



WORLD OCEAN COUNCIL

*The International Cross-Sectoral Industry Leadership Alliance
for Ocean Sustainability*



SUSTAINABLE OCEAN SUMMIT

15-17 June, 2010, Belfast, UK

CONFERENCE REPORT

INTRODUCTION

More than 150 business leaders from a range of ocean industries participated in the World Ocean Council (WOC) inaugural Sustainable Ocean Summit (15-17 June, Belfast, Northern Ireland, UK). The industries represented included shipping, oil and gas, fisheries, aquaculture, onshore mining, seabed mining, offshore renewable energy, carbon capture and storage, dredging, insurance, maritime law and others. The event also included representatives of NGOs, government agencies and international organizations.

With the theme of “Reducing Risk, Increasing Sustainability: Solutions through Collaboration”, the SOS covered a range of ocean stewardship issues including: science, policy, the Arctic, biodiversity, invasive species, marine debris, marine mammal interactions, sound in the marine environment and many others. A special seminar on marine spatial planning was convened on 17 June.

The conference program is included in Appendix 1. A list of participants is in Appendix 2.

Conference Goals and Objectives

The goals of the Sustainable Ocean Summit (SOS) were:

- To bring together senior representatives from a wide range of industries dependent on ocean space and resources.
- To develop cross-sectoral leadership and collaboration in addressing marine environment sustainability.
- To identify ocean sustainability priorities and develop programs for solutions to address the challenges and reduce the risks to ocean industry operations.

The conference was designed to achieve several short-term results, including to:

- Strengthen and expand the WOC as the primary international, cross-sectoral leadership alliance for stewardship of the marine environment.
- Exchange information and ideas among sustainability leaders from a diverse range of ocean industries.
- Initiate WOC cross-sectoral industry working groups focused on developing action and solutions to priority issues that are the focus of SOS sessions.

Projected longer term outcomes include:

- Identification of ocean sustainability priorities for action by the private sector.
- Establishment of programs to develop and implement solutions to the environmental impacts of commercial ocean use.
- Development of cross-sectoral leadership and collaboration in addressing marine environment sustainability.
- Expansion of the ocean business community and the numbers of senior representatives engaged in collaboration in ocean stewardship.

The SOS was organized by the WOC in partnership with Golder Associates. The conference was sponsored by Golder Associates, the Crown Estate and Harland and Wolff. The conference reception was sponsored by the Belfast Harbour Commission, with a conference dinner held in the elegant 150 year old Belfast Harbour Commissioners Building.

SOS Welcome and Introduction

The SOS was opened by Northern Ireland Junior Minister Robin Newton, who welcomed the participants to Northern Ireland. He noted that Belfast was an ideal location for the landmark event, with the area's rich maritime history and wealth of marine life. He emphasized the need for ocean industries to collaborate and develop proactive leadership in addressing ocean sustainability.

Mark Gilligan, UK Director for Golder Associates, welcomed the participants to Belfast. He outlined the tradition of Belfast as a hub of maritime activity. He described the range of ocean industries active in the area, including shipping, shipbuilding, cruise line tourism, offshore renewable energy development, and port renewal - all of which made Belfast a fitting venue for the first international meeting on cross-sectoral ocean industry collaboration.

World Ocean Council Opening Statement

Paul Holthus, WOC Executive Director, set the stage for the SOS by outlining the origins of the conference in the cross-sectoral ocean industry panels and roundtables held from 2000-2007 and the WOC ocean industry workshop held in June 2008 at the United Nations offices in New York. At the latter, a range of ocean industries encouraged formal establishment of the WOC as an international, cross sectoral business leadership alliance and proposed the convening of an ocean industry conference to further the goals of such an alliance. It was emphasized that the SOS is not an end in itself, but is the beginning of a WOC process focused on issues, actions and implementation.

Holthus noted that it has never been clearer that the single most important factor determining the future of the ocean and the future of private sector use of the ocean is the way business is done in the marine environment. Companies and entire sectors need to understand the impacts of their ocean activities and develop, test and implement the best practices expected of responsible operators. Otherwise they risk losing the legal, political or social license to operate. Simple regulatory compliance may no longer suffice to meet these expectations. Governments cannot monitor every action by every operator at sea. Something more is required.

Many good people in many good companies are working to reduce their ocean footprint and develop the policies and practices of "Corporate Ocean Responsibility", but much more clearly remains to be done. Identifying problems and developing solutions must be based on good science and credible risk assessment, and must be tackled at the scale in which the impacts are occurring. Most importantly, it is clear that the best efforts by a single company or an entire industry will not be enough to address major and cumulative effects in the inter-connected marine "commons". Addressing these impacts requires responsible ocean use by a critical mass of all users. Responsible companies have the most to benefit from interaction with others in developing solutions to shared marine environmental issues. They also have the most to lose by not doing so.

Working together in a pre-competitive context can result in synergies and economies of scale. Protecting the seas to protect future business makes good business sense. Companies with a long-term view of their ocean business are looking to collaborate within and between industries on solutions to mutual marine environmental challenges.

The World Ocean Council has been formed to work with responsible ocean companies to:

- Tackle cross-cutting issues such as marine invasive species and ocean noise.
- Ensure there is coherent, constructive, industry input to ocean policy developments that cut across the sectors, such as marine spatial planning and the Convention on Biodiversity.

- Link industry, government and academic efforts to improve the science and understanding of the ocean.
- Ensure that oceanic regions of special and shared importance, such as the Arctic, are managed for long-term use and sustainability.
- Ensure that responsible companies obtain and maintain the social and political license to access ocean space and resources.

The WOC vision is one of a healthy and productive global ocean and its sustainable use, development and stewardship by a responsible ocean business community. This is an enormous challenge, but as users of a big, global, interconnected ocean, responsible ocean companies need a big, global, interconnected approach to ocean sustainability and a vision and approach that tackles ocean issues at the scale needed. The WOC is the only international, cross-sectoral industry leadership alliance for the ocean, and companies are distinguishing themselves as ocean sustainability leaders by becoming WOC Founding Members. SOS participants were encouraged to be bold, to think big, and to develop a unifying vision of private sector leadership in ocean stewardship - while at the same time keeping a focus on the practical needs to identify specific, priority issues that must be addressed and develop the ways for working together to create added value, synergies and economies of scale in tackling these issues.

ROUNDTABLE OF OCEAN INDUSTRY ASSOCIATION LEADERS

For the opening plenary of the SOS, international associations representing a broad range of ocean industries were gathered in the inaugural Roundtable of Ocean Industry Association Leaders (ROIAL). A list of the industry associations participating in the ROIAL is included in Appendix 3.

The ROIAL created an unprecedented forum for the diverse international ocean business community to interact with each other and foster understanding of each other's needs and concerns regarding the sustainable use of the ocean. The ROIAL sought to identify the needs and opportunities for industry leadership and collaboration on cross-cutting ocean stewardship issues that help set the stage for the SOS.

The representatives of the international ocean industry associations formed a large panel to explore the views of different industries on the following questions:

- What are the most pressing ocean sustainability issues that could be addressed through international collaboration within the ocean business community?
- What are the best means to organize and implement this kind of collaboration?
- What are the barriers or constraints to collaboration among ocean industries and how can they best be overcome?

In addressing these questions, the input of the panelists covered a wide range of ideas and issues, augmented by input from the audience towards the end of the session. Even with the very diverse range of ocean industries represented in the ROIAL, a number of common themes emerged from the panel, as outlined below.

Ocean Industries and the Future Ocean

The world needs the ocean and its resources. The planet is running out of space on land for agriculture, and people will increasingly be looking to the ocean for food from fisheries and aquaculture. The importance of the seas for maritime transport will continue to grow as globalization proceeds. Energy resources from ocean areas, such as offshore oil and gas, will continue to be in demand and offshore renewable energy will expand significantly. The future of the ocean will be determined by the manner in which these and a variety of other uses are developed and managed.

The ocean is the last commons and this should create “common cause” among all ocean use sectors. For example, all ocean operators should commit to ensuring they are meeting their legal requirements and should have a social commitment to maintaining healthy marine environmental conditions. Each company and industry should address their own activity and impacts to ensure they are not polluting and also examine the role others play in being a part of the problem or solution. Some ocean industries depend on clean seas for their existence, e.g. desalination, fisheries, aquaculture. These industries should work together and with other industries on a shared commitment to understanding, documenting, monitoring and maintaining marine environmental quality.

On a global scale, the impacts of climate change on oceans, such as the increased frequency and severity of storms and the rise in ocean acidification, should be of concern to all ocean industries. Increased instability and unpredictability in the marine environment increase the difficulty, risk and cost of doing business, and adds to the potential for environmental impacts from accidents.

Ocean Use Policy, Legislation and Management

Many ocean industries are international in nature, especially shipping, and this is increasing as globalization expands. The environmental impact of many ocean industries is both local and global, and becomes subject to regulation at a variety of levels. This can span local, national, regional and international scales, creating a complex mix of requirements.

The lack of a coordinated framework for ocean use policy, legislation and regulation is an increasing concern. It is important to improve the “alignment” of ocean policy and legislation, so that requirements apply in a consistent and coherent manner to the same operation across these various scales of operation and jurisdiction.

Ocean industries are willing and interested to discuss the issues and engage in the policy and legislative processes. The ocean business community needs to engage effectively in understanding and communicating with the legislator and regulator. Ideally, policy and legislation would create incentives to use resources responsibly. In addition, it is important for industry to understand pressures and influences on legislators, including the role of the media.

Access to ocean space is fundamental to ocean industry operations. Marine spatial planning (MSP), if developed and implemented properly, can play an important role in advancing sustainable, multiple use. MSP must take into account not just established industries, but also the emerging and potential uses. MSP can help determine priorities for increased rational, responsible use of three-dimensional ocean space and help create a more stable predictable ocean operating environment for business.

Public Image, Perception and Social License

Ocean sustainability and clean seas increasingly important to people everywhere, and ocean industries are in the public eye like never before. Unfortunately, ocean businesses have an image problem, as public perception about industries operating in the marine environment is generally not very favorable. Industry does little to improve this perception by making the connection between the public and the role ocean industries play in their life and lifestyle. For example, the majority of people don't realize the major role of shipping in providing the goods, food, energy, etc. they depend on.

Misunderstanding and misperception about ocean industries is a barrier to addressing concerns about the role and effects of ocean business. It is critical to improve public perception, improve the message from the ocean users to the public and "take the public with us" in improving the sustainability of ocean industries. Public and political perception drive the need for industry to better address the uninformed image, as ocean industries will be in public eye whether they like it or not.

The "license to operate" for ocean businesses is increasingly given by public. Any industry that is seen as untrustworthy, unreliable or offensive will not be allowed to do business in the ocean. The reality is that initiatives to protect and manage the oceans are increasingly driven by non-government organizations (NGOs), usually with foundation support, acting on their understanding of the public interest. Satisfying government requirements is being superseded by the need to satisfy NGOs.

Obtaining and maintaining this "social license" is becoming the most important aspect of doing business in the marine environment. Each industry must understand its impacts and do what is necessary to find acceptable solutions to reduce or eliminate them in order to have the license to operate. At the same time, it is critical to realize that, in a global, interconnected ocean, many impacts and issues are shared and a more holistic approach is needed.

Collaboration

There is a need for ocean industries to work internationally and collaboratively on ocean issues. Ocean industries have largely developed and operated in individual "stovepipes" and must move beyond the sectoral and national level of consideration for the ocean. The nature of the marine environmental issues themselves, the wide range of issues, increasing globalization, and the efforts of other stakeholders require a more holistic, long-term approach by the ocean business community.

At the same time, it is important to recognize that different sectors have different roles and histories in the use of marine space and resources. Each industry needs to look at its own activities and impacts and then look at other industries. However, rather than seeking to "point fingers" and assign blame, ocean industries need to collaborate in problem sharing and solution finding. Industries need to think about risk sharing and idea sharing from early on, not after conflicting interests or problems emerge.

Many ocean industries have a commitment to partnerships and indeed are already reliant on cross-sectoral partnerships. For example, to achieve clean air emissions, the shipping industry needs clean fuels from the petroleum industry; to dispose of ship borne wastes properly requires the port community to develop reception facilities. Other problems encompass all ocean users and require collaboration on a much broader scale, e.g. to develop solutions that comprehensively address invasive species.

In developing cross-sectoral collaboration to tackle shared marine environmental challenges, it is important to recognize and build on work already done by others. Collaborative efforts should avoid "reinventing the wheel" and should learn from mistakes and successes of previous work. In these efforts,

companies need to overcome perceived and real barriers by contacting their peers in other businesses and sectors, bringing in other stakeholders and sharing knowledge and best practices.

Each sector needs to learn the issues and needs of the other ocean industries. This applies to the long-established ocean industries, as well as newly emerging ocean uses. Some industries have good experience in collaboration within their sector, but have not developed coordinated interaction with other sectors.

Moving forward in a collaborative manner is essential and requires a common vision and a common roadmap. Such a roadmap needs to specify timeline, targets and geographies for success. Change is necessary to develop collaborative ocean industry leadership and collaboration in addressing ocean sustainability. The goal is to be environmentally sound practitioners at the scale of the ocean operating environment, and this entails taking risks to make the changes needed.

Key Considerations in Advancing Corporate Ocean Responsibility

The human element is a critical issue to be addressed when considering the role of ocean industries in marine environmental issues. Seafarers are in direct contact with the marine environment and are very concerned about the health and quality of the ocean. However, mariners have become less connected to the marine environment as ocean use has become more industrialized, e.g. as ships have become bigger. The ocean has become more of an industrial platform and less of a living ecosystem for many mariners.

It is crucial to bring seafarers into the process of addressing marine environmental concerns and listen to their input. Education for seafarers, fishers, offshore workers, and all those who work at sea is an essential element of ensuring the future health of the marine environment. If those who work at sea don't understand the issues and the impacts of their actions, achieving change at a meaningful and lasting scale will be much more difficult. Implementation of laws and policies to protect the ocean will be much more effective with an informed and engaged workforce at sea.

Related to this, solutions through collaboration will require common understanding and effective communications. The broad range of ocean industries needs to be engaged in developing common language and terms, performance indicators and ways to measure performance, e.g. Key Performance Indicators (KPIs). Without common understanding on these, it will be difficult to collaborate on developing, measure and reaching agreed targets for tackling shared environmental challenges.

Key tools and approaches for addressing marine environmental issues include appropriate impact assessment. As ocean use expands and impacts are better understood, new technologies will be needed to tackle the effects and ensure there are systems in place to support them. Supply chain management and produce life cycle assessment provide a very useful way to systematically analyze and address impacts. Risk assessment and management are also critical to ensuring impacts are addressed in a prioritized, cost-effective manner. The insurers standing behind ocean industry operations have a moral and economic need to seek good risk and can provide companies with incentives to manage risk well. Insurers want to collaborate with those that are driving better risk management in ocean use.

The need for adequate ocean data, access to data and the useful analysis and outputs from data constrain the efforts to advance ocean sustainability. Ideally data is "scalable" - from local to global and back again. Cross-sectoral collaboration will be enhanced by arrangements that enable non-commercial data to be shared. Appropriately protected data sharing will be important among companies, within sectors, across sectors and with other stakeholders. Collaborating in data collection and contributing new

data to international ocean science and data processes will go even further to engaging industry in supporting ocean sustainability.

PARALLEL THEME SESSION REPORTS

The co-chairs of each session consolidated the topics, issues and ideas generated by the presentations and discussions in each of the parallel theme sessions. The summary reports were edited to provide a consistent style and format and are presented below.

Session 1	International Ocean Policy and the Future of Industry: How will business be affected by upcoming developments in the Law of the Sea, the Convention on Biological Diversity and regional maritime policies?
------------------	---

Marine policy developments that affect the commercial use of marine space and resources are being pursued in a wide range of processes, a growing number of which are not sector-specific. These marine policy development processes are becoming increasingly integrated and there is a need for ocean industries and users to engage in the policy making process. In doing so, ocean industries and users must consider the ocean policy processes broadly and include all stakeholders in that engagement.

Within the private sector, ocean industries need to take a more integrated and coordinated approach to engaging in the policy processes. It is important that this involvement is at the earliest possible stages of the process. It is critical to be forward-looking and seeking to understand emerging issues and developments, i.e. what is on the horizon rather than just what has been agreed. The demands on some sectors to engage are complicated by the number of processes and meetings, e.g. at the International Maritime Organization (IMO), so it is sometimes hard to be represented at all relevant forums

To address the imperative to be better engaged, industries really need to understand the various policy making mechanisms at the international, regional and national levels. Across these levels and across the range of ocean issues being addressed, industry leadership and collaboration should seek greater alignment in policy and legislation so that overlaps and inconsistencies can be addressed. It is important to identify the high priority policy processes, such as the Convention on Biological Diversity (CBD) and the UN Informal Consultative Process on Oceans and Law of the Sea (UNICPOLOS or ICP).

The WOC should work with the range ocean industries to ensure they are well-informed on ocean policy processes and constructively engaged on key issues and developments with ocean stakeholders. The WOC should monitor, analyze and report on major ocean policy processes and developments for the ocean business community, especially those that are not sector specific. This could extend to the level of coordinating industry information and input to specific processes and enhancing collective, constructive, sustained engagement of the ocean industries in the high priority processes.

Session 2	Seafood From Crowded Seas: How can fisheries and aquaculture interactions with other ocean industries best be addressed?
------------------	--

Seafood is a critical contributor to global food security and population growth is creating further pressure on food resources, on the marine environment and on ocean resources. Responsible seafood operators have been engaging with interested parties and adopting best practices to ensure seafood resources are not depleted by overfishing or environmental mismanagement. The reference Standard for Responsible Seafood Management is accepted as the Food and Agriculture Organisation (FAO) Codes of Conduct and ISO standard ISO 65 accreditation and certification methodology.

The ability to sustain seafood production is increasingly under pressure from growing international trade issues and the multiple use of marine space and resources. Many capture fisheries are at their upper limits and it is critical not to further damage or lose seafood production. Farming the oceans on a large scale using multi-trophic aquaculture systems is essential to future food security, with an estimated 20-fold growth in aquaculture projected.

The seafood sector and other ocean users can and must share the use of the marine environment. However, as a source of food for human consumption, seafood production does require special consideration. All ocean users must collaborate in ensuring food supplies from the sea are not affected by not implementing best practices that support future seafood security.

Respecting seafood security includes ensuring that ocean uses do not restrict access to seafood or result in spoilage or contamination that might render areas unsuitable for seafood harvest or production. The seafood industry itself must not over-harvest or impact marine ecosystems beyond sustainable limits. Public timelines are needed to encourage ocean users to adopt credible, transparent and realistic standards that explicitly respect the importance of seafood security.

The WOC should work with the multi-sectoral ocean business community to ensure that all ocean users understand the critical role and needs of seafood production from fisheries and aquaculture. In doing so, the WOC should foster and facilitate support for food security from ocean industries. As ocean governance and management systems that affect commercial use of the seas develop, especially marine spatial planning, the WOC should catalyze cross-sectoral industry involvement that includes the importance of seafood security.

Session 3	Ports, Coastal Waters and Marine Environmental Quality: What kinds of best practices are needed in nearshore waters, ports, and across the sectors to maintain and improve the quality of the marine environment? What kind of approaches, tools and innovations are making a difference?
------------------	---

The use of ports and coastal waters by a diverse range of ocean industries engenders impacts to marine water quality, habitats and species. As the use and development of ports and inland waterways expands, it is important for commercial users to address the implications by understanding and rating the associated environmental impacts and risks.

Dredging for safe and efficient operations in ports and nearshore waters is one of the shared needs of the ocean business community. Planning for dredging projects must include input from all stakeholders, including contractors, at earliest stages possible, and must address ecosystem level issues, customized for the concerned project. Dredging contractors must develop and implement commonly accepted methods and best practices for addressing environmental issues. The dredging community and stakeholders should recognize those that are leaders in stewardship of nearshore waters and share these best practices.

The broader ocean business community would benefit from interaction with the dredging industry. Dredging operators should make information and data available to other industries via industry associations, including data on water quality monitoring. Sharing of information on addressing biofouling is crucial for the entire industry and collaboration would benefit all involved parties.

As ports are a location in which most ocean industries come into close proximity with each other, the WOC should work with the port operators and dredging industry to ensure interaction among the ocean business community on shared issues. Developing synergies and networks on coastal water quality monitoring is one area of potential benefits from a cross-sectoral approach.

Session 4	Renewable Energy from Crowded Seas: What are the synergies and economies of scale in wind, wave and tidal energy development and how can interactions with other ocean industries best be addressed?
------------------	--

Ocean renewable energy is a growing, sustainable use of marine areas. There will be significant growth in the scope and scale of renewable ocean energy, which will provide 5-15% of electricity supply for some major countries. Ocean renewable energy development could benefit from the transfer of experience from other ocean industries in areas such as technology, operations, public licensing, etc.

Ocean renewables face major challenges that will affect the growth of the industry, including the need for improving the developer/technology customer base, establishing financeability, disproportionate early adopter project development and concerns about a new users gaining access in an increasingly crowded coastal zone. It is not clear whether the sustainability value of ocean renewable energy has been sufficiently recognized or that early initiatives are yet at an appropriate scale. The newness of the industry means that the sector and its regulators are relatively inexperienced and that there must be a willingness and ability to use adaptive management and experience from other marine sectors wherever possible.

The ocean renewable energy sector, as an emerging industry, recognizes the issues about its place among ocean users, e.g. in relation to permitting and marine spatial planning and its relative value among other human and ecosystem uses of marine areas. It will be important for the ocean renewable energy sector to engage with other ocean industries, such that all sectors should share their visions and roadmaps that cover the coming decades and look for areas of common messages, collaboration and synergies.

As the renewable energy sector is an emerging ocean use industry that is seeking marine areas to install and operate, the WOC should work with the sector to ensure its needs and efforts are understood by other members of the ocean business community. Where marine spatial planning is proposed, the WOC should create cross-sectoral industry working groups to help commercial ocean users develop common ground, share information and coordinate involvement as a collective ocean business community.

Session 5	Marine Ecosystem Services and Climate Change: What are the roles and incentives for industry to maintain or enhance marine ecosystems, especially as they are being affected by climate change?
------------------	---

Ecosystem services underpin economic development, and as coastal and marine ecosystems are altered due to climate change or other causes there will be an increase in the cost to businesses. It is in the interest of industry and government to collaborate to increase the resilience of coastal and marine ecosystems in the face of climate change and other pressures. An ecosystem-based approach to managing coastal and marine ecosystems is important and must include coastal watersheds, cities, ports and harbors, shallow seas and blue water ecosystem. Cooperation is needed to maximize the potential of blue carbon, i.e. capturing carbon in coastal and marine ecosystems.

The valuation of ecosystems will enable the development of environmental markets and can help companies ascertain stakeholder values, compare trade-offs, and optimize financial and societal benefits. Companies must assess their dependence on marine ecosystems in order to successfully establish flexible and resilient business models. Businesses should develop a strategy towards ecosystem valuation based on their goals for corporate responsibility.

Questions remain regarding how liabilities will be shared if the economic cost of environmental damage is quantified, and how this might affect competitiveness among operators. There is also concern for the concept of expressing environmental damage as a monetary value, given the shifting nature of economic values and the implication that damage can always be compensated. Science-business partnerships create value for both industry and the environment. By engaging at multiple organisational levels, partnerships build understanding, commitment and leadership for sustainability across business units.

Given competing demands on allocation of staff time, there are important questions concerning what motivates companies to modify their behavior with respect to the environment. Corporate responsibility is easier to sell internally when directly linked to company costs and revenues. While opportunities exist for customers to drive the environmental behavior of businesses, some companies get little feedback or product differentiation from them. As only 15 % of GDP is related to final consumers, supply chain interactions have the capacity to generate significant demand for environmentally sustainable products. It is important to determine what creates first movers, and how to reduce the cost of innovating.

With its focus on industry-led ocean stewardship, the WOC should work with the ocean business community to develop an understanding of marine ecosystems. The WOC should assist ocean industries to develop and share the tools and best practices for evaluating marine ecosystem services, and facilitate the use of marine ecosystem services evaluation as part of Corporate Ocean Responsibility.

Session 6	Arctic Marine Ecosystem Challenges and Opportunities: How can the responsible, sustainable development of the Arctic be enhanced through cross-sectoral industry leadership and coordination?
------------------	---

The increased and potential growth of commercial activity in the Arctic is bringing with it environmental challenges. Coordinated governance and management of the Arctic is evolving. The Arctic Council holds the lead on issues and consensus. Other bodies hold decision-making authority for regulating other

activities and areas. There is a need for industries operating in the Arctic to work from a common knowledge base and to engage other institutions in developing, disseminating and implementing best practices in the Arctic.

The understanding and science of Arctic ecosystems is growing as important assessments of the Arctic are being undertaken and data is being compiled. At the same time, there are significant knowledge gaps and public-private partnerships are needed to support the efforts to understand these challenges and develop solutions. Resources are needed for the research and infrastructure that are required to address the environmental challenges resulting from increased use of the Arctic.

The WOC should assist in developing or highlighting common knowledge and help ensure industries active in the Arctic share information and best practices. The WOC should work with the ocean business community to identify and prioritize gaps needing research and enhance public-private research partnerships to support the work needed to understand Arctic environmental challenges and subsequently develop solutions. This could lead to the WOC's involvement in developing integrated Arctic scenarios of future use and development. It is important for the WOC to determine the most appropriate and useful level of policy engagement in relation to the Arctic as it moves forward.

Session 7	Climate Change and Ocean Use: Are there opportunities for cross-sectoral ocean industry leadership, innovation and synergies in addressing climate change causes and impacts?
------------------	---

Shipping has a long history of efficiently moving goods at the least cost in an energy efficient manner, but the industry has been challenged by its contribution to the greenhouse gas (GHG) emissions. The economics of world trade and hence shipping show steady upward trends, with corresponding requirements for energy. The development of new vessel propulsion systems and fuels is just one way in which the shipping industry may be able to respond to climate change, GHG reduction and regulatory pressures.

The oil and gas industry supports a global fleet of offshore rigs, for which there are GHG emissions to be addressed. The industry collects data on the emissions and is developing the technologies needed to reduce atmospheric discharges, and is continuing to measure its emissions and undertake the research and development of technology to reduce them. New technologies and approaches to addressing GHG are being explored to make use of the ocean in tackling climate change, with carbon capture and storage being the most advanced.

The policy drivers on climate change and ocean industries are emerging and target-setting options are being developed. Achieving supply chain efficiencies is an important aspect of reducing the carbon footprint of ocean industries, and this must involve all stakeholders.

Interaction across the sectors is an important part of addressing climate change in relation to ocean industries, and the WOC should assist in this process of cross-sectoral collaboration. This should include coordinated efforts to monitor and engage in important policy processes that are not sector-specific, in the collecting and sharing of data, in optimising the use of current technology and in stimulating the research and development of new technology.

Session 8	Biosecurity and Invasive Species: How can diverse ocean industries collaborate to address the shared problem of marine invasive species?
------------------	--

Invasive species are a critical ocean issue, with ballast water and bio-fouling being the most important vectors, although there are others requiring attention. To understand and minimize the risk associated with invasive species, it must be viewed in concert with other environmental issues. The issue needs to be considered from both the regulatory and industry perspectives.

Ballast water treatment technology is at its initial phase and the deadline for all vessels to be capable of treating ballast water is in 2016. Industry recognizes the need for the international ballast water convention to enter into force as soon as possible in order to pre-empt national and regional regulation/legislation. Governments need to ratify the ballast water convention. Failure to implement the convention will cause stagnation of technology which will drive up the operational costs.

Innovative solutions are also being explored, e.g. ships without ballast water. There are also approaches that involve rethinking the current supply chain model. For example, minimizing the dwell time in the supply chain could help industry towards a pathway with zero ballast water emissions.

Greater emphasis should be made on controlling and managing biofouling, as up to 70 percent of known invaders may have been introduced by this vector. Two approaches are important in managing biofouling: the clean ship approach (with nothing at all on the hull, or at most slime) and the targeted approach (risk-based approach).

Pragmatic legislation on biofouling is needed as well as industry efforts to voluntarily develop and adopt biofouling management plans. The clean ship approach would work more efficiently on a restricted geographic scale. The targeted, risk-based approach works better on a large scale but has limitations. Development of new coatings and hull surface technology is needed to minimize risk associated with biofouling.

The issue of marine invasive species requires action by all the sectors contributing to introducing alien species. An international, cross-sectoral approach is needed in order to address the issue and the WOC should consider invasive species as a priority issue. In particular, the WOC should cooperate closely with IMO on addressing marine invasives, possibly through the GloBallast program's Global Industry Alliance.

Session 9	Regional Ocean Industry Alliances: What can we learn from regional cross-sectoral industry leadership and coordination on shared ocean use, sustainability and development?
------------------	---

Regional alliances for ocean sustainability can be based on ecosystem scale management, as in the case of the Baltic and Celtic Sea, or based on the drive for better environmental performance in specific industries, as in the case of the seafood initiative in Australia and the shipping effort in North America. Common elements of all of these initiatives include: the complex, large scale issues that require a program of activities sustained over a long time-frame, and the difficult problems the solution of which requires a change in behaviour by multiple actors.

To be successful, initiatives require significant effort, often by key individuals, to identify and engage with stakeholders and to develop productive partnerships. Measuring success can be difficult, but it is,

nevertheless, important to be clear about what success looks like and how it can be measured. It is important to “tell the story” about the purpose of the initiative and what it has achieved in order to communicate results and keep stakeholders engaged.

A regional approach allows a program to build on cultural, economic, technical and political commonalities and address national and sectoral concerns in a way that can be more effective than national or global scale efforts. Regional approaches can capitalize upon the wide pool of knowledge, experience, and best practice available within regional networks. Approaches at this scale can focus more effectively on cross-border issues than initiatives at national or global scales. Working at the regional level creates economies of scale and makes the business case for sustainable practice.

The WOC, as a unique cross-sectoral ocean industry alliance, should engage industries at a regional level as well as a global scale. Priority regions include those where there is a concentration of multiple ocean use, conflicts in the sustainability of the use of marine space and resources, and areas of high marine ecosystem value.

Session 10	Ocean Industries and Ocean Science: How can ocean industries collaborate to improve science that in turn supports safe and environmentally sound ocean use?
-------------------	---

Science is a key contributor to monitoring environmental impact for marine industries. Innovations in ocean science are important to improving the ability of science to support sustainable use, e.g. deep sea monitoring platforms, platform-free oil and gas recovery, and automated instrumentation. New marine industries such as seabed mining require comprehensive and transparent environmental approach processes through multiple stakeholder engagements at concept, planning, operational, closure and post closure phases. Long-standing, widely-operating industries, such as shipping, can play a critical role in improving data gathering and reporting through ships of opportunity programs.

There are important needs and opportunities for ocean industry to participate in expanded, improved and better-coordinated ocean science, especially regarding climate change. Key maritime research and development associations can contribute vital operational data, e.g. ship routing optimisation and ballast waste dispersal. Industry can contribute to scientific understanding of impacts by installing environmental monitoring devices on vessels and platforms. This can also include interaction with intergovernmental ocean database programs to develop the potential for industry data input.

Improved understanding of the oceans can create a more predictable ocean operating environment for responsible ocean use and marine ecosystem management. Collaboration among ocean industries to determine priorities and develop science programs can result in economies of scale in finding cost-effective solutions to shared environmental problems, e.g. impacts of sound on marine life, shipboard waste discharges, invasive species and vessel/platform recycling.

The unprecedented industry alliance of the WOC creates a unique opportunity to establish an international, multi-industry system and platform for coordinating ocean industry participation in collecting and sharing oceanographic and metrological data. Fostering and coordinating collaboration on science among the ocean industries should be a fundamental priority and role for the WOC. This should include developing interaction with key international organizations.

Session 11	Environmental Education and Training for Marine Professionals: What are the education and training needs required for maritime professionals to address the environmental concerns of shipping and other maritime industry operations?
-------------------	--

The current situation of environmental education and training for marine professionals is that environmental standards exist. However, there is a compliance culture, i.e. achieving a minimal level of knowledge necessary to comply with the regulations. A wide gap exists between compliance and the understanding needed for strong commitment to ocean responsibility. Commercial considerations often limit a greater investment in environmental best practices and in the training and education of seafarers.

Proactive development and application of positive environmental practices is needed to improve the image of ocean users. This needs to focus on improving each seafarer's personal environmental awareness and developing a commitment to sustainability among all ocean users. More broadly, it is important to inspire ocean users to embrace and feel ownership of common goal of maintaining healthy and productive marine ecosystems.

A critical part of this is increasing the awareness of the benefits and risks for individuals and businesses. The role of companies can be improved through the sharing of best practices in support of continuous improvement towards meeting goals that lead to environmental excellence. This will encourage moving to a culture of learning, rather than blame, with respect to ocean stewardship.

The WOC should coordinate and develop a holistic approach to educational environmental campaigns for ocean industries to maximize their effectiveness, and work with ocean industries to develop effective application and implementation techniques for improving environmental awareness within target groups. This should include promoting good environmental business practices through corporate strategies such as risk management, self assessment, key performance indicators (KPIs) and brand value, supported by appropriate case studies. This can lead to the ability to define a positive investment matrix for corporate ocean responsibility. To support these efforts, the WOC should develop a depository of resources, including personnel, funding, materials and case studies that can be shared by stakeholders.

Session 12	Risk and Ocean Environmental Issues: How can ocean industries best manage uncertainty while making progress as responsible ocean businesses?
-------------------	--

A very complex legal framework at local, national (state), federal (regional, i.e. the EU) and international levels governs ocean industrial activities. Complexity is added every day, often following accidents. It is difficult to say whether the trend is towards more international/global rules or towards regional/local regulations. In fact, both may be happening at the same time.

As resources become scarce and ocean industry activity more technologically complex and taking place in more demanding and more sensitive areas, professional risk management becomes crucial. Through such risk management processes risks may to a certain degree be identified and mitigated, including by engaging with scientists, regulators and other stakeholders at an early stage. The greatest risk, however, comes from unpredicted change in public perception and acceptance.

Over the last 5 years the recognition of various industrial ocean activities being highly interlinked has grown exponentially. Also, from a project financing point of view, there is therefore now a need to assess

a much wider set of issues including environmental risk and performance. Ocean project management now need take a much more overarching and integrated approach.

Risk is a combination of probability and consequence. Ocean operators need to identify, assess, and manage risk as never before. Risk acceptance criteria must address perception, culture and politics. Risk is acceptable when the perceived gains are greater than the perceived losses. Key considerations are determining how operators identify and manage the risks and how society develops and accepts the relevant risk criteria. The real challenge is that public acceptance has moved to a place where catch-up will take years for the regulatory environment.

The WOC should explore whether it has a useful role to play in developing and sharing methodologies and best practices to identify, assess, communicate and manage risk, which is crucial for successful future industrial ocean use. Proactive engagement with scientists, regulators and stakeholders is critical, as is the use of science to lead the way to common ground.

Session 13	Ocean Industries and Marine Mammal Interactions: What are the opportunities for synergies and economies of scale in the research and development of solutions to the impacts of sound and ship strikes on marine mammals?
-------------------	---

Sound in the marine environment is a growing issue from an environmental, technical and policy perspective. In some areas sound has increased in both its characteristics. In addition, in many areas, sounds are generated from multiple sources. The potential for cumulative effects of ocean industry sound on marine mammals, other marine life and their habitats and is a growing issue of high priority for ocean industries. The effects of ship strikes on marine mammals are a similarly a significant concern. There is a need to develop science to improve risk-assessment and focus on mitigation.

Effects from seismic sound appear to affect vocalization of fin whales over large areas, and sound levels don't have to be high. Research is needed to better understand the biological significance of the impacts on these whales. The oil industry recognized that it needs to be proactive in understanding and measuring acoustic ecology including the scale of the impact and is implementing a collaborative effort to improve the science on sound and marine life. The primary focus has been seismic operations and marine mammal monitoring and mitigation, with mitigation measures combining the use of science and common sense to guide conservative and protective operations. These efforts are advancing the development of tools, e.g. passive acoustic monitoring (PAM) capacity for real-time monitoring. Experience has shown that it is important to develop focused objectives, ensure the effort is structured to facilitate the credibility of research and publish the results as peer-reviewed science.

Vessel noise can mask communication in marine mammals and limit the communication space available. Research indicates that this is species specific to some extent. The issue has been worked for a long time and there is progress on developing vessel quieting effects. Recent efforts to facilitate constructive engagement have brought together the right mix of people and resulted in important breakthroughs, including proposals for specific noise level reduction targets for new-build vessels. A pending concern is the effects of sound from growing vessel traffic in Arctic.

Acute impacts from ship strikes on marine mammals are also a growing concern as the number of ship strikes is increasing as a function of faster vessels, more animals, and better reporting. Mitigation measures are being developed and tested, e.g. traffic control, speed, routing, separation. The key

challenge remains as how overall performance on ship strikes can be improved and balanced with the needs of shipping.

The effects of sound and ship strikes on marine life are major cross-cutting, multi-industry ocean issues that should be a priority for the WOC. It is important for the WOC to catalyze and coordinate cross-sectoral workshops to address these issues and foster development research that is broadly focused. Lessons learned show that a key to the success of these efforts is getting the right mix of people, having the right focus and leading constructive workshops to facilitate solutions to real problems. The WOC should ensure that industry efforts and involvement are represented an important international fora and policy processes, such as the Convention on Biological Diversity (upcoming COP-10) and UNICPOLOS, the annual UN oceans meeting.

Session 14	Vessels, Structures and Marine Environmental Quality: What kinds of best practices are needed on-board and across the sectors to maintain and improve the quality of the marine environment? What kind of approaches and innovations are making a difference?
-------------------	---

A range of marine environmental quality issues are associated with the operation and decommissioning of marine vessels and ocean structures. Similarly, a range of approaches, technologies and practices are being developed and tested to address marine pollution from wastes and structures. With the diversity of the ocean business community, one of the main challenges in advancing the efforts to address marine environmental quality impacts is identifying the best practices that are being used and the approaches that are making a difference.

Major advances in environmentally-sound decommissioning and in the reduction of atmospheric [pollution, waste water and solid wastes are being made by leadership companies. Companies are faced with the need to find a balance between risk and reward in determining how to tackle marine environmental issues. There is a need to assess and conduct a cost benefit analysis of new practices and approaches, and to prioritize what achieves real results in a practical, cost-effective manner. In some situations, getting caught up in too much detail may not provide a net environmental benefit.

Crucial to the plan for furthering the role of industry in improving marine environmental quality is the need for incentives for innovators, early adopters and good performers. Innovation is needed even on existing ships and operational systems. Developing and testing solutions to many of these problems are too much for one company to address. There is a need for partnerships within sectors, among ocean industries, and through public/private cooperation.

As an international, cross-sectoral industry alliance, the WOC should catalyze and facilitate the partnerships needed to tackle shared multi-industry marine environmental quality challenges. The WOC should work with the ocean business community to identify the cross-cutting issues associated with the operation and decommissioning of marine vessels and ocean structures for which synergies and economies of scale can be achieved through collaboration.

Session 15	Marine Debris: How can ocean industries most effectively prevent, control and remove sea-based marine debris?
-------------------	---

Marine debris is a multi-sectoral problem and a transboundary problem that ranges from micro-plastics to shipwrecks. It is one of the marine problems most known to the wider public as it affects interests and irritates beach-goers and many who are economically affected. No other marine pollution issue mobilizes such public interest and action.

Although most marine debris is land-based, there is clearly a need to prevent and reduce sea-based inputs. Some international legal instruments are in place, notably MARPOL Annex V, but there are gaps in the international regulatory framework and deficiencies in implementation and enforcement of existing regulations. Despite international, regional and national efforts, and an increasing number of successful marine debris recovery partnerships, marine debris levels are increasing. More partnerships and global programs are needed, as well as efforts to address the lack of scientific data on marine debris.

Marine debris cannot be solved solely by legislation, enforcement, cleanup campaigns and technical solutions. Efforts are needed to address attitudes, behavior, management, education and training. Ocean industries are best placed to address this need in relation to sea-based sources of debris, with the involvement of all sectors and interests, need to be undertaken. Education of employees regarding their role and responsibilities is critical. Companies that are using best practices will enhance their professional and public reputation.

As WOC programs develop, marine debris should be a priority, as it is a multi-sectoral, transboundary problem. The WOC should harness the need and opportunity for ocean industry collaboration and leadership to address sea-based marine debris at the source, through sharing of best practices, exchange of information on successful policies, workshops to develop staff education and training, building on existing programs, etc.

IMPROVING MEDIA, PUBLIC AND NGO UNDERSTANDING OF OCEAN INDUSTRIES

Introduction

Ocean industries need to do a much better good job of communicating to the world their commitment to protecting the marine environment and ensuring other stakeholders are aware of responsible ocean industry operators' role as ocean stewards. This plenary session was an interactive discussion between the ocean industry stakeholders and media representatives on how to more effectively ensure the public and media receive the positive news stories about responsible ocean use and stewardship of the marine environment by conscientious ocean industry operators.

During the session, the media panel challenged the delegates on the relevance and appeal to the general public of industry efforts as meaningful commitments to responsible use of the ocean. They were also asked to suggest how the message can be developed and delivered in the most compelling and wide-reaching fashion, and to identify those diverse outlets that would best receive this information.

The panel was moderated by Carleen Lyden-Kluss, Co-Founder and Executive Director, North America Marine Environment Protection Association (NAMEPA), who provided an introductory presentation to set the stage.

The panel consisted of:

- Nicki Holmyard - Seafood Source News
- Fred Pearce - New Scientist
- Alisdair Pettigrew - BLUE
- Neville Smith - Fairplay
- Marcus Connaughton - Seascapes RTE Radio 1

Session Overview

The moderator opened the session by outlining the context of better communicating to the public, media and NGOs. While ocean industries haven't been good stewards of their image, every ocean industry has a good story to tell. Critical aspects of effective communications include: passion, vision, mission, value, truth, transparency, commitment, patience, reputation and relationships.

The panelists provided their initial thoughts on how ocean industries could best present themselves and improve the news and image of their sector. The moderator guided the panelists and audience through a consideration of the strengths, weaknesses and opportunities for ocean industries to better communicate with the public, media and NGOs.

The input from the media representatives on the panel and the active questions, insights and experience from the participants resulted in a range of information and ideas. These are summarized below around a series of themes that emerged from the session.

Common Themes

Changing media interest in ocean issues and industries

Historically there has been lack of regular interest in ocean industries from the media, but that is changing. The media is increasingly following marine environmental issues and "shining a light" on them. Environmental concerns are, possibly by far, the most important issue for ocean industries.

New ocean industries can build the environmental issues into their efforts and their communications from the start, while older industries have to work to create a new image and relationship based on developing new realities.

Smart, forward-thinking companies are expanding and improving their media and communications teams at the same time they are doing the same with their sustainability programs. The combination of real efforts to address environmental issues along with ramped-up communications can result in significantly improved media image and information dissemination.

Understanding the media

It is critical for industry to understand how media works, i.e. the need to sell copy and the focus on the current “fire”, and relate that to the information or story that the industry is trying to give them. Stories need to pass the “so what” test. For example, information about a new ship being built is usually not newsworthy. However, if it has a new feature or new technology, etc. It could be an interesting story, especially if there is context to position it as a more interesting piece.

Communicating about ocean issues is sometimes extremely complex and needs to be seen in a wider context. This, when coupled with journalistic ignorance or the lack of time and effort to get more information, can make it difficult to adequately develop and deliver ocean industry information.

Industry also needs to understand the resources of the media. National news agencies will have more resources than local media and will be able to get the news out to a wide audience. However, working with local media is important for developing good public relations and good local image with local stakeholders about local issues.

Developing a relationship with the media

Because ocean industry often operates far from people, it is a challenge to develop a good working relationship with journalists. Communications experts are trust experts and building up a “trust account” with media representatives takes time. By contrast, it’s easy to draw down the “Trust Account” and lose the relationship.

Companies shouldn’t be afraid of media, and should make the effort to reach out. The media wants to know what’s going on and may be more suspicious of companies that never interact with them. At a broader level, there’s a “trust economy” that relates to a whole industry sector.

Keeping in touch with journalists, building a regular relationship and creating a “brand identity” and reputation with the media is one of the most useful things to do. Journalists appreciate industry representatives who take the time to find out who they are, get their number, call them up, and pronounce their name correctly. This leads to opportunities, e.g. to get back to the industry representative as a source for another story.

Relationship with media should be part of the planning of any project from the start. With relationships in place, when something happens it is easy and important to get in touch with press early.

Developing the positive stories

Positive stories and press are important in developing brand image and creating value for a company. The panelists and many of the participants highlighted the strengths of the ocean industries in relation to improving media, public and NGO understanding. These included: the essential need for shipping and its role in driving the local economy, the healthy, high-quality protein and food provided by fisheries and aquaculture that is increasingly needed to feed the growing population, and the role of oil and gas in powering all sectors of the economy and modern life.

In developing press releases, it is also important to convey the real story behind the news. Develop a narrative and give the media the context as to when, where and why the story is emerging. Augment the story by sending other materials such as video clips, etc. To ensure there is a complete story, companies sometimes also need to report the facts of what’s not working out.

They want stories that will appeal to both people who have some knowledge of the issue and people with no knowledge. It is critical to create human interest in the story. Ocean industries often overlook the opportunities they have to develop good human interest stories and talk about what they do day-to-day.

Journalists look for good narratives, not just a list of the facts. For example, the potential negative image about container ships generating CO2 emissions to bring toys that may be toxic halfway around the world was recast as the role of the ships in bringing Christmas.

Journalists don't appreciate organizations that are less interested in telling their story than putting a spin on it. If the piece has too much spin it can be hard for journalists to understand and convey the real story. The story can also be lost if there is too much technical information. Journalists look for good narratives, not just a list of the facts and industry jargon.

Don't be afraid to think outside of box and try new approaches to getting the story across. However, although there is an urge to make PR slick in order to capture attention, it must be meaningful and truthful. If you take the story line too far from reality or oversell it, it will come back to bite you.

Dealing with bad news

A continuing challenge is that the media seems focused only on bad news. All ocean industries will have to deal with negative images and negative press, often relating to accidents, incidents and problems with projects. Managing risk is, or should be, an important part of any communications strategy.

Bad news does not get better with age. It is essential to respond quickly and efficiently and get the full story out and work to turn the situation around. For example, in response to the tragedy at Bhopal the chemical industry came together to develop and implement voluntary standards on "Responsible Care".

Unfortunately, the reputation and actions of the worst of a sector undermines those of the best of a sector. This applies more broadly, to some extent, to ocean industries overall, with little confidence that any part of the private sector cares about the marine environment. It is important to find better ways of communicating that ocean industries are not homogeneously bad.

Using your internal resources and opportunities

Companies need to look at their employees as potentially very effective communication vehicles. Your own staff can think of lots of things in the business that may be of interest to publicize. On an operational level, companies should be the image they want to convey by exemplifying it with day-to-day practices that respect the environment.

For example, responsible companies in the undersea mining industry are making significant efforts, even before they have started production, by: involving stakeholders early on, engaging local residents and seeking their input, working with local universities to increase marine science capacity, ensuring transparency by allowing scientists involved in environmental impact analysis to publish their results and encouraging public awareness by posting science and studies on the web.

Developing the World Ocean Council (WOC) Role

The WOC has a major part to play in improving media, public and NGO understanding of ocean industries. A challenge is that ocean industries have a fragmented voice and should be more united in speaking. It is also a challenge to convey that all ocean industries, and all companies in a sector, are not equally a part of the problem and that, in fact, many are developing and implementing the solutions.

WOC should work with its members and the ocean business community to develop the trust and relationships with the media. There are important good news stories that can emerge from the WOC, such as developing best practices or voluntary standards on cross-cutting issues, and catalyzing collaboration on improving ocean science.

As a cross-sectoral business leadership alliance on ocean sustainability, the WOC is uniquely positioned to create a common voice and develop and communicate the big-picture, long-term story of responsible ocean use by responsible ocean industries.

Appendix 1 Program

15 JUNE	TUESDAY
1100-1230	3 Concurrent Sessions
SESSION 1	International Ocean Policy and the Future of Industry: How will business be affected by upcoming developments in the Law of the Sea, the Convention on Biological Diversity and regional maritime policies?
Chair(s)	<ul style="list-style-type: none"> Julian Roberts, Environmental Manager, OMV Exploration and Production Peter Hinchliffe, Marine Director, International Chamber of Shipping (ICS)
Speakers	Julian Roberts, Environmental Manager, OMV Exploration and Production <i>- UN Processes on Oceans and LOS and Current Key Areas of Priority</i>
	Jihyun Lee, Environmental Affairs Officer, Marine and Coastal Biodiversity, Secretariat of Convention on Biological Diversity (CBD), UN Environment Program (UNEP) <i>- Implications of the CBD for Ocean Industries and Update on Current Developments/Plans for COP 10</i>
	Daniel Owen, Barrister, Fenner's Chambers <i>- Industry Engagement in the Work of Marine Intergovernmental Organizations</i>
	Ronán Long, Jean Monnet Chair of European Commercial Law, School of Law, National University of Ireland Galway <i>- Recent Developments in European Law Concerning Ecosystems Based Marine Management: What Maritime Industries Need to Know</i>
	Jack Belcher, Director, US National Ocean Policy Coalition <i>- US National Ocean Policy and Its Implications for Industry</i>
SESSION 2	Seafood From Crowded Seas: How can fisheries and aquaculture interactions with other ocean industries best be addressed?
Chair(s)	<ul style="list-style-type: none"> Peter Marshall, CEO / Managing Director, Global Trust Certification Melanie Siggs, Vice President, Sustainable Markets, Seaweb
Speakers	Randy Rice, Seafood Technical Program Director, Alaska Seafood Marketing Institute <i>- Alaska Seafood Sector Actions to Protect Seafood Security and Contribute to a Seafood Security Charter for all Ocean Users to Protect Seafood Security.</i>
	Jonathan Shepherd, Director General, International Fishfeed and Fishoil Organisation (IFFO) <i>- Fish Meal and Fishoil Sector Actions to Protect Seafood Security and Contribute to a Seafood Security Charter for all Ocean Users to Protect Seafood Security</i>
	Donal Maguire, Executive Director, Irish Fisheries Board <i>- Aquaculture Actions to Protect Seafood Security and Contribute to a Seafood Security Charter for all Ocean Users to Protect Seafood Security</i>
	Kristjan Thorinson, Deputy Director, Fisheries Association of Iceland <i>- Iceland Fisheries Sector Actions to Protect Seafood Security and Contribute to a Seafood Security Charter for all Ocean Users to Protect Seafood Security</i>

SESSION 3	Ports, Coastal Waters and Marine Environmental Quality: What kinds of best practices are needed in nearshore waters, ports and across the sectors to maintain and improve the quality of the marine environment? What kind of approaches, tools and innovations are making a difference?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Jan Fransen, Executive Manager, Green Award • Marcel Van Parys, Manager Marine Environment Department, Jan De Nul
<i>Speakers</i>	René Kolman, Executive Secretary, International Association of Dredging Companies; Permanent representative, PIANC task group on climate change - <i>Environmental Improvements in Dredging</i>
	Peter Glazebrook, Health, Safety and Environment, Rio Tinto - <i>Best Practices in Dredging</i>
	Kim Lau, Research Manager, National Centre for Sensor Research, Dublin City University - <i>Coastal water quality monitoring</i>
	James Russell, Renewables Development and Project Support Manager, Harland & Wolff - <i>H&W's Evolution towards Renewable Energy & Decommissioning</i>

15 JUNE	TUESDAY
1400-1530	3 Concurrent Sessions
SESSION 4	Renewable Energy from Crowded Seas: What are the synergies and economies of scale in wind, wave and tidal energy development and how can interactions with other ocean industries best be addressed?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Chris Campbell, Executive Director, Ocean Renewable Energy Group • Eoin Sweeney, Head, Ocean Energy Development Unit, Sustainable Energy Ireland
<i>Speakers</i>	Neil Davidson, Public Affairs Manager, European Ocean Energy Association - <i>EU Development Roadmap for Ocean Energy</i>
	Eoin Sweeney, Head, Ocean Energy Development Unit, Sustainable Energy Ireland - <i>Evolving Perspectives on Marine Renewable Energy in Ireland</i>
	Anne Marie O'Hagan, Hydraulics & Maritime Research Centre (HMRC), University College Cork, Ireland - <i>Ocean Energy in Ireland: Policy and Planning</i>
	Jochen Bard, Head of Marine Energy Systems, Institute for Wind Energy and Energy System Technology; Vice chair of the Implementing Agreement Ocean Energy System of the Int. Energy Agency (IA OES) - <i>Oceans of Synergies: Combined Ocean Energy and Other Uses</i>
SESSION 5	Marine Ecosystem Services and Climate Change: What are the roles and incentives for industry to maintain or enhance marine ecosystems, especially as they are being affected by climate change?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Louisa Wood, Head, Marine Assessment & Decision Support Programme, UNEP World Conservation Monitoring Centre (WCMC) • Chris Wilcox, Marine and Atmospheric Research, CSIRO, Australia
<i>Speakers</i>	David Osborn, Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, UNEP - <i>Blue Carbon: The Role of Healthy Oceans in Binding Carbon</i>
	James Spurgeon, Technical Director, Environmental Economics, ERM - <i>Corporate Ecosystem Valuation in the Marine Environment</i>
	Samantha Burgess, Senior Research Manager, Oceans Programs, Earthwatch Institute - <i>Corporate Partnership Potential for Tackling Marine Climate Issues</i>

SESSION 6	Arctic Marine Ecosystem Challenges and Opportunities: How can the responsible, sustainable development of the Arctic be enhanced through cross-sectoral industry leadership and coordination?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Jack Belcher, Partner, Energy North America • James Corbett, Professor, Earth, Ocean, and Environment, University of Delaware
<i>Speakers</i>	Jeanne Pagnan, Director, Twin Dolphins - <i>Arctic Issues and Challenges for the Private Sector</i>
	Malcolm Lowings, Principal, and Leader, Northern Action Plan and Circum-Arctic Services, Golder Associates - <i>Arctic Council's Arctic Marine Shipping Assessment (AMSA): Arctic Circle Policy Developments and Implications for Ocean Industries</i>
	Bill Streever, Senior Environmental Studies Advisor, Alaska, BP - <i>North Slope Science Initiative: Collaboration across Sectors and Disciplines in northern Alaska</i>
	Michele Longo Eder, Commissioner, U.S. Arctic Research Commission - <i>U.S. Arctic Fisheries</i>

15 JUNE	TUESDAY
1600-1730	3 Concurrent Sessions
SESSION 7	Climate Change and Ocean Use: Are there opportunities for cross-sectoral ocean industry leadership, innovation and synergies in addressing climate change causes and impacts?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Peter Hinchliffe, Marine Director, International Chamber of Shipping (ICS) • Ian Voparil, Project Specialist for Sensitive Areas, Shell
<i>Speakers</i>	Peter Hinchliffe, Marine Director, International Chamber of Shipping - <i>Post-Copenhagen, Emissions and Ocean Industries</i>
	James Corbett, Professor, College of Earth, Ocean, and Environment, University of Delaware - <i>Climate Change: Implications for Shipping</i>
	Ian Hudson, Senior Manager, Corporate Responsibility and Environment, Transocean - <i>Emissions from Drilling Installations: The Future</i>
	Britt-Mari Kullas-Nyman, General Manager, Environmental Services, Wärtsilä Corporation - <i>Ocean Industry Synergies in Reducing Emissions Through Innovative Technologies</i>
	Judith Shapiro, Policy Officer, Carbon Capture and Storage Association - <i>Carbon Capture and Storage: Tapping Into the Global CO2 Storage Potential Below the Sea</i>
SESSION 8	Biosecurity and Invasive Species: How can diverse ocean industries collaborate to address the shared problem of marine invasive species?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Dan McClary, Executive Marine Scientist, Sinclair Knight Merz Consulting • Aron Sorensen, Chief Marine Technical Officer, BIMCO
<i>Speakers</i>	Jose Matheickal, Chief Technical Advisor, Global Ballast Water Programme, IMO - <i>IMO Globallast Program</i>
	Melanie Moore, Global Head of Environment, Wallenius Wilhelmsen Logistics - <i>Shipping and Marine Invasives</i>
	Ashley Coutts, Principal Scientist, Biofouling Solutions - <i>Emerging Biofouling and Invasive Marine Species Legislation in Australia and New Zealand: Implications for Industry</i>
	Marcel Van Parys, Manager Marine Environment Department, Jan De Nul - <i>Dredging Industry and Marine Invasives</i>

SESSION 9	Regional Ocean Industry Alliances: What can we learn from regional cross-sectoral industry leadership and coordination on shared ocean use, sustainability and development?
<i>Chair(s)</i>	<ul style="list-style-type: none"> Alastair Wilkie, Chair, UK Cable Protection Committee; Director, Marine & Programs, Hibernia Atlantic Tim Norman, Senior Manager Planning, The Crown Estate
<i>Speakers</i>	Saara Kankaanrinta, Secretary-General and Co-founder, Baltic Sea Action Group BSAG - <i>Baltic Sea Action Group: Catalyzing Tangible Industry Action and High Level Political Involvement</i>
	Colin Pringle, PISCES Project Manager, WWF - <i>Partnerships Involving Stakeholders in the Celtic Sea Ecosystem (PICES)</i>
	Carleen Lyden-Kluss, Executive Director, North America Marine Environment Protection Association (NAMEPA) - <i>Shipping Industry Alliances for the Ocean Protection: The North America Marine Environment Protection Association</i>
	Lowri Pryce, Executive Officer, Ocean Watch Australia - <i>OceanWatch Australia – working in partnership with the seafood industry for a better environment</i>

16 JUNE	WEDNESDAY
0830-1000	3 Concurrent Sessions
SESSION 10	Ocean Industries and Ocean Science: How can ocean industries collaborate to improve science that in turn supports safe and environmentally sound ocean use?
<i>Chair(s)</i>	<ul style="list-style-type: none"> Ian Hudson, Senior Manager, Corporate Responsibility and Environment, Transocean Peter Glazebrook, Health, Safety and Environment, Rio Tinto
<i>Speakers</i>	Robert Finney, Senior Environmental Advisor, BP - <i>Industry-Academic Collaboration in Deep Sea Science: The DELOS Project</i>
	Samantha Smith, Environmental Manager, Nautilus Minerals - <i>Deep Ocean Seafloor Mineral Extraction: Environmental Responsibility</i>
	Joanna Parr, Stream Leader, Novel Marine Industries, Wealth from Oceans Flagship, CSIRO Australia - <i>Building and Balancing Australia's Marine Industries: Meeting the Scientific Challenge</i>
	Tony Morrall, Director of ECMAR (European Council for Maritime Applied R&D) - <i>Towards an Integrated Marine and Maritime Science Community</i>
	Philip (Chris) Reid, Professor of Oceanography, Sir Alistair Hardy Foundation for Ocean Science, Representing Scientific Committee on Ocean Research/International Association for the Physical Sciences of the Oceans (SCOR/IAPSO) Working Group 133 - <i>OceanScope: A New Paradigm for Observing the Global Ocean in Partnership with the Merchant Marine</i>
SESSION 11	Environmental Education and Training for Marine Professionals: What are the education and training needs required for maritime professionals to address the environmental concerns of shipping and other maritime industry operations?
<i>Chair(s)</i>	<ul style="list-style-type: none"> David Patraiko, Director of Projects, The Nautical Institute George Hoyt, Global Maritime Education and Training Association (GlobalMET); Founder, NewsLink Services Ltd and Face Of Shipping
<i>Speakers</i>	Richard Catt, Environmental Manager, Carnival UK - <i>Environmental Education for Staff at Sea and Ashore</i>
	Eelco Leemans, ProSea - <i>Lessons from 10 Years of Marine Environmental Awareness Training for Business</i>
	Nickie Butt, Senior Lecturer in Maritime Studies, Southampton Solent University - <i>Is Compliance Enough? The Gap Between Training and Education</i>
	Julie Lithgow, Head of Business Intelligence, Pole Star - <i>Environmental Awareness in Other Industries: Lessons and Ideas for the Shipping Industry</i>

SESSION 12	Risk and Ocean Environmental Issues: How can ocean industries best manage uncertainty while making progress as responsible ocean businesses?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Karen M. Hansen, Esq., Beveridge & Diamond, P.C. • Ketil Djonne, Vice President for External Relations, DNV
<i>Speakers</i>	Karen M. Hansen, Esq., Beveridge & Diamond, P.C. - <i>Regulatory Framework and Gaps</i>
	Ole Øystein Aspholm, Business Development Manager, Department for Safety and Environmental Risk Management, DNV - <i>Environmental Risk Analysis as a Management Tool to Mitigate Risk</i>
	Ian Voparil, Project Specialist for Sensitive Areas, Shell - <i>Perspective of Energy-Based Industry Uses</i>
	Garrett Monaghan, Partner, Arthur Cox - <i>Delivering Ocean Projects</i>

16 JUNE	WEDNESDAY
1030-1200	3 Concurrent Sessions
SESSION 13	Ocean Industries and Marine Mammal Interactions: What are the opportunities for synergies and economies of scale in the research and development of solutions to the impacts of sound and ship strikes on marine mammals?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Rodger Melton, Chief Environmental Scientist, Exxon Mobil • Steve Huvane, Marine Consultant, Heidmar Inc.
<i>Speakers</i>	John Young, Exxon Mobil (Chair, Oil industry Joint Implementation Project on Sound and Marine Life) - <i>Oil Industry Collaboration in Improving the Science of Marine Sound and Marine Life</i>
	Bill Streever, Senior Environmental Studies Advisor, Alaska, BP - <i>Marine Mammals and Ship Strikes: An Issue of Increasing Concern</i>
	David Hedgeland, HSEQ Environment Manager, PGS Geophysical - <i>Marine Seismic Surveys and Marine Mammal Monitoring/Mitigation</i>
	Brandon Southall, President, Southall Environmental Associates (presented by C. Clark) - <i>Progress on vessel-quieting efforts for large commercial ships</i>
	Christopher Clark, Johnson Director Bioacoustics Research Program, Cornell University - <i>Influences of Ocean Industry Sounds on Marine Mammals and their Habitats</i>
SESSION 14	Vessels, Structures and Marine Environmental Quality: What kinds of best practices are needed on-board and across the sectors to maintain and improve the quality of the marine environment? What kind of approaches and innovations are making a difference?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Robert McLenehan, Principal, Golder Associates • Alastair Fischbacher, General Manager, Marine, Rio Tinto
<i>Speakers</i>	Ilkka Herlin, Chairman, Cargotec - <i>Environment Is an Essential Part Of An Ocean Company Strategy: Public-Private Efforts Are Essential to Sustainable Seas</i>
	Jan Fransen, Executive Manager, Green Award - <i>The Role of Ship Crew Behavior in Relation to Water Pollution</i>
	Rich Pruitt, Director, Environmental Programs, Royal Caribbean Cruise Lines - <i>Ensuring the Best Net Environmental Benefit from your Actions</i>
	Rachel O'Donnell, Decommissioning Business Development Manager, Veolia - <i>Decommissioning of Offshore Platforms</i>

SESSION 15	Marine Debris: How can ocean industries most effectively prevent, control and remove sea-based marine debris?
<i>Chair(s)</i>	<ul style="list-style-type: none"> • Tom Piper, UK Coordinator, Local Authorities International Environmental Organization (KIMO International) • Christine McCoy, Manager, External Affairs, Covanta Energy
<i>Speakers</i>	<p>David Osborn, Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, UNEP - <i>Global and Regional Responses to Marine Debris</i></p> <p>Tom Piper, UK Coordinator, Local Authorities International Environmental Organization (KIMO International) - <i>Marine Debris, Lost Containers and Fishing For Litter</i></p> <p>Christine McCoy, Manager, External Affairs, Covanta Energy - <i>Fishing for Energy: A Public-Private Partnership to Combat Marine Debris</i></p> <p>Rene Mansho, Communications Manager, Schnitzer Steel Hawaii - <i>Derelict Fishing Gear Conversion of Waste To Energy</i></p> <p>Sergei Tambiev, Project Manager, UNEP/GEF Project: Russian Federation - Support to the National Programme of Action for the Protection of the Arctic Marine Environment - <i>Marine Debris Cleanup Experience in the Russian Arctic</i></p>

17 JUNE	Thursday
Seminar	Marine Spatial Planning - What Ocean Industries Need to Know
<i>PANEL A</i> <i>0800-1000</i>	<p>Marine Spatial Planning: Creating a Common Understanding</p> <ul style="list-style-type: none"> • What is marine spatial planning (MSP) and why has it become such a rapidly emerging approach to addressing the use of marine areas and resources? • How are different governments developing and implementing MSP? • What does MSP mean to stakeholders, especially the environment sector, and what are their expectations? • Why have ocean industries often not been well engaged in the developments leading to MSP's importance? • What is the scope and pace of MSP, e.g. are all areas and sectors included or will there be a step-wise progression in planning?
<i>Moderator</i>	➤ John Richardson, FIPRA International, former head of the EC Maritime Policy Task Force
<i>Panelists</i>	<p>Tundi Agardy, Executive Director, Sound Seas - <i>Introduction to MSP</i></p> <p>Mike Cowling, Chief Scientist, The Crown Estate, UK - <i>MSP and Science</i></p> <p>Sandra Whitehouse, The Ocean Conservancy - <i>MSP and Ecosystem Based Management/Conservation</i></p> <p>Michael Lloyd, LCA Europe - <i>MSP and Land Use Planning: Socio-Economic Cost-Benefit Analysis In and Around Ports</i></p> <p>Jamie Moore, Marine Spatial Planning Manager, The Crown Estate - <i>MSP Experience In the UK</i></p> <p>James Massey, Senior Marine Scientist, RPS, Ireland - <i>Implications of the Marine Strategy Directive and Its implementation In the UK and Ireland</i></p> <p>Haitze Siemers, Head of Unit, Maritime Policy for the North Sea, Baltic Sea and landlocked countries, DG MARE, European Commission - <i>MSP Experience In the EU</i></p> <p>Leslie Ann McGee, Batelle - <i>MSP Experience In the US</i></p>

1015-1030	- Break -
PANEL B 1030-1200	<p>Marine Spatial Planning: Information Systems, Tools and Approaches</p> <ul style="list-style-type: none"> • What data are needed for planning and how can the best science and data be used in planning? • Are existing data sufficient for marine spatial planning and if not, what new data are needed? • How can emerging on-line and mapping tools be used to help planners understand the tradeoffs inherent in marine spatial planning?
Moderator	➤ Linwood Pendleton, Director of Ocean and Coastal Policy, The Nicholas Institute at Duke University
Panelists	Charles Steinback, Director of Marine Planning, Ecotrust - <i>You're Crowding My Space! Engaging and Transparent Tools That Illuminate the Human Dimension of Marine Spatial Planning</i>
	Phil Osborne, Senior Consultant, Golder Associates - <i>Washington State Decision Making for Renewable Ocean Energy</i>
	Martin Bryde, Deputy Director General , Department of Aquaculture, Seafood and Markets, Norwegian Ministry of Fisheries and Coastal Affairs - <i>Aquaculture case study</i>
	Louisa Wood, Head, Marine Assessment & Decision Support Programme, UNEP World Conservation Monitoring Centre (WCMC) - <i>Artificial Intelligence for Ecosystem Services (ARIES) for Marine Industries</i>
	Pat Halpin, Associate Professor, Duke University and Principle Investigator of the OBIS-SEAMAP information system - <i>Incorporating Ocean Biodiversity Data Into MSP: The Role of the Ocean Biogeographic Information System (OBIS) & OBIS-SEAMAP</i>
	Chris Wilcox, Marine and Atmospheric Research, CSIRO, Australia - <i>Are Incentives More Cost-Effective Than Marine Reserves for Managing Human Impacts on Marine Systems?</i>
PANEL C 1200-1330	<p>Marine Spatial Planning: Industry Perspectives</p> <ul style="list-style-type: none"> • What is needed from industry to make sure that MSP outcomes will reflect their needs to ensure economic viability? • Are there needs and opportunities for cross-sectoral industry leadership and coordination on MSP? • At what geographic scale is industry collaboration most likely to be useful? National? Regional?
Moderator	➤ Tim Norman, Senior Manager Planning, The Crown Estate
Panelists	Chris Campbell, Executive Director, Ocean Renewable Energy Group - <i>Renewable Ocean Energy Industry</i>
	Zoë Crutchfield, Offshore Environment Manager, Mainstream Renewable Power - <i>Offshore Wind Energy Industry</i>
	Glória Rodrigues, Senior Research Officer, EWEA - European Wind Energy Association - <i>Offshore Wind Energy Industry</i>
	John Holmyard, Offshore Shellfish - <i>Aquaculture Industry</i>
	Rich Pruitt, Director, Environmental Programs, Royal Caribbean Cruise Lines - <i>Cruise Line Tourism Industry</i>
	Randy Rice, Seafood Technical Program Director, Alaska Seafood Marketing Institute - <i>Fisheries Industry</i>
	Steve Huvane, Marine Consultant, Heidmar Inc. - <i>Shipping Industry</i>

	Samantha Smith, Environmental Manager, Nautilus Minerals - <i>Seabed Mining Industry</i>
	Ian Voparil, Project Specialist for Sensitive Areas, Shell - <i>Oil and Gas Industry</i>
	Alasdair Wilkie, Chair, UK Cable Protection Committee; Director, Marine and Programs, Hibernia Atlantic - <i>Submarine Cable Industry</i>

Appendix 2 List of Participants

Name	Surname	Position	Organization
Tundi	Agardy	Executive Director	Sound Seas
Domenico	Andreis	European Business Development Officer	Golder Associates
Jochen	Bard	Vice-chair, Executive Committee	Fraunhofer IWES
Jack	Belcher	Director	National Ocean Policy Coalition
Sheila	Bennett	Program Analyst	Bonneville Power Administration
Martin	Bryde	Deputy Director General	Norwegian Ministry of Fisheries and Coastal Affairs
Robin	Buchannon	Assistant Vice Chancellor	The University of Mississippi
Samantha	Burgess	Senior Research Manager, Oceans Programs	Earthwatch Institute
Robin	Burns	Director - European Operations	Jasco Applied Sciences (UK) Ltd
Nicola	Butt	Lecturer in Maritime Studies	Southampton Solent University
Chris	Campbell	Executive Director	Ocean Renewable Energy Group
Richard	Catt	Environmental Manager	Carnival UK
Elie	Chachoua	Researcher	Center for Energy Marine Transportation & Public Policy - Columbia University
Chris	Clark	Johnson Director Bioacoustics Research Program	Cornell University
Stephen	Coan	President & CEO	Sea Research Foundation, Inc
Lawrence	Cobain	Steel Construction & Renewables	Harland and Wolff Heavy Industries Limited
James	Corbett	Professor	University of Delaware
Ashley	Coutts	Principal Scientist	Biofouling Solutions PTY Ltd
Mike	Cowling	Chief Scientist	The Crown Estate
Zoë	Crutchfield	Offshore Environment Manager	Mainstream Renewable Power
Neil	Davidson	Public Affairs Manager	Aquamarine Power
Jamie	Dick	Reader, Behaviour, Ecology & Environmental Biology	Queens University Belfast
Gary	Dinn	Vice President	PanGeo Subsea
Shannon	Dionne	International Affairs Specialist	NOAA Office of International Affairs
Ketil	Djonne	Vice President for External Relations	Det Norske Veritas (DNV)
Bob	Eder	Commercial Fisherman	Fisherman Involved in Natural Energy (FINE)
Ghassan	Ejeh	Senior Vice President	BESIX Group
Michael	Engell-Jensen	Executive Director	International Association of Oil and Gas Producers (OGP)
Alan	Evans	Marine Geoscientist	National Oceanography Centre
Shay	Fennelly	Journalist	Aquaphoto
Robert	Finney	Senior Environment Advisor	BP International
Alastair	Fischbacher	General Manager	Rio Tinto
Ellena	Fotinos	Coordinator	Center for Energy Marine Transportation & Public Policy - Columbia University
Jan	Fransen	Managing Director	Green Award Foundation
Dave	Garforth	Seafood Director	Global Trust Certification
Peter	Glazebrook	Principal Advisor - HSE	Rio Tinto
Lucy	Greenhill	Offshore Industries Advisor	Joint Nature Conservation Committee
David	Gunn	Commercial Director	Scottish Association for Marine Science
Peter	Hall	Corporate Development Manager	Earthwatch Institute
Patrick	Halpin	Associate Director	Duke University
Karen	Hansen	Principal	Beveridge & Diamond P.C
Jesper Bo	Hansen	President	TORM USA
David	Hedgeland	HSEQ Environment Manager	PGS Geophysical
Ilkka	Herlin	Chairman	Cargotec Corporation
Peter	Hinchliffe	Marine Director	International Chamber of Shipping
Dominick	Hoare	Joint Active Underwriter	Munich Re Underwriting
Nicki	Holmyard	Freelance Journalist	Freelance Journalist
John	Holmyard	Managing Director	Offshore Shellfish
George	Hoyt	Founder	Face of Shipping
Ian	Hudson	Senior Manager Corporate Responsibility & Environment	Transocean
Stephen	Huvane	Marine Consultant	Heidmar Inc
Imogen	Ingram	Secretary Treasurer	Island Sustainability Alliance CIS Inc.
Saara	Kankaanrinta	Secretary-General and Co-founder	Baltic Sea Action Group

René	Kolman	Secretary General	International Association of Dredging Companies (IADC)
Britt-Mari	Kullas-Nyman	General Manager, Environmental Services	Wärtsilä Corporation
Johanna	Lagan	Marketing Executive	Invest NI
Michelle	Lapinski	Director, Corporate Practices	The Nature Conservancy
Kim	Lau	Research Manager	National Centre for Sensor Research, Dublin City University
Peter	Lawrence	MaRS Programme Manager	The Crown Estate
Daniel	Lee	BAP Standards Coordinator	Global Aquaculture Alliance
Jihyun	Lee	Environmental Affairs Officer	UNEP/CBD Secretariat
Eelco	Leemans	Director	ProSea Foundation
Julie	Lithgow	Head of Business Intelligence	Pole Star
Michael	Lloyd	Director	LCA Europe
Ronán	Long	Jean Monnet Chair of European Commercial Law	Marine Law & Ocean Policy Research Services Ltd
Michele	Longo Eder	Commissioner	U.S. Arctic Research Commission
Olivia	Louw		Lauritzen Offshore Services A/S
Malcolm	Lowings	Principal and Leader	Golder Associates
Carleen	Lyden-Kluss	Executive Director	North America Marine Environmental Protection Association (NAMEPA)
Donal	Maguire	Executive Director	Bord Iascaigh Mhara
Rene	Mansho	Community Relations Director	Schnitzer Steel Hawaii Corp.
Ben	Marich	Director	Professional Marine Explorers Society
Peter	Marshall	CEO / Managing Director	Global Trust Certification
James	Massey	Senior Marine Scientist	RPS Group
Jose	Matheickal	Chief Technical Advisor	Global Ballast Water Management Programme, IMO
Dan	McClary	Executive Marine Scientist	Sinclair Knight Merz
Christine	McCoy	External Affairs Manager	Covanta Energy
Leslie Ann	McGee	Director, Ocean and Coastal Solutions	Battelle
Robert	McLenehan	Principal	Golder Associates
Catherine	McManus	Technical Manager	Marine Harvest Ireland
Kate	McQuaid	Senior Environmental Consultant	AECOM
Luis	Melges	Managing Director	Golder Associates
Rodger	Melton	Chief Environmental Scientist	ExxonMobil
Garrett	Monaghan	Partner	Arthur Cox
Jamie	Moore	Marine Spatial Planning Manager	The Crown Estate
Melanie	Moore	Global Head of Environment	Wallenius Wilhelmsen Logistics
Tony	Morrall	Director	ECMAR
Holly	Niner	Offshore Industry Advisor	JNCC
Tim	Norman	Senior Manager, Planning	The Crown Estate
Terri	O'Donnell	Business Development Director	Invest NI
Rachel	O'Donnell	Decommissioning Business Development Manager	Veolia
Anne-Marie	O'Hagan	Research Fellow	Hydraulics and Maritime Research Centre, UCC
David	Osborn	Coordinator, Global Programme of Action for the Protection of the Marine Environment from Land-based Activities	United Nations Environment Programme
Phil	Osborne	Senior Consultant	Golder Associates
Daniel	Owen	Barrister	Fenners Chambers
Jeanne	Pagnan	Director	Twin Dolphins
Joanna	Parr	Leader, Novel Marine Industries	Commonwealth Scientific and Industrial Research Organisation (CSIRO), Wealth from Oceans Flagship
David	Patraiko	Director of Projects	The Nautical Institute
Fred	Pearce	Environmental Consultant	New Scientist
David	Peel	UK Director	RightShip UK
Linwood	Pendleton	Director Ocean & Coastal Policy	Nicholas Institute, Duke University
Michele	Petochi	Head of University Community	World Economic Forum
Alisdair	Pettigrew	Director	Blue Communications
Tom	Piper	UK Coordinator	KIMO International
Colin	Pringle	PISCES Project Manager	WWF - UK
Richard	Pruitt	Director Environmental Programs	Royal Caribbean Cruises Ltd

Lowri	Pryce	Executive Director	Ocean Watch Australia
Philip (Chris)	Reid	Professor of Oceanography	SAHFOS, Plymouth UK. SCOR/IAPSO Working Group 133
Jim	Renner	Sustainability Leader	Golder Associates
Randy	Rice	Seafood Technical Director	Alaska Seafood Marketing Institute
John	Richardson	Special Advisor on Marine Affairs	FIPRA International
Julian	Roberts	Environmental Manager	OMV E&P GmbH
Glória	Rodrigues	Senior Research Officer	EWEA - European Wind Energy Association
Christopher Grøvdal	Rønbeck	Advisor	Norwegian Ministry of Fisheries and Coastal Affairs
Mike	Rose	Business Manager	Global Trust Certification
Anna	Roslund	Sustainability Development Manager	Findus Group
Axel	Rosberg	Research Fellow	Queens University Belfast
Phil	Rouget	Biologist	Golder Associates
James	Russell	Renewables Development and Project Support Manager	Harland and Wolff Heavy Industries Limited
Waddah	Saab	Coordinator EU Strategy for Marine and Maritime Research	European Commission
Timo	Schubert	Associate Director	ADS Insight
Judith	Shapiro	Policy Officer	Carbon Capture and Storage Association
Jonathan	Shepherd	Director General	International Fishfeed and Fishoil Organisation (IFFO) Ltd
Haitze	Siemers	Head of Unit, Maritime Policy for the North Sea, Baltic Sea and landlocked countries	European Commission
Melanie	Siggs	Vice President Sustainable Markets	SeaWeb
Julia	Sigwart	Laboratory Director	Queen's University Belfast
Ingrid	Skarstein	Advisor Environmental Issues	Norwegian Seafood Export Council
Cera	Slevin	Project Manager, ESBI Ocean Energy	ESB International
Neville	Smith	Correspondent	Fairplay Shipping Weekly
Samantha	Smith	Environmental Manager	Nautilus Minerals Inc.
Aron	Sørensen	Chief Marine Technical Officer	BIMCO
James	Spurgeon	Technical Director, Environmental Economics	ERM Ltd
Charles	Steinback	Director of Marine Planning	Ecotrust
Bill	Streever	Senior Environmental Studies Advisor	BP
Eoin	Sweeney	Head of Low Carbon Technologies	Sustainable Energy Authority of Ireland
Peter	Swift	Managing Director	International Association of Independent Tanker Owners (INTERTANKO)
Kuba	Szymanski	Secretary General	International Ship Managers Association (InterManager)
Sergei	Tambiev	Project Manager	UNEP/GEF Russian Arctic Project
Isabelle	Terrier	Research Programme Officer	European Commission
Kristján	Thórarinnsson	Deputy Director	Fisheries Association of Iceland
Marcel	Van Parys	Manager Marine Environment Department	Jan De Nul n.v.
Ian	Voparil	Project Specialist	Shell - Upstream International
Rebecca	Warder	Associate	Holman Fenwick Wilan
Wojciech	Wawrzynski	Professional Secretary for Scientific Cooperation	International Council for the Exploration of the Sea (ICES)
Sandra	Whitehouse	Senior Advisor	The Ocean Conservancy
Chris	Wilcox	Senior Scientist - Marine Ecology	Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Alasdair	Wilkie	Chairman	United Kingdom Cable Protection Committee (UKCPC)
Louisa	Wood	Head, Marine Assessment & Decision Support Programme	UNEP World Conservation Monitoring Centre (WCMC)
John	Young	Geophysical Advisor	ExxonMobil Exploration Company
Jenny	Young	Director- Republic of Ireland	Invest NI
Terri	Young	Programme Officer	UNEP-WCMC

Appendix 3 ROIAL Participants

Name	Surname	Title	Organization
Aron	Sorensen	Chief Marine Technical Officer	BIMCO
Judith	Shapiro	Policy Officer	Carbon Capture and Storage Association
Rich	Pruitt	Committee member	Cruise Line Industry Association
Chris	Campbell	Executive Director	Ocean Renewable Energy Group
Dan	Lee	Coordinator, Best Aquaculture Practice Standards	Global Aquaculture Alliance (GAA)
Rene	Kolman	Secretary General	International Association of Dredging Companies (IADC)
David	Hedgeland	Chair, Environment Committee	International Association of Geophysical Contractors (IAGC)
Peter	Swift	Managing Director	International Association of Independent Tanker Owners (INTERTANKO)
Michael	Engell-Jensen	Executive Director	International Association of Oil and Gas Producers (OGP)
Peter	Hinchliffe	Marine Director	International Chamber of Shipping (ICS)
Ghassen	Ejeh	Director, past President	International Desalination Association (IDA)
Jonathan	Shepherd	Director General	International Fishfeed and Fishoil Organisation (IFFO)
Carleen	Lyden-Kluss	Executive Director, NAMEPA	North America Marine Environment Protection Association (NAMEPA)
Dominick	Hoare	Joint Active Underwriter, Munich Re Underwriting Ltd,	International Union of Maritime Insurers (IUMI)
Kuba	Szymanski	Secretary General	International Ship Managers Association (InterManager)
David	Patraiko	Director of Projects	Nautical Institute
Jochen	Bard	Vice-chair, Executive Committee	Ocean Energy Systems Implementing Agreement of the IEA
Ben	Marich	Director	Professional Marine Exploration Society
Alasdair	Wilkie	Chairman	UK Cable Protection Committee (UKCPC)