INTERNATIONAL OCEAN INSTITUTE

CAPACITY DEVELOPMENT FOR RESPONSIBLE OCEAN GOVERNANCE

Michael J.A. Butler, Director, IOI-Canada

5th CHINA-ASEAN ACADEMY ON OCEAN LAW AND GOVERNANCE

10th – 20th November 2019
National Institute for South China Sea Studies, Haikou, Hainan

PRESENTATION OUTLINE

IOI-Canada Ocean Governance Training Program

- Background
- Target Audience and Course Length
- Course Evaluation
- Multiplier Effect
- The Alumni

Ocean Governance: emergence and definition

Ocean Literacy

Capacity Development and Critical Issues

- UN Sustainable Development Goals; Ocean Science for Sustainable Development, and the MEL Handbook
- UN Convention on Biodiversity, birth, implementation, challenges, Strategic Plan, Intergovernmental Conference on BBNJ
- Eco-system Approach, Eco-system Goods and Services
- Blue Economy
- Humans and the Ocean; fostering human health, pace of change
- The Roles of ENGOs
- The future ocean: the state of the ocean, priorities for action

IOI-CANADA

www.internationaloceaninstitute.dal.ca

INTERNATIONAL OCEAN INSTITUTE

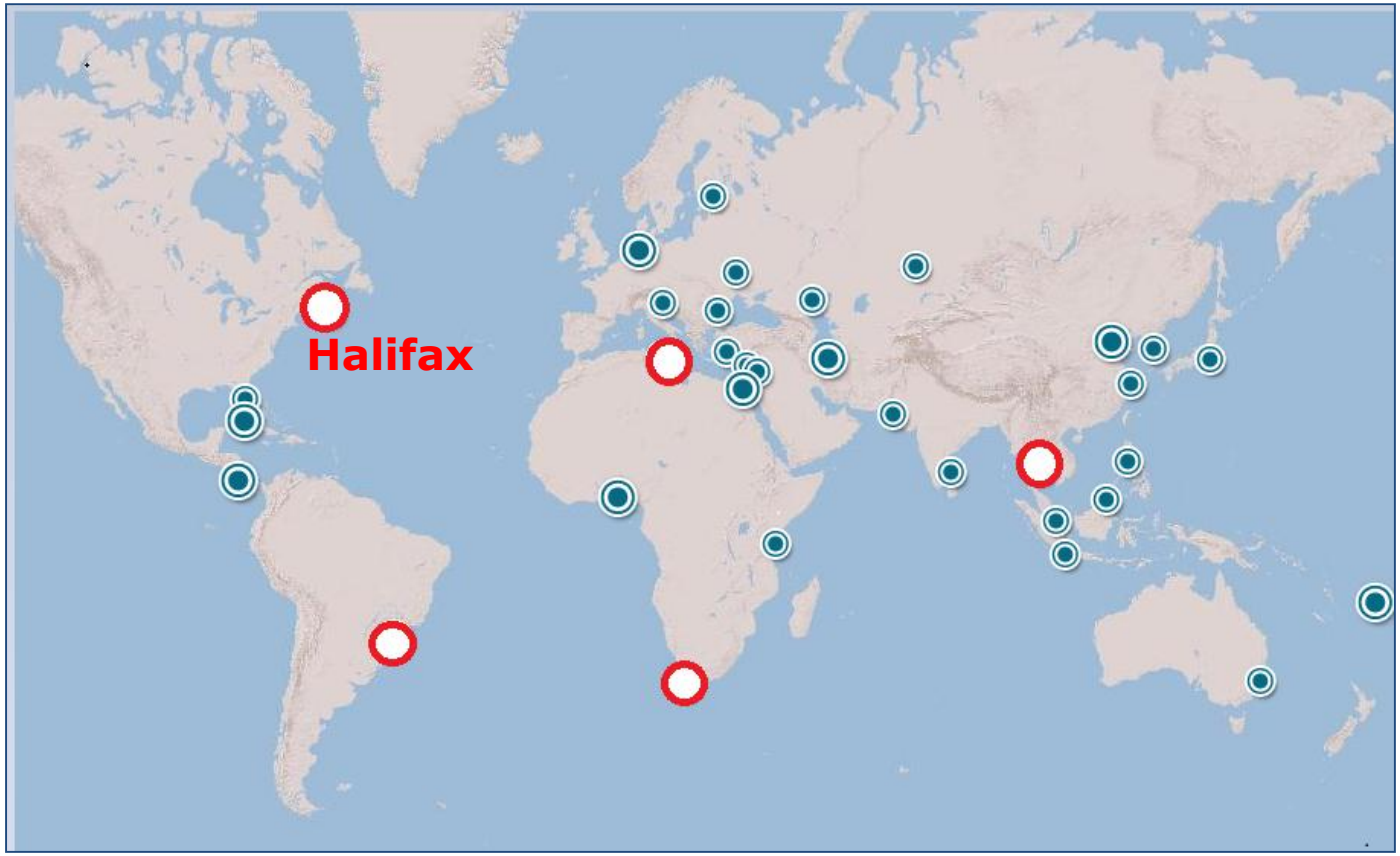
- Independent, non-profit, non-governmental organisation
- Founded in 1972 by Elisabeth Mann Borgese
- Headquartered in Malta
- Promotes responsible ocean governance worldwide
- Incorporated, with UN accreditation through ECOSOC

IOI FOUNDER

"Elisabeth Mann Borgese has been called the Mother of the Oceans and has been instrumental in encouraging world leaders to rethink our relationship with the oceans and our management of marine resources and relate it to global issues."

2002 Nobel Peace Prize Nomination

IOI-Canada: a leading member of IOI's global network of Centres & Focal Points in over 30 countries




Atlantic Provinces
N
Atlantic Ocean
Labrador
Labrador City
Quebec
Baie Comeau
St. Lawrence River
Gulf of St. Lawrence
Corner Brook
Newfoundland
St. John's
New Brunswick
Maine (USA)
Prince Edward Island
Moncton
Sydney
Charlottetown
Fredericton
Nova Scotia
Bangor
Saint John
Halifax
Lunenburg
200 km
200 mi

IOI-CANADA

- Federally incorporated NGO
- Hosted by Dalhousie University since 1979
- 40 years of experience working in Canada and internationally

