Global Ocean Industry Leadership in Governance for a Sustainable Maritime Supply Chain

Paul Holthus, CEO
World Ocean Council
paul.holthus@oceancouncil.org

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Supply chain – the flow of goods and services between the point of origin and point of consumption

A variety of modes and operational scales…

Global Scale

Local Scale

"This is my supply chain."
Major growth in attention to “greening the supply chain” and “green shipping”

“Green shipping”:
- Largely driven by climate change concerns
- Focused on reducing atmospheric emissions
- Addressing energy consumption and fuel use
Supply Chain/Logistics
+ Shipping + Air Environment

Technological Measures
• More efficient (energy-saving) engines
• More efficient propulsion
• More efficient ship hulls
• “Cold ironing” in ports
• Cleaner fuels (low sulphur content)
• Alternative fuels (fuel cells, biofuels, etc)
• Devices to trap exhaust emissions (scrubbers, etc)

Market-based Instruments
• Emissions Trading Scheme (ETS)
• Carbon Levy
Addressing Atmospheric Impacts through Supply Chain/Logistics Measures

Significant industry efforts underway to reduce emissions through:

- Optimal ship speed
- Optimal ship size
- Routing and scheduling
- Fleet deployment
- Fleet size and mix
- Weather routing
- Intermodal network design
- Modal split
- Transshipment
- Queuing at ports
- Terminal management
- Berth allocation
Supply Chain/Logistics + Shipping + Marine Environment

Global ocean
- Interconnected ‘commons’
- Trans-boundary, fluid, dynamic system
- Issues and impacts are connected

Shipping, logistics, the global economy and the global marine environment are linked

Shipping requires:
- Political license
- Social license
- Access
Shipping as part of Global Ocean Economic Activity

Submarine Cables

Seabed Mining

Deepwater Oil

Shipping

Offshore Wind

Fisheries
Global Ocean Industry and Sustainable Development

• Private sector is a fundamental, essential partner in ocean sustainable development

• Ocean sustainable development and cannot succeed without constructive collaboration with those undertaking ocean economic activities, i.e. ocean business community

• Many companies are making significant efforts and progress in responsible ocean economic activity

• Leadership companies are increasingly working on international, multi-sectoral ocean sustainability leadership through the World Ocean Council
Growing Ocean Use

- Shipping
- Mariculture/Aquaculture
- Offshore oil and gas
- Mining / Seabed mining
- Fisheries
- Cruise and coastal tourism
- Dredging
- Submarine cables/pipelines
- Offshore wind energy
- Wave/tidal energy
- Ports/marinas
- Recreational boating/use
- Desalination
- Navy/military use
- Carbon sequestration

Expanding
- Kinds of use
- Levels of activity
  - Duration
  - Intensity
  - Frequency
- Location of activity
  - Geographical Extent
  - Frequency
The Multiple Use Ocean
Ocean Ecosystem Impacts
Trends Affecting Ocean Economic Activity

- Precautionary Approach
  - Marine Protected Areas
  - Ecosystem Based Management
    - Marine Spatial Planning/Ocean Zoning
    - Marine Biodiversity Conservation
    - High Seas Concerns
    - Ocean Governance Changes
      - Sustainable Development Goals

= an increasingly complex and challenging business environment for ocean industries

Smart companies will realize the policy, planning and operational risks and opportunities these trends create
The Ocean Business Community Challenge

- Ocean industries require access and social license to use ocean space and resources
- Many of the critical issues creating impacts and affecting access and social license are cross-cutting or cumulative
- Sustaining ocean health and productivity requires responsible use and stewardship by all users
- Best efforts by a single company, or an entire industry sector, are not enough to secure ocean health
- Ocean industries will benefit from collaboration with other sectors to create synergies and economies of scale to address impacts and ensure access and social license
- Need structure/process for leadership and collaboration
International, Cross-Sectoral Business Leadership Alliance

- Bringing ocean industries together, e.g. shipping, oil/gas, fisheries, aquaculture, tourism, offshore renewables, etc.
- Catalyzing private sector leadership and collaboration in
  - Advancing “Corporate Ocean Responsibility”
  - Communicating responsible ocean industry/economy
- 85+ members worldwide; 35,000+ in global network

