, and risks.

5. Port authorities of maritime countries
6. Shipping industry
7. Cruise lines
8. Other

References:

- Corbett, James. 2007. "Policy Analysis For Sustainable Shipping."
- Greenpeace. 2006. "Draft I.M.O. Treaty Called "Shockingly Inadequate" In Addressing Global Ship Scrap Crisis." London, Brussels.
- Hoppe, H. 2005. "Goal-Based Standards – A New Approach To The International Regulation Of Ship Construction." Maritime Safety Division, International Maritime Organization.
- Wallenius Marine. nd. "Finding Solutions To The Ballast Water Problem."

Draft List of Members

Maritime experts and other ocean leaders from the following organizations will be invited to participate:

1. UN Division for Ocean Affairs and the Law of the Sea (DOALOS)
2. International Maritime Organization (IMO)
3. UNEP
4. Gerard J. Mangone Center for Marine Policy, University of Delaware

Steering Committee, Global Forum on Oceans, Coasts, and Islands*

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Biliana Cicin-Sain, Director, Gerard J. Mangone Center for Marine Policy, University of Delaware (also Head of Secretariat, Global Forum)

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Mario Ruivo, Intersectoral Oceanographic Commission, Ministry of Science, Technology, and Higher Education, Portugal

Indroyono Soesilo, Chairman, Agency for Marine and Fisheries Research, Department of Marine Affairs and Fisheries, Indonesia

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Intergovernmental

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Charles Ehler, Consultant to UNESCO
Julius Francis, Executive Secretary, Western Indian Ocean Marine Science Association, Tanzania

Matthew Gianni, Political Advisor, Deep Sea Conservation Coalition, Netherlands

Vladimir Golitsyn, Professor of International Law, Moscow State University of International Relations

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Paul Holthus, Independent Consultant

Gunnar Kullenberg, Independent Consultant and former Director, Intergovernmental Oceanographic Commission (IOC)

Dan Laffoley, World Commission on Protected Areas-Marine, IUCN

Carl Lundin, Head, IUCN Marine Programme

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Nirmal Jivan Shah, Chief Executive, Nature Seychelles

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* Please note: Members of the Steering Committee participate in their individual capacities.