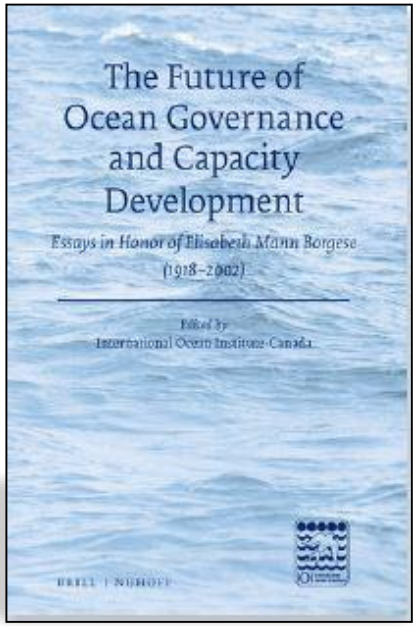
IOI-CANADA ACTIVITIES

Education and Training

- Annual eight-week Training Programme on *Ocean Governance: Policy, Law and Management*
- China–ASEAN Academies on *Ocean Law & Governance*
- IOI Massive Online Open Courses (MOOCs)

Publications and Research

- *The Future of Ocean Governance and Capacity Development* (2018)
- IOI's *Ocean Yearbook* (annual)
- IOI/mare *World Ocean Review* (series)
- Research by visiting scholars & IOI-Canada Senior Research Fellows




Elisabeth Mann Borgese
Mother of the Oceans
Elisabeth Mann Borgese
from Exile to World Citizen
Elisabeth Mann Borgese
and the Law of the Sea
Elisabeth Mann Borgese
Author, Academic, Activist
The Oceanic Circle
BORGESE
"When we deal with the oceans, everything flows, and boundaries are more fiction than reality"
Elisabeth Mann Borgese
"The ocean… compels us to think differently: philosophically, politically and practically."
Elisabeth Mann Borgese (trans. from German)
"By destroying our environment, we are destroying ourselves."
Elisabeth Mann Borgese
With funding from:
IOI Headquarters &
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Special thanks to: Karolina Kühn for her key role as Advisory Curator.

OCEAN GOVERNANCE: POLICY, LAW AND MANAGEMENT

- 8-week training programme
- International, interdisciplinary
- Mid-level professionals
- 100+ lecturers/speakers

MODULES

MODULE 1: *Orientation and Introduction to the Training Programme*

MODULE 2: *Law of the Sea and Principled Ocean Governance*

MODULE 3: *Integrated Coastal and Ocean Management*

MODULE 4: *Ocean Sciences*

MODULE 5: *Communication and Negotiation*

MODULE 6: *Fisheries and Aquaculture*

MODULE 7: *Maritime Security*

MODULE 8: *Marine Transportation*

MODULE 9: *Energy*

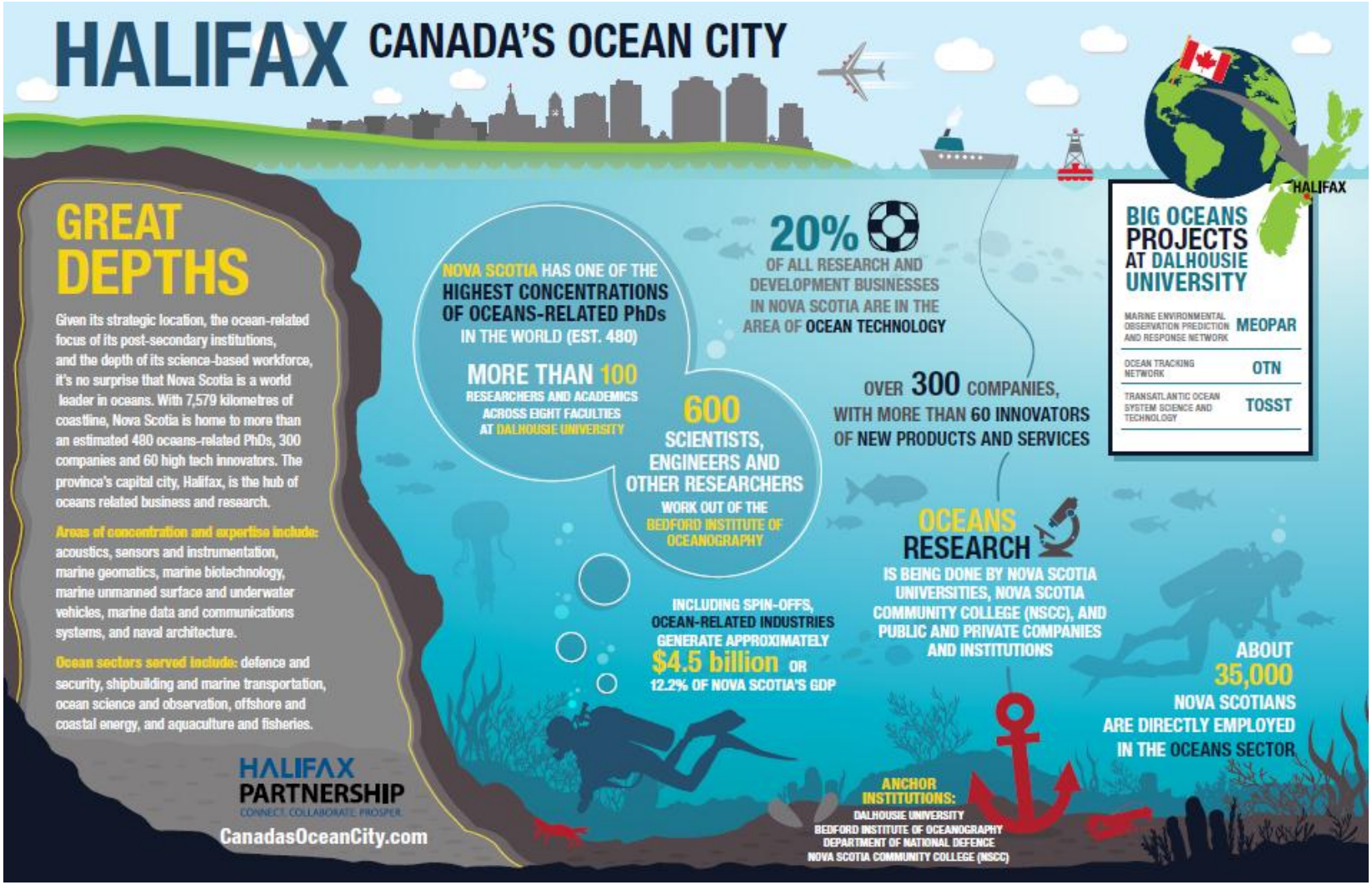
MODULE 10: *Round Table*
Conclusion of Training Programme


NAFO
Kafi

IOI-CANADA ACTIVITIES cont.

Outreach & Networking

- Public lectures, panels, workshops
- Website, Alumni Association & newsletter
- Ocean literacy & education
- Partnering with multiple academic units, NGOs, private sector


HALIFAX CANADA'S OCEAN CITY
GREAT DEPTHS
Given its strategic location, the ocean-related focus of its post-secondary institutions, and the depth of its science-based workforce, it's no surprise that Nova Scotia is a world leader in oceans. With 7,579 kilometres of coastline, Nova Scotia is home to more than an estimated 480 oceans-related PhDs, 300 companies and 60 high tech innovators. The province's capital city, Halifax, is the hub of oceans related business and research.
Areas of concentration and expertise include: acoustics, sensors and instrumentation, marine geomatics, marine biotechnology, marine unmanned surface and underwater vehicles, marine data and communications systems, and naval architecture.
Ocean sectors served include: defence and security, shipbuilding and marine transportation, ocean science and observation, offshore and coastal energy, and aquaculture and fisheries.
HALIFAX PARTNERSHIP
CONNECT. COLLABORATE. PROSPER.
CanadasOceanCity.com
NOVA SCOTIA HAS ONE OF THE HIGHEST CONCENTRATIONS OF OCEANS-RELATED PhDs IN THE WORLD (EST. 480)
MORE THAN 100 RESEARCHERS AND ACADEMICS ACROSS EIGHT FACULTIES AT DALHOUSIE UNIVERSITY
600 SCIENTISTS, ENGINEERS AND OTHER RESEARCHERS WORK OUT OF THE BEDFORD INSTITUTE OF OCEANOGRAPHY
20% OF ALL RESEARCH AND DEVELOPMENT BUSINESSES IN NOVA SCOTIA ARE IN THE AREA OF OCEAN TECHNOLOGY
OVER 300 COMPANIES, WITH MORE THAN 60 INNOVATORS OF NEW PRODUCTS AND SERVICES
INCLUDING SPIN-OFFS, OCEAN-RELATED INDUSTRIES GENERATE APPROXIMATELY $4.5 billion OR 12.2% OF NOVA SCOTIA'S GDP
OCEANS RESEARCH IS BEING DONE BY NOVA SCOTIA UNIVERSITIES, NOVA SCOTIA COMMUNITY COLLEGE (NSCC), AND PUBLIC AND PRIVATE COMPANIES AND INSTITUTIONS
ABOUT 35,000 NOVA SCOTIANS ARE DIRECTLY EMPLOYED IN THE OCEANS SECTOR
ANCHOR INSTITUTIONS:
DALHOUSIE UNIVERSITY
BEDFORD INSTITUTE OF OCEANOGRAPHY
DEPARTMENT OF NATIONAL DEFENCE
NOVA SCOTIA COMMUNITY COLLEGE (NSCC)
HALIFAX
BIG OCEANS PROJECTS AT DALHOUSIE UNIVERSITY
MARINE ENVIRONMENTAL OBSERVATION PREDICTION AND RESPONSE NETWORK MEOPAR
OCEAN TRACKING NETWORK OTN
TRANSATLANTIC OCEAN SYSTEM SCIENCE AND TECHNOLOGY TOSST

FIELD TRIPS

IOI-Canada Training Program Field Trips:

1. Bedford Institute of Oceanography (BIO)
2. Aquatron, Dalhousie University
3. Northwest Atlantic Fisheries Organization (NAFO)
4. Annapolis Valley / Bay of Fundy
5. Eastern Canada Response Corporation
6. Survival Systems Training Ltd
7. Emergency Management Organisation
8. Port of Halifax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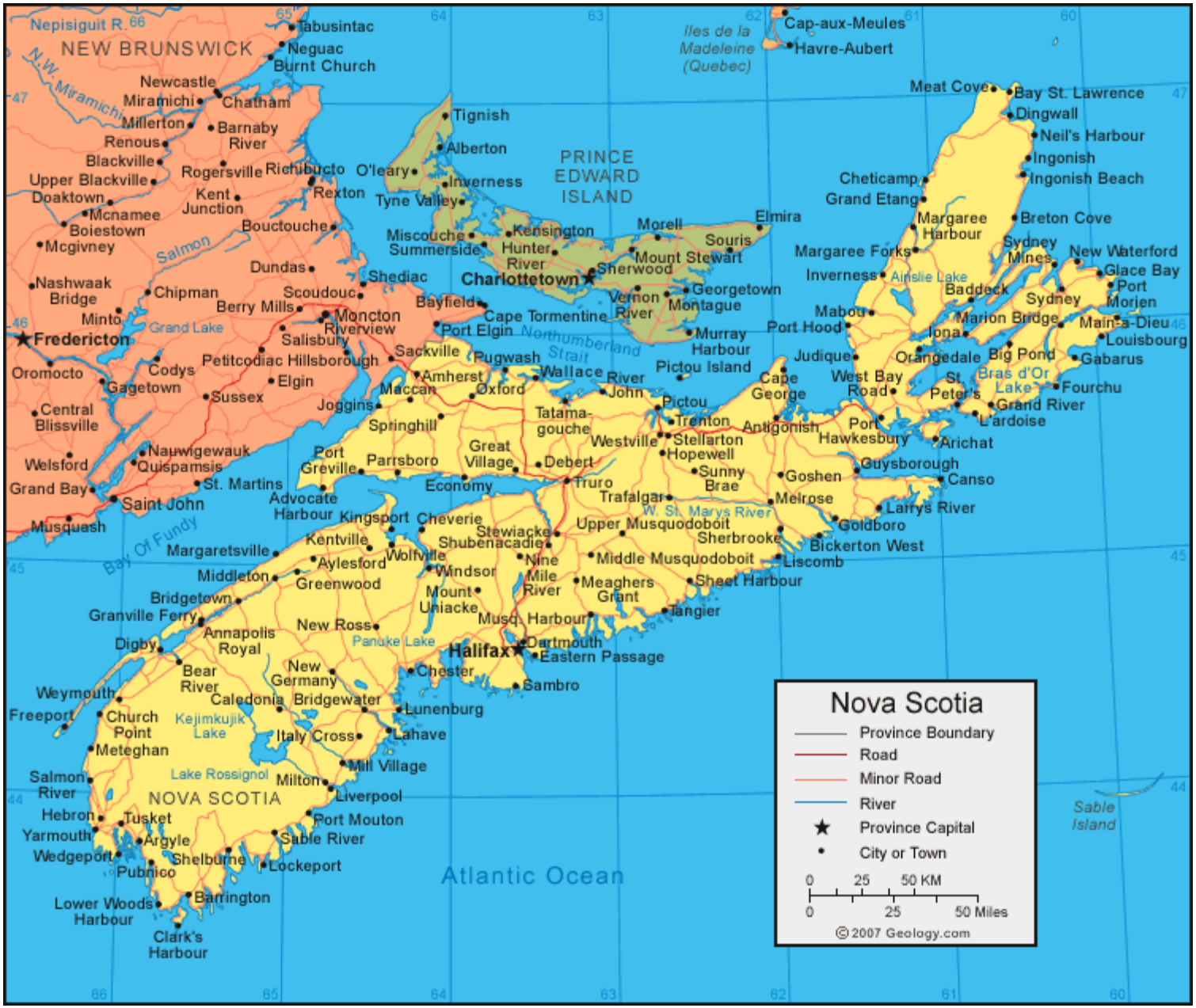

NEW BRUNSWICK
PRINCE EDWARD ISLAND
NOVA SCOTIA
Atlantic Ocean
Nepisiguit R.
N.W. Miramichi
Tabusintac
Neguac
Burnt Church
Newcastle
Miramichi
Chatham
Millerton
Barnaby River
Renous
Blackville
Rogersville
Richibucto
Upper Blackville
Doaktown
Kent Junction
Rexton
Mcnamee
Boiestown
Mcgivney
Bouctouche
Salmon
Dundas
Shediac
Nashwaak Bridge
Chipman
Scoudouc
Berry Mills
Moncton
Riverview
Minto
Grand Lake
Fredericton
Salisbury
Petitcodiac
Hillsborough
Oromocto
Codys
Elgin
Gagetown
Sussex
Central Blissville
Nauwigewauk
Quispamsis
Welsford
Grand Bay
St. Martins
Saint John
Musquash
Bay Of Fundy
Tignish
Alberton
O'leary
Inverness
Tyne Valley
Miscouche
Summerside
Kensington
Hunter River
Charlottetown
Sherwood
Morell
Souris
Mount Stewart
Elmira
Georgetown
Vernon River
Montague
Bayfield
Cape Tormentine
Port Elgin
Sackville
Pugwash
Northumberland Strait
Amherst
Wallace River
Pictou Island
Murray Harbour
Maccan
Oxford
John
Joggins
Springhill
Tatamagouche
Pictou
Trenton
Westville
Stellarton
Hopewell
Great Village
Debert
Parrsboro
Port Greville
Economy
Truro
Sunny Brae
Trafalgar
Advocate Harbour
Kingsport
Cheverie
Upper Musquodoboit
W. St. Marys River
Stewiacke
Shubenacadie
Kentville
Wolfville
Aylesford
Windsor
Nine Mile River
Middle Musquodoboit
Sherbrooke
Liscomb
Sheet Harbour
Margaretsville
Middleton
Greenwood
Mount Uniacke
Meaghers Grant
Tangier
Bridgetown
Granville Ferry
Annapolis Royal
New Ross
Musq. Harbour
Digby
Panuke Lake
Halifax
Dartmouth
Eastern Passage
Chester
Sambro
New Germany
Bear River
Weymouth
Caledonia
Bridgewater
Lunenburg
Freeport
Church Point
Kejimkujik Lake
Italy Cross
Lahave
Meteghan
Mill Village
Salmon River
Lake Rossignol
Milton
Liverpool
Hebron
Tusket
Port Mouton
Yarmouth
Argyle
Sable River
Wedgeport
Shelburne
Lockeport
Pubnico
Lower Woods Harbour
Barrington
Clark's Harbour
Cap-aux-Meules
Havre-Aubert
Iles de la Madeleine (Quebec)
Meat Cove
Bay St. Lawrence
Dingwall
Neil's Harbour
Ingonish
Ingonish Beach
Cheticamp
Grand Etang
Margaree Harbour
Breton Cove
Margaree Forks
Sydney Mines
New Waterford
Inverness
Ainslie Lake
Glace Bay
Baddeck
Port Morien
Sydney
Mabou
Marion Bridge
Main-a-Dieu
Port Hood
Iona
Louisbourg
Judique
Orangedale
Big Pond
Gabarus
West Bay Road
St. Peter's
Bras d'Or Lake
Fourchu
Cape George
Antigonish
Grand River
L'ardoise
Port Hawkesbury
Arichat
Guysborough
Canso
Goshen
Melrose
Larrys River
Goldboro
Bickerton West
Liscomb
Middle Musquodoboit
Sheet Harbour
Tangier
Sable Island
Nova Scotia
Province Boundary
Road
Minor Road
River
Province Capital
City or Town
0 25 50 KM
0 25 50 Miles
©2007 Geology.com

SIMULATION AND SCENARIO-BASED LEARNING

Origin:

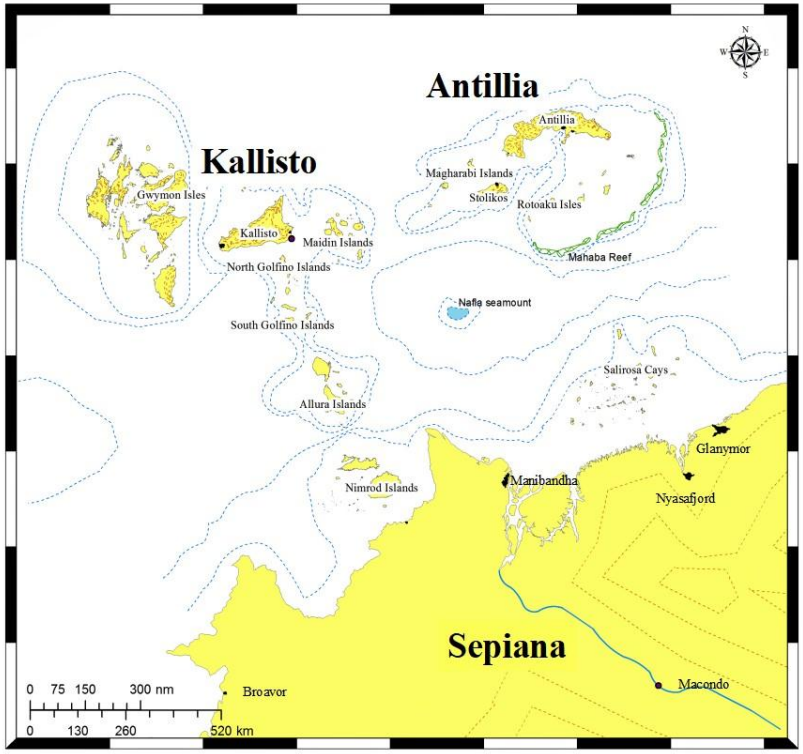
Physical simulators, games and learning exercises are not new. For example when ancient Rome challenged the maritime power of Carthage, it taught its soldiers basic rowing techniques on simulated ships ashore. More recently think of the realistic simulators of the bridge of a ship for training ships officers and the cockpit of aircraft for training pilots. In the 8 week IOI-Canada Training Program the **Simulation Exercise** has become a curriculum integration exercise and a key pedagogical tool.

Fournier and Griffiths, in The Future of Ocean Governance and Capacity Building, 2018

SIMULATION AND SCENARIO-BASED LEARNING (cont'd)

Application of the Simulation Exercise:

1. A GIS-produced map of three fictitious island and coastal nations is provided including detailed bathymetry, topography, and human settlement. Additional textual information covers politics, industry, defence, etc.



Fournier and Griffiths, in The Future of Ocean Governance and Capacity Building, 2018

SIMULATION AND SCENARIO-BASED LEARNING (cont'd)

Application of the Simulation Exercise (cont'd):

2. Each participant is asked to select an unmarked envelope. They become senior bureaucrats in government departments or members of diverse organizations in the fictitious nations.

3. They are tasked with the preparation of a national and/or a regional Coastal and Ocean Governance Plan.

4. The participants must utilise their respective experiences together with the 240 class room hours of lecture material to generate the Plan.

Fournier and Griffiths, in The Future of Ocean Governance and Capacity Building, 2018

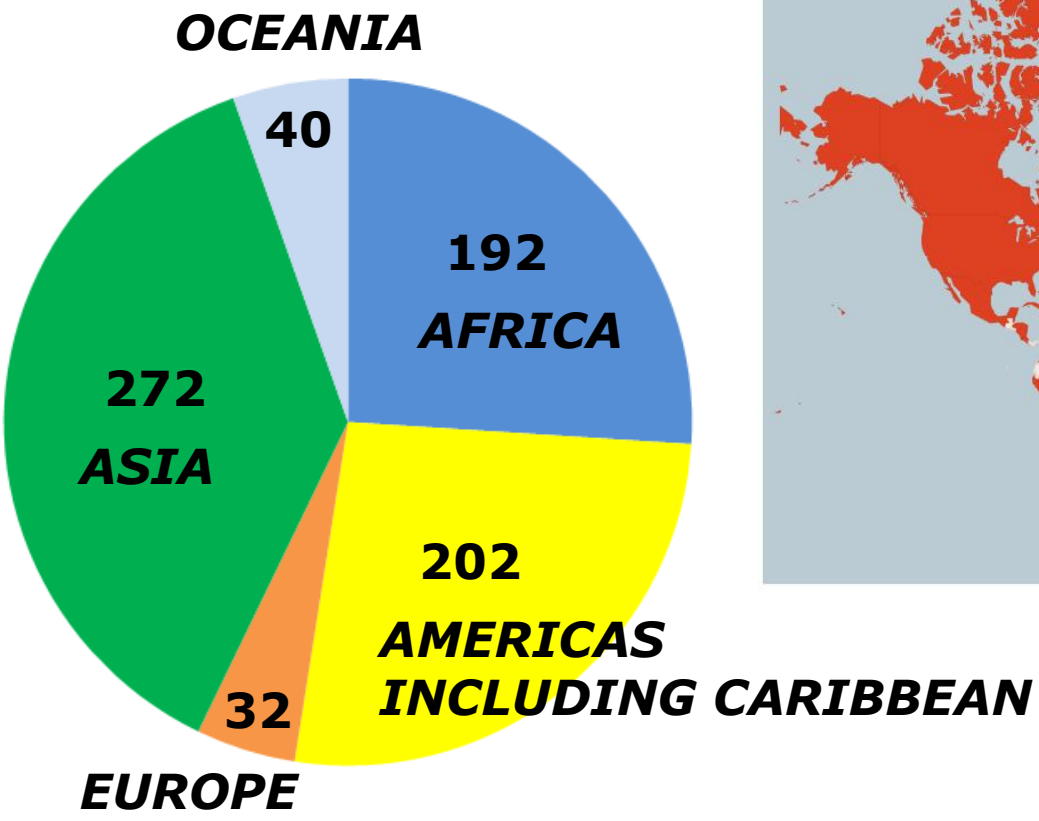
SIMULATION AND SCENARIO-BASED LEARNING (cont'd)

Application of the Simulation Exercise (cont'd):

5. A Symposium at the conclusion of the Course provides an opportunity for all participants to present their component of the Governance Plan.

Fournier and Griffiths, in The Future of Ocean Governance and Capacity Building, 2018

735+ ALUMNI FROM 100+ COUNTRIES



IOI-Canada alumni

COURSE IMPACT

Course alumni include ambassadors, UN and EU officials, academics, government ministers, naval officers…

Multiplier effect - Participants are required to share and disseminate their new knowledge and skills on returning home through e.g.:

- Workshops & seminars
- Staff training
- Short courses
- Policy development
- Academic lectures and publications
- Public outreach: media, newspaper articles, radio

ALUMNI FEEDBACK

The course was a milestone in my life. I can think of very few things that have impacted me more… I am almost a 'New Me'. Romany Rasquino, Sri Lanka

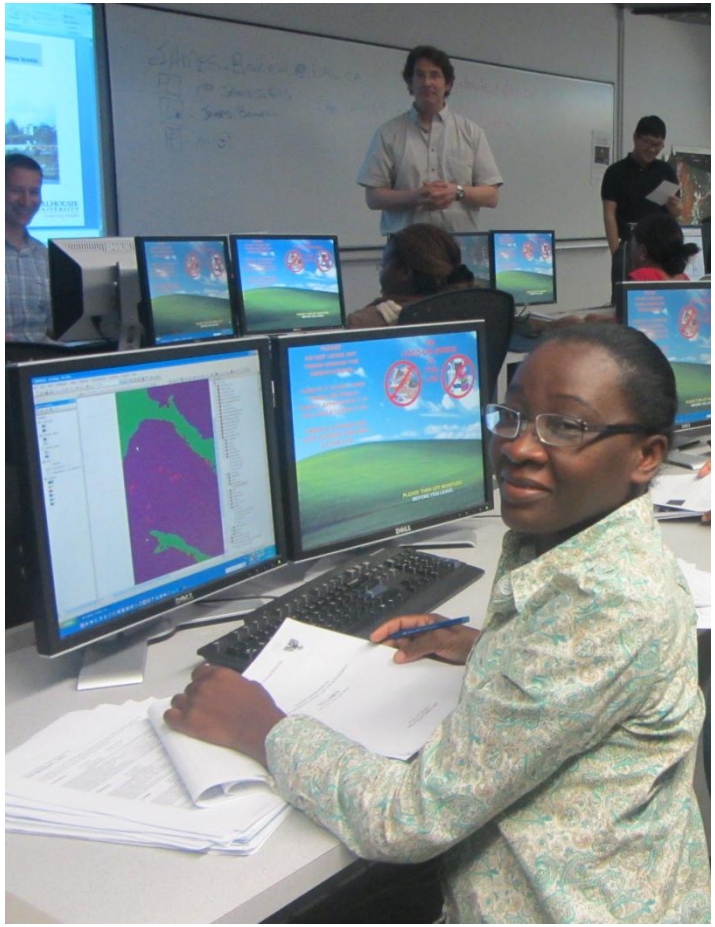
A truly unique, demanding and knowledge expanding experience for anyone regardless of years of experience and background. Tim Surette, Canada

The skills and knowledge I attained at the IOI will have a lasting impact in my work… My general view of things will never remain the same again. Benjamin Mwashote, Kenya

I feel more qualified, well informed and importantly, very confident because of this training programme. Anastacia Amoa, Samoa

After the course, I see my job now with many different angles and with the latest knowledge and technology. Nguyen Thai Hoa, Vietnam

I left many lectures saying to myself, "I could use this!" and I have. Derrick Theophille, Dominica



As they say in Africa when you educate a woman, you educate a family, a community and a nation. Flora Mutuga, Kenya

Figure 11 – Survey Results for All Modules, 2019, 2018 & 2017

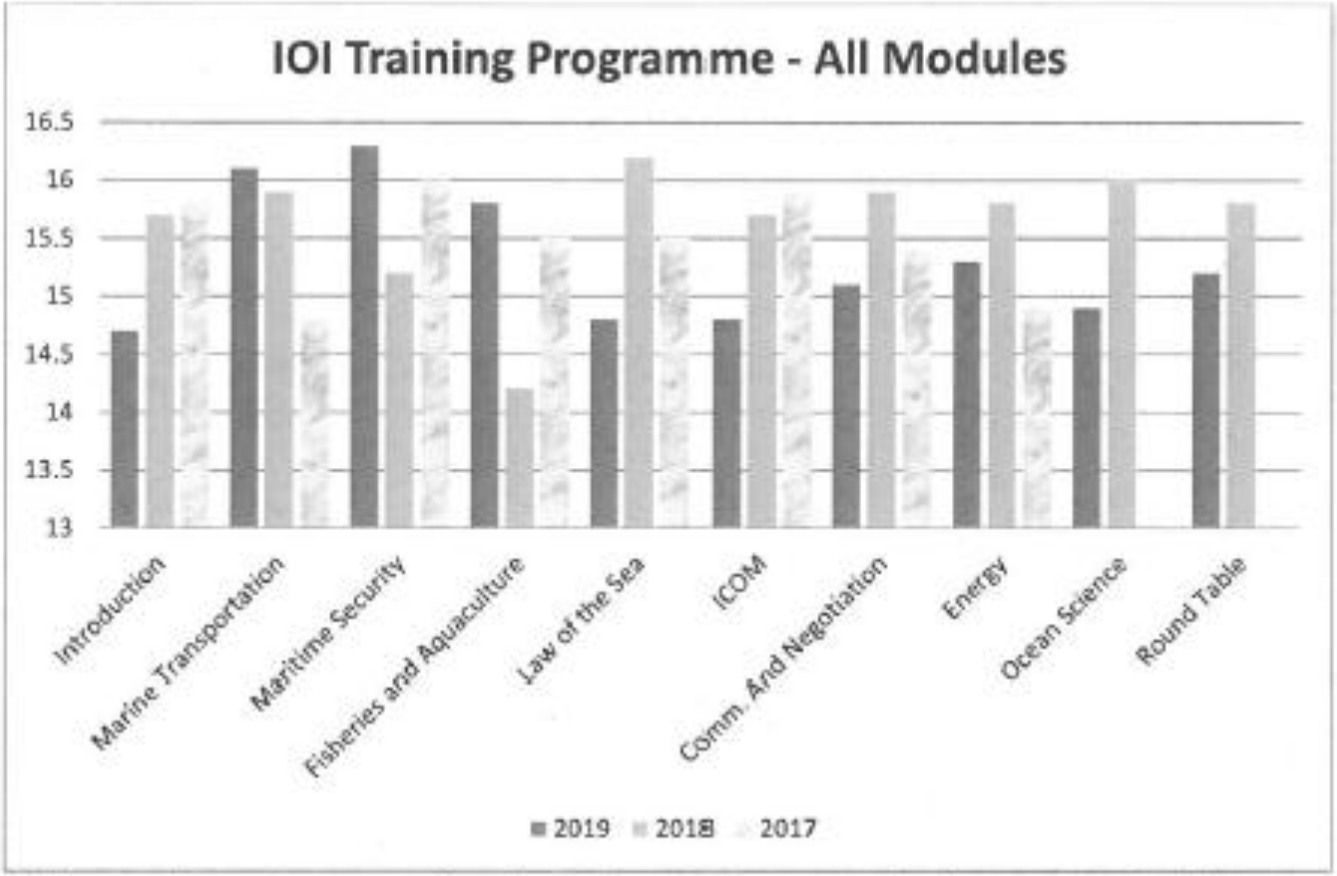


Table notes: The maximum score for each module is 17. The score in this figure is the total of all average scores for the six areas indicated in Figures 1-11. All areas are out of three and one area is out of two.

EMERGENCE OF OCEAN GOVERNANCE – THE CATALYSTS

1. 1945: US President Truman extends the coastal jurisdiction to 200 nm.
2. 1958: The first UN Conference on the Law of the Sea (UNCLOS)
3. 1960: The second UNCLOS
4. 1967: Ambassador Arvid Pardo, a Maltese diplomat, coins the phrase "Common Heritage of Mankind" re the inadequacies of international law on the oceans.
5. 1973: The third UNCLOS

M. Gupta, The New Regime for Ocean Governance, 2010

EMERGENCE OF OCEAN GOVERNANCE – THE CATALYSTS (cont'd)

6. 1982: The Law of the Sea Convention (LOSC) is adopted by the third UN Conference.
7. 1987: The World Commission on Environment and Development (WCED) and its report "Our Common Future" known as the Brundtland Report
8. 1992: UN Conference on Environment and Development (UNCED) in Rio de Janeiro (Brazil)
9. 1994: The Law of the Sea Convention (LOSC) enters into force, supplemented by two Implementing Agreements: Deep Sea Mining (1994) and Management of Straddling Stocks and Highly Migratory Stocks on the high seas (1995).

M. Gupta, The New Regime for Ocean Governance, 2010

DEFINITION OF OCEAN GOVERNANCE

Chapter 17 of Agenda 21 of UNCLOS identifies ocean governance as Sustainable Development and Integrated Management, essential components of a global life support system.

What is Sustainable Development?

Economic development to improve the quality of life of people; environmentally appropriate development; and equitable development in terms of inter-societal, intergenerational and international equity.

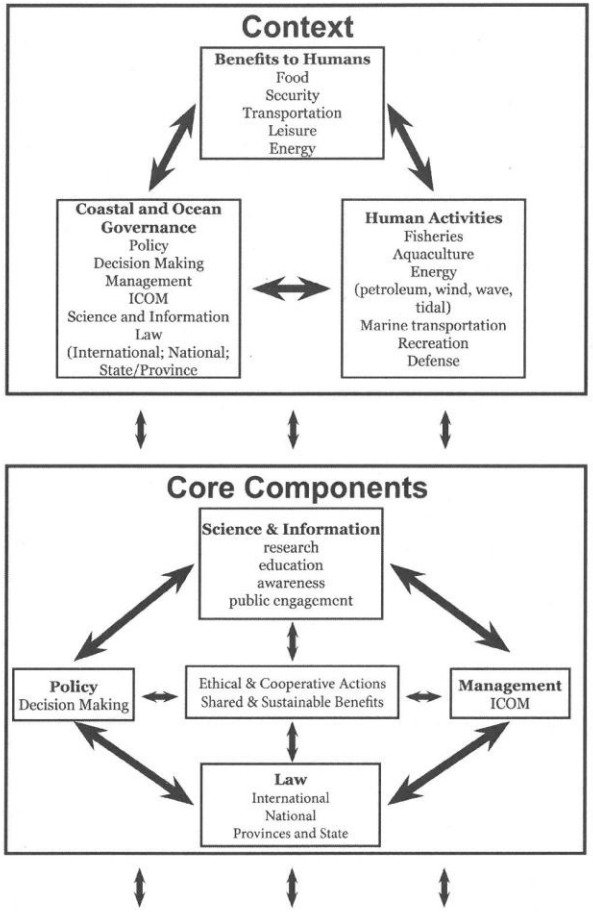
Cicin-Sain and Knecht, 1998, Integrated Coastal and Ocean Management: Concepts and Practices

DEFINITION OF OCEAN GOVERNANCE (cont'd)

What is Integrated Management?

It combines the land and adjoining water as a single unified framework, commonly described as Integrated Coastal Management (ICM); Integrated Coastal Area Management (ICAM); Integrated Marine and Coastal Area Management (IMCAM); and Integrated Coastal land Ocean Management (ICOM).

Cicin-Sain and Knecht, 1998, Integrated Coastal and Ocean Management: Concepts and Practices



Pressures on Coastal and Ocean Resources and Services

Population increase
Food security
Living space
Transportation/shipping
Food production
Leisure and quality of life
Security
Climate change
Sustainable energy
Environmental Changes

OCEAN LITERACY

An Ocean-literate Person:

1. Understands the Essential Principles and Fundamental Concepts about the ocean:
2. Can communicate about the ocean in a meaningful way; and
3. Is able to make informed and responsible decisions regarding the ocean and its resources.

Ocean Literacy-College of Education (www.coexploration.org)

OCEAN LITERACY (cont'd)

The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages:

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of Earth.
3. The ocean is a major influence on weather and climate
4. The ocean made earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably interconnected.
7. The ocean is largely unexplored.

Ocean Literacy-College of Education (www.coexploration.org)

BY THE SEA: A GUIDE TO THE COASTAL ZONE OF ATLANTIC CANADA

Modules:

1. Introductory Module
2. The Horizon - The Nearshore
3. Estuaries
4. Salt Marshes
5. Tidal Mudflats
6. Sandy Beaches and Dunes

By the Sea: A Guide to the Coastal Zone of Atlantic Canada, Department of Fisheries and Oceans Canada, 1996

BY THE SEA: A GUIDE TO THE COASTAL ZONE OF ATLANTIC CANADA (cont'd)

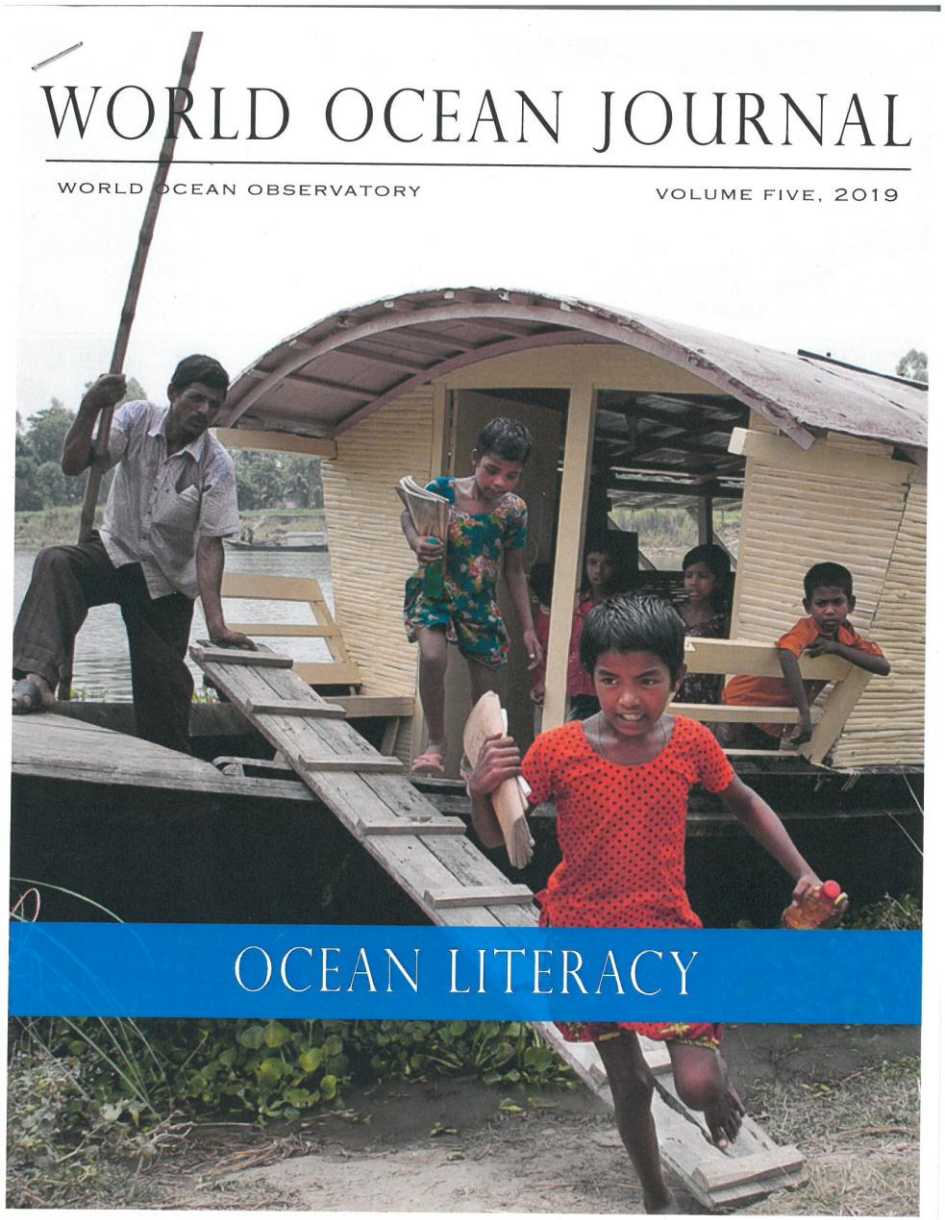
Modules:

7. Rocky Shores
8. Coastal Islands and Cliffs
9. Cobble Beaches
10. Coastal Bogs
11. Freshwater Barrier Ponds
12. Fjords
13. Activities

By the Sea: A Guide to the Coastal Zone of Atlantic Canada, Department of Fisheries and Oceans Canada, 1996

ADDITIONAL REFERENCES

1. A Canadian Ocean Literacy Strategy - http://www.canadianoceanliteracycoalition.ca/files/ocean-literacy-strategy.pdf
2. Youth and the sea: Ocean literacy in Nova Scotia, Canada. Haley Guest, Heike K. Lotze and Douglas Wallace, Marine Policy, 2015
3. Grand Design for Ocean Education in the 21st Century: Ocean Education Curriculum and Unit Plans, OPRF, The Nippon Foundation, Japan
4. Ocean School - https://oceanschool.nfb.ca


WORLD OCEAN JOURNAL
WORLD OCEAN OBSERVATORY
VOLUME FIVE, 2019
OCEAN LITERACY

Capacity Development and Critical Issues

1. Training and Capacity Building in ICM
2. Modernising Ocean Governance
3. Capacity Building for Sustainable Oceans
4. Ocean Governance Challenges in the 21st Century
5. Sustainable Development Goals
6. Ocean Science for Sustainable Development
7. The Birth of the Convention on Biological Diversity
8. Challenges for implementing the CBD
9. Strategic Plan for Biodiversity 2011-2020
10. Ecosystem Approach to Management of ocean-related Activities

Capacity Development & Critical Issues cont'd)

11. Ecosystem Goods and Services
12. The Blue Economy
13. The Roles of ENGOs in shaping Future Ocean Governance
14. Fostering Human Health through Ocean Sustainability
15. Pace of Change in Human Impact on the World's Ocean
16. The future of Ocean Governance and Capacity Development
17. State of Our Ocean, 2019 Edition
18. Priorities for Action
19. Predicting Future Oceans

TRAINING AND CAPACITY BUILDING IN ICM

Recognise the relevance of para. 17.6 and 17.5 of chapter 17 of Agenda 21 (UN Conference on Environment and Development):

17.6 *Each coastal state should consider establishing coordinating mechanisms for integrated management and sustainable development of coastal and marine areas at both local and national levels……*

17.15 *Coastal states should promote the organization of education and training in integrated management and sustainable development for all stakeholders…..*

Coastal Zone Canada 1994 pre-conference workshop, BIO, Dartmouth, Nova Scotia

TRAINING AND CAPACITY BUILDING IN ICM (cont'd)

Recommendations:

1. Analytical processes should be made available to determine needs and desired results.
2. Training and education are fundamentally linked.
3. A core curriculum serves as a catalyst and should focus on synergy and disciplinary integration.
4. The curriculum should produce graduates with analytical, planning and management abilities.
5. Regional delivery of education programmes is the most cost-effective.

Coastal Zone Canada 1994 pre-conference workshop, BIO, Dartmouth, Nova Scotia

TRAINING AND CAPACITY BUILDING IN ICM (cont'd)

Recommendations:

6. Institutions of higher learning should cooperate in the formulation of a core curriculum.
7. The emphasis should be on analytical methodologies, communication and management for First, Second and Ph.d degrees.
8. Linkages should be maintained with ongoing programmes, including those carried out by NGOs.
9. Coastal activities should be well coordinated in view of global financial constraints.

Coastal Zone Canada 1994 pre-conference workshop, BIO, Dartmouth, Nova Scotia

MODERNISING OCEAN GOVERNANCE

In the Rio +20 Declaration (2012) "the Future We Want", the UN member states stressed the importance of….

> "*the conservation and sustainable use of the oceans and seas and their resources for sustainable development, including through their contributions to poverty eradication, sustained economic growth, food security and creation of sustainable livelihoods and decent work, while at the same time protecting biodiversity and the marine environment and addressing the impacts of climate change.*"

Policy Options Paper No. 10; Third meeting of the Global Ocean Commission, November, 2013

MODERNISING OCEAN GOVERNANCE (cont'd)

Recent Trends:

1. Emergence of regionalised management via UNEP and its Regional Seas Convention
2. The UN Fish Stocks Agreement (UNFSA) emphasised the establishment of Regional Fisheries Management Organizations (RFMOs).

Policy Options Paper No. 10; Third meeting of the Global Ocean Commission, November, 2013

MODERNISING OCEAN GOVERNANCE (cont'd)

The Future:

1. Create a World Ocean Organisation to function as a global steward of the marine environment and its resources.
2. Convert RFMOs into Regional Ocean Management Organisations (ROMOs) to manage activities within an ocean basin.

Policy Options Paper No. 10; Third meeting of the Global Ocean Commission, November, 2013

CAPACITY BUILDING FOR SUSTAINABLE OCEANS

Main Findings:

1. Capacity building programs for achieving healthy oceans need to address social and sustainable livelihood issues.
2. Empowering women and ensuring inclusion of older and younger generations are key to building capacity throughout a community.
3. Citizens should be encouraged to take part in scientific research and scientists should be encouraged to communicate with citizens.
4. Creating networks of communities, NGOs, practitioners and experts is an effective way of building capacity.

International Symposium on Capacity Building for Sustainable Oceans. Final Outcomes Report, July 19-20, 2016. The Nippon Foundation.

CAPACITY BUILDING FOR SUSTAINABLE OCEANS (cont'd)

Main Findings:

5. Project management skills need to be strengthened for producing tangible outcomes and growing organizations and networks.
6. Practices at the local level for achieving healthy oceans should be recognized by media and global organizations
7. Level of investment by government agencies in environmental education for citizens and youths should be increased.
8. International Institutions, governments, and all other funders need to shift from program-based approaches to generation-based approaches.

International Symposium on Capacity Building for Sustainable Oceans. Final Outcomes Report, July 19-20, 2016. The Nippon Foundation.

OCEAN GOVERNANCE CHALLENGES IN THE 21ST CENTURY

Four Major Categories:

1. Environmental problems and population pressures
2. Institutional responses to these problems
3. Modern technology
4. Responsible ocean governance

The Future of Ocean Governance and Capacity Building, 2018

OCEAN GOVERNANCE CHALLENGES IN THE 21ST CENTURY (cont'd)

Environmental Problems:

1. Human population increase from 7.5 billion to 11 billion by end of century
2. Concentration of population in coastal areas subject to climate change
3. Climate change impacts, among others, on biodiversity and hence on fisheries and aquaculture, key elements of global food security
4. Innovative tools, ecological indicators and monitoring regimes provide increasing knowledge of this footprint
5. Ocean sciences, health professions, ocean technology and citizen science will increasingly be interconnected and linked to ocean governance

The Future of Ocean Governance and Capacity Building, 2018

OCEAN GOVERNANCE CHALLENGES IN THE 21ST CENTURY (