Goal  Healthy, productive global ocean and its sustainable use and stewardship by responsible ocean business community

Creating business value for responsible companies
- Access and social license for responsible ocean use
- Synergies and economies of scale in addressing issues
- Stability and predictability in ocean operations
## World Ocean Council Members

<table>
<thead>
<tr>
<th>3W Marine Pty Ltd</th>
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<td>Almi Tankers S.A.</td>
<td>Guangxi Penshibao Co., Ltd</td>
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<td>Arctic Fibre</td>
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<td>Resolute Marine Energy</td>
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<td>IHC Mining</td>
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<td>Intl Ass’n of Geophysical Contractors</td>
<td>Rio Tinto</td>
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<td>BigBlueStuff</td>
<td>Intl Chamber of Shipping (ICS)</td>
<td>Royal Greenland A/S</td>
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<td>BHM Penlaw</td>
<td>Intl Tankers Owners Pollution Fed. (ITOPF)</td>
<td>Sanford Limited</td>
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<td>JASCO Applied Sciences</td>
<td>Scottish Marine Institute - SAMS</td>
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<td>Shipping HK Forum Ltd</td>
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<td>Cape Breton University</td>
<td>Keppel Offshore and Marine</td>
<td>Southall Env’tal Assoc (SEA)</td>
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<td>Stena Bulk AB</td>
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<td>Center for the Blue Economy</td>
<td>Liquid Robotics</td>
<td>SubCtech</td>
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<td>CESI- Engineering &amp; Environment Division</td>
<td>Lloyds Register</td>
<td>Tai Chong Cheang (TCC) Steamship Co HK</td>
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<td>M3 Marine (Offshore Brokers) Pte Ltd</td>
<td>Terragon Environmental Technologies</td>
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<td>Coastal India Development Council</td>
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<td>TierraMar Consulting</td>
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<td>Total Marine Solutions</td>
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<td>Memorial University – Marine Institute</td>
<td>Twin Dolphins</td>
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<td>University of Massachusetts Boston</td>
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<td>Univ. Texas Marine Science Inst.</td>
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<td>N America Marine Env’t Protection Assn.</td>
<td>Vieira de Almeida &amp; Associates (VdA)</td>
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<td>FOB</td>
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<td>Zodiac Maritime</td>
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Global Ocean Industry Leadership

1. Ocean Policy and Governance
   - UNCLOS/BBNJ; Convention on Biological Diversity, etc.

2. Marine Spatial Planning / Ocean Zoning

3. Operational Environmental Issues
   - Sound and Marine Life; Marine Mammal / Vessel Interactions
   - Port Reception Facilities; Biofouling / Invasive Species

4. Regional Ocean Business Councils
   - Arctic, Caribbean, W. Indian Ocean, SE Asia

5. Smart Ocean / Smart Industries
   - Data from Industry Vessels/Platforms of Opportunity

6. Sea Level Rise / Extreme Weather Events
   - Port/coastal infrastructure adaptation and resiliency

- Sustainable Development Goals for the Ocean
- Ocean Investment Platform
Global Ocean Industry Leadership: 

Ocean Policy and Governance

UN Convention on the Law of the Sea (UNCLOS)
• Negotiating new “Implementing Agreement” re environment in Areas Beyond National Jurisdiction
• Proposed EIA for commercial activities in ABNJ

Convention on Biological Diversity (CBD)
• Identifying Ecologically / Biologically Significant Areas (EBSAs) for management, esp for ABNJ
• EIA for marine areas, esp for ABNJ

UN Sustainable Development Goals for 2015-2030
• Ocean development goal and targets

WOC is usually the only industry presence in these inter-governmental negotiations affecting future of the ocean economic activity
UN General Assembly decided that **before the end of 2017:**

- Urgently address biodiversity conservation/sustainable use in Areas Beyond National Jurisdiction (ABNJ)

- **Develop a “binding implementing agreement” under UNCLOS to create requirements for:**
  - **Area-based management** tools, such as marine planning and marine protected areas
  - **Environmental impact assessment** (EIA) requirements
  - The **transfer of marine technology**
  - Managing marine genetic resources, including benefit-sharing

- Include consideration of:
  - Identification and selection of conservation measures for EBSAs
  - Regional identification of MPAs in ABNJ
  - Activity types to be regulate
  - Establishing enforcement measures
Ecologically / Biologically Significant Areas

Areas meeting CBD criteria for EBSAs and proposed for inclusion in EBSA register

e.g. Sargasso Sea
“Hamilton Declaration on Collaboration for Conservation of the Sargasso Sea”

- Signed by Bermuda, UK, US, Monaco, Azores, 11 March 2014
- Establish Sargasso Sea Commission and Secretariat
- Develop proposals using best science, ecosystem approach and precautionary approach, including for:
  - “Measures to control, minimize, and where possible, eliminate the adverse effects of international shipping”
  - “Measures to minimize... the adverse effects of fishing activities”
  - “Any other measures to maintain the health, productivity and resilience of the Sargasso Sea and to protect its components... from the adverse effects of anthropogenic activities”
Increase the level of informed, coordinated and proactive involvement of private sector in ocean governance and policy developments that impact business:

• Monitor, analyze and report on ocean policy developments
• Ensure industry input to key ocean policy events, e.g. UN
• Provide updates on ocean policy at key industry events
Global Ocean Industry Leadership: Marine Spatial Planning / Ocean Zoning

- Ensure ocean business community is informed of ocean planning process and plans
- Examine how ocean planning has worked and review the role of industry
- Define and examine the potential business impacts and benefits of ocean planning
- Determine how industry can optimize potential ocean planning benefits and minimize the impacts
- Develop coordinated business community engagement in ocean planning
- Ensure that ocean planning takes into account the viability of responsible ocean economic activities
The Sea is Crowded with Many Uses

- Tourism
- Oil & gas
- Mariculture
- Coastal defence
- Ports & navigation
- Military activities
- Culture
- Conservation
- Submarine cables
- Dredging & disposal
- Renewable energy
- Marine recreation
- Mineral extraction
- Fishing
WOC Program on MSP

- Create a clear industry understanding about MSP
- Examine how MSP has worked and the role of industry
- Define and examine the potential business impacts and benefits of MSP
- Determine how industry can optimize potential MSP benefits and minimize the impacts
- Ensure the ocean business community is fully informed of MSP process and plans
- Develop a coordinated business community strategy and action plan for engaging in MSP
- Ensure MSP takes into account responsible ocean economic activities
Global Ocean Industry Leadership: 
Operational Environmental Issues

- **Marine Waste and Debris/Water Quality**
  - Port Reception Facilities Platform
  - Solid waste/Plastics

- **Marine Invasive Species**
  - Biofouling Platform

- **Marine Sound**
  - Marine Sound Platform

- **Marine Mammal Interactions**
  - Ship strikes
Global Ocean Industry Leadership: Regional Ocean Business Leadership

Priority areas:

• Arctic, Mediterranean, Caribbean, W Indian Ocean, SE Asia

• Bringing together the range of marine industries in the region to create cross-sectoral business collaboration on sustainability, science and stewardship

• Priority issues in various regions include:
  • Collaborating with inter-governmental bodies
  • Reducing water pollution, protecting biodiversity
  • Preventing maritime accidents
  • Avoiding the introduction of invasive species
  • Reducing/cleaning up marine debris
  • Improving marine science and observations
Global Ocean Industry Leadership: Smart Ocean – Smart Industries

Ensure a wide range of industry vessels and platforms are:
• Providing routine, sustained, standardized information on the ocean and atmosphere
• Contributing to describing the status, trends and variability of oceanographic and atmospheric conditions
• Improving the understanding, modeling and forecasting of oceanic ecosystems, resources, weather, climate variability and climate change

Establish a program to:
• Expand the number of vessels and platforms that collect standardized ocean, weather and climate data
• Improve the coordination and efficiency of data sharing and input to national/international systems
• Build on “ships/platforms of opportunity” programs
Opportunities of Ships

50,054 ships (Oct 2010)
- Tankers: 13,175
- Bulk Carriers: 8,687
- Container ships: 4,831
- Passenger ships: 6,597

Figures in brackets are numbers of ships, by sector.
Source: IHS Fairplay October 2010
Other Ship and Platform Opportunities

- Oil and gas
- Fisheries
- Aquaculture
- Offshore wind energy
- Wave/tidal energy
- Ferries
International Ship/Platform Data Collection

Comprehensive
• Incorporates needs and opportunities from different industries
• Addresses ocean, weather and climate data needs

Scaleable
• Within industries
• Across industries
• Upgradeable over time

Entry Options
• Retrofit – existing vessels and platforms
• Newbuild

Cost-Efficient
• Synergies – within and between industries
• Economies of scale
Smart Ocean-Smart Industries: How it works

WOC...

- Engages scientific institutions to identify:
  - Priority data collection needs and areas
  - Appropriate, cost-effective, ship-suitable technology

- Identifies and recruits companies:
  - With vessels/platforms operating in priority areas
  - Interested hosting instruments / sharing data

- Instigates and facilitates working relationship between the company and the scientific institution

- Monitors, coordinates and supports interaction between company and scientific institution

- Ensures industry data collection efforts are efficient, cost effective and contribute to national and international public science programs
Smart Ocean/Smart Industries: Next Steps

• Develop joint Industry/Science Steering Committee
• Define value proposition/rationale for industry and science
• Inventory of existing ships/platforms of opportunity programs
• Define the “menu of options” for voluntary observations
• Define interface requirements for platforms / payload
• Develop the principles, practice and platform for industry data sharing and access

• Develop pilot projects to put “Smart Industries” to work
  – Country, e.g. Danish fleet
  – Regional, e.g. Arctic, Caribbean
  – Parameters, e.g. ocean pH, bathymetry
  – Extreme weather or ocean events, e.g. tsunamis
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<tr>
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<th>Goal Description</th>
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<tr>
<td>1</td>
<td>End Poverty End poverty in all of its forms everywhere</td>
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<td>2</td>
<td>Achieve Food Security End hunger, achieve food security and improved nutrition, and promote sustainable agriculture</td>
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<tr>
<td>6</td>
<td>Ensure Water and Sanitation for All Ensure availability and sustainable management of water and sanitation for all</td>
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<tr>
<td>7</td>
<td>Ensure Access to Energy Ensure access to affordable, reliable, sustainable, and modern energy for all</td>
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<tr>
<td>8</td>
<td>Promote Sustainable Economic Growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</td>
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<td>9</td>
<td>Build Resilient Infrastructure Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</td>
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<tr>
<td>10</td>
<td>Reduce Inequality Among Countries Reduce inequality within and among countries</td>
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<tr>
<td>11</td>
<td>Make Cities Sustainable Make cities and human settlements inclusive, safe, resilient and sustainable</td>
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<td>12</td>
<td>Ensure Sustainable Consumption and Production Ensure sustainable consumption and production patterns</td>
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<tr>
<td>13</td>
<td>Combat Climate Change Take urgent action to combat climate change and its impacts</td>
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<td>14</td>
<td>OCEAN Conserve and sustainably use the oceans, seas and marine resources for sustainable development</td>
</tr>
<tr>
<td>15</td>
<td>Protect Terrestrial Ecosystems Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</td>
</tr>
<tr>
<td>16</td>
<td>Promote Peaceful Societies Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</td>
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<tr>
<td>17</td>
<td>Strengthen Means of Implementation Strengthen the means of implementation and revitalize the global partnership for sustainable development</td>
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Specific Targets of the Ocean SDG

- Preventing and significantly reducing marine pollution of all kinds – by 2025.
- Sustainably managing and protecting marine and coastal ecosystems to avoid significant adverse impacts – by 2020.
- Conserving at least 10% of coastal and marine areas – by 2020.
- Minimizing and addressing the impacts of ocean acidification – no target date.
Specific Targets of the Ocean SDG - cont

• Restoring fish stocks by regulating harvesting, ending overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing, and implementing science-based management – by 2020.

• Prohibiting certain fisheries subsidies which contribute to overcapacity and overfishing, eliminating subsidies that contribute to IUU fishing, and refraining from introducing new such subsidies – by 2020.

• Increasing the economic benefits to small island developing states and least developed countries from the sustainable use of marine resources – by 2030.
SDGs and the Ocean Industries

What do the SDGs and the *Ocean SDG* mean for the ocean business community?

• For the ocean business community as a whole?
  o Especially the broad, cross-cutting *Ocean SDG* goals: reducing pollution, avoiding ecosystem impacts, increasing protected areas?

• How can ocean industries provide leadership and collaboration to ensure the SDGs for the ocean…
  o …are practical and implementable?
  o …support responsible economic activity?
  o …advance development that can be sustained?

How can governments, industry and other ocean stakeholders best collaborate on ocean sustainable development?
WOC Ocean SDGs Initiative

Engage the ocean business community to develop SDG targets and indicators…

2015
• Inform ocean business community about SDGs (ongoing)
• Analyze SDGs re ocean industries (report completed)

2016
• Develop draft targets and indicators with/for ocean business community (underway)
• Engage/consult other stakeholders for input
• Ocean SDG Targets for Business Workshop
  - Sustainable Ocean Summit, Rotterdam, 30 Nov-2 Dec
Global Ocean Industry Leadership:
Ocean Investment Platform

A structure and process to bring together:

• **Leadership companies** from major ocean use sectors, e.g. fishing, aquaculture, shipping, offshore energy, etc.

• **Enterprises** that provide the solutions - innovation, technology, products, services or information

• **Investors**
Ocean Investment Platform: Value

Value of a global cross sectoral platform…

- **Catalyse interaction** among ocean users, solution providers and investors.
- **Provide a common process** to identify, articulate and evaluation of ocean industry priorities for investment in sustainability solutions.
- **Facilitate synergies and economies of scale** among investors, innovation initiatives and challenge competitions to more effectively address ocean sustainable development needs and opportunities.
Ocean Investment Platform: Function

The platform will serve as the place to...

- **Characterize the issues and challenges** of ocean sustainable development that are affecting major ocean users
- **Articulate the opportunities**, solutions and innovation
- **Identify the solution providers**
- **Elaborate and evaluate the investment opportunities**
- **Foster and facilitate investment community interaction** with the ocean users and the solution providers
Ocean Investment Platform: Progress, Plans

Ocean Investment Platform development is underway:

• WOC Sustainable Ocean Summit session on Investment and Innovation, Nov 2015
• WOC presentation at Sovereign Wealth Fund Institute Summit, Singapore, April 2016
• Ocean Investment Platform Workshop at Sustainable Ocean Summit (SOS), Rotterdam, 30 Nov-2 Dec 2016

Initial investment portfolio areas under consideration:

• Waste reduction/reuse on vessels
• Port adaptation/Resilient coastal infrastructure
• Marine debris/Port reception facilities
• Sustainable aquaculture
• Offshore renewable energy
• Technology for ocean data collection
Global Ocean Industry Leadership: Young Professionals / Ocean Business Ed

WOC Young Ocean Professionals Network
- Global, multi-sector network of individuals
- Focus on ocean sustainable development
- Foster and facilitate future of ocean industry leadership, collaboration and innovation, e.g. exchanges, mentoring

Hello, young Danish maritime professionals, CBS students and young faculty - are you interested in participating?

WOC Ocean Business Education Network
- Global network of institutions involved in educating and training ocean industry professionals
- Focus on ocean sustainable development and governance
- Foster and facilitate business education for sustainability, e.g. curriculum development, exchanges, internships

Hello, CBS, UBC Business School and others - are you interested in being part of the startup steering group for this?
Global Ocean Industry Leadership: Sustainable Ocean Summit (SOS)

- Belfast (2010); Washington DC (2013); Singapore (2015)
- Rotterdam (30 Nov-2 Dec, 2016)

Theme: “Ocean 2030: Sustainable Development Goals and the Ocean Business Community”

- Cross-Sectoral Ocean Industry Leadership/Collaboration
- Ocean Business Community Interaction with Other Stakeholders
- Ocean Executive Forum: Multi-Sector Ocean CEO panel
- Ocean Industry and Economy Synthesis
- SOS 2016 will include start of:
  - Ocean Investment Platform
  - Young Ocean Professionals Network
  - Ocean Business Education Network
  - Maritime Cluster Alliance for Sustainable Development
WOC 4th Sustainable Ocean Summit (SOS)
Rotterdam, 30 Nov-2 Dec 2016

Paul Holthus
CEO
World Ocean Council
paul.holthus@oceancouncil.org

www.oceancouncil.org