

Marine environment

Protecting the world's waters

by Carolyn E. Junemann and Koichi Yoshida

Throughout the life-cycle of a ship – from the time the keel is laid, through its operating lifetime to its ultimate recycling – it interacts with the natural environment. How it does so and its effect depend mainly on how it is built, operated and disposed of or recycled. Working closely with the maritime industry, ISO is developing International Standards to minimize ships' impacts on the environment.

This work is done through ISO technical committee ISO/TC 8, *Ships and marine technology*, and its subcommittee SC 2, *Marine environment protection*. ISO/TC 8 has a thorough knowledge of

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the standardization of design, construction, structural elements, outfitting parts, equipment, methods and technology used in shipbuilding and marine operations. It also understands marine environmental matters associated with shipbuilding and the operation of: sea-going ships; vessels for inland navigation; offshore structures; ship-to-shore interfaces; and all other marine structures subject to International Maritime Organization (IMO) requirements.

SC 2 focuses on the standardization of marine pollution abatement materials, equipment and technologies, and environmental matters related to ship building, operation and recycling. Together, they constitute a winning team for the marine environment.

Environmental impacts

Figure 1 illustrates a wide range of potential sources of ship-related environmental impacts. ISO/TC 8/SC 2 is active in addressing areas such as:

- Radiation of underwater sound from ships into the marine ecosystem
- Managing and handling ship-generated garbage
- Unintentional (or intentional) spills of oil/chemicals into the sea
- Effects of hull anti-foulants on the environment
- Discharge of ballast water containing non-indigenous aquatic species

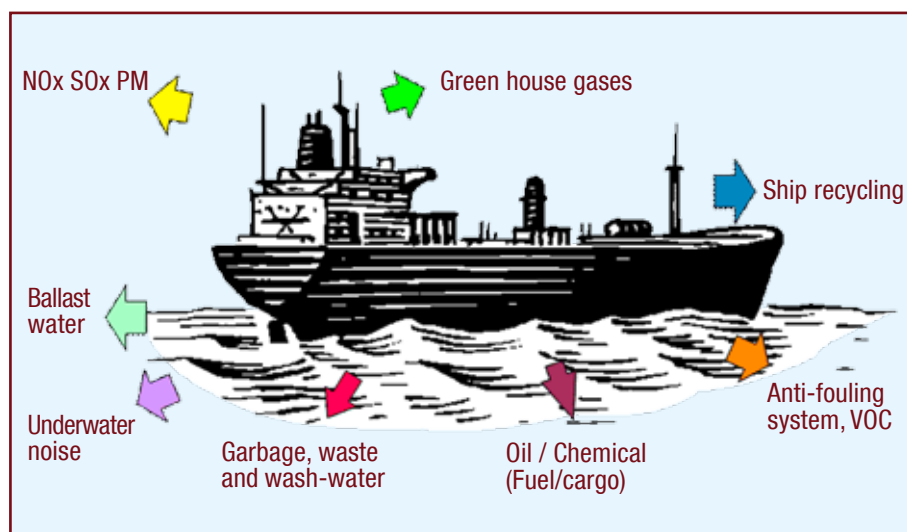


Figure 1: Environmental areas of interest.

- Emissions of oxides of nitrogen and/or sulphur, particulate matter and greenhouse gases
- Environmental impacts linked to ship recycling.

SC 2 is also considering new work on ballast water sampling, air emissions and energy efficiency.

Cooperation with IMO

For the marine community, the relationship between ISO/TC 8 and IMO is very important.

A specialized agency of the United Nations, IMO has 169 member states and three associate members. Since 1959, IMO's main task has been to develop and maintain a comprehensive regulatory framework for shipping.

IMO's remit today includes safety, environmental concerns, legal matters, technical cooperation, maritime security and the efficiency of shipping. Its specialized committees and subcommittees update or develop and adopt new regulations. Meetings are attended by maritime experts from member governments, together with those from inter- and non-governmental organizations, which have an observer or consultative role.

ISO/TC 8 has consultative status because of its considerable technical expertise and its ability to enhance IMO's work. The committee often develops industry standards that complement IMO conventions. SC 2 directs its efforts towards implementing the challenging aspects of environmental regulations.

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The following examples of SC 2 work in progress illustrate the complementarity of this relationship.

Underwater sound

Noise radiated from ships can be harmful to the marine environment. ISO 16554, *Ships and marine technology – Marine environment protection – Measurement and reporting of underwater sound radiated from merchant ships*, is being developed to respond to the demand, noted by IMO and its marine environment protection

committee, for an International Standard to measure underwater sound.

The standard will help organizations such as research institutes to implement a uniform measurement methodology in order to obtain reliable data to back-up scientific research on the impact of underwater sound on the marine ecosystem.

Port waste

Many ports and terminals, or their owners, have invested much in achieving certification to ISO 14001 (environmental management systems). ISO 16304, *Ships and marine technology – Marine environment protection – Arrangement and management of port waste reception facilities*, is being developed to complement the use of ISO 14001 in ports.

In addition to extending the principles of ISO 14001 to port waste management, ISO 16304 will provide a global standard that any port, harbour, terminal or marina can apply to the planning, development and operation of its port reception facilities (PRF). ISO 16304 will address:

- The development of a waste management strategy
- PRF design



- Port waste management plan (PWMP) development, implementation and compliance
- PRF and PWMP operation
- PRF management and accountability.

Anti-fouling systems

The harmful effects of organotin compounds used as biocides (historically in anti-fouling paint) on marine organisms and human health have been of global concern. To prevent the continued use of these compounds, IMO has enacted a legally-binding international framework regulating the use of anti-fouling systems containing harmful substances. The International Convention on the Control of Harmful Anti-fouling Systems on Ships (the AFS Convention) was adopted in 2001 and entered into force in September 2008.

SC 2 is developing ISO 13073-1, *Ships and marine technology – Risk assessment on anti-fouling systems on ships – Part 1: Marine environmental risk assessment method for biocidally active substances used for anti-fouling systems on ships*. The standard specifies a risk assessment method to protect the marine environment from the potential negative impacts of biocidally active substances that are intentionally used in anti-fouling.



Oil booms

Booms are temporary floating barriers used to contain oil spills in order to limit damage, particularly to shorelines and other resources, and speed up recovery. They concentrate the oil in thick surface layers that are easier to pick by skimmers and other collection methods.

– *Design criteria*, to specify the basic design, general function, designations and marking of oil booms. The standard will also provide guidance on the boom capacity ratings, dimensions, materials, design and performance that must be provided by manufacturers. ISO 17325-1 will help manufacturers and users to select booms by technical criteria.

SC 2 helps implement challenging aspects of environmental regulations.

SC 2 is also developing ISO 17325-1, *Ships and marine technology – Marine environment protection – Part 1: Oil booms*

Ongoing challenge

Today more than ever the world is increasingly conscious of the impact that human activities are having on our environment. The work of SC 2 has never been more relevant. As technology evolves and use of the oceans continues to increase, SC 2 will continue to develop practical International Standards to take care of our planet. ■

About the authors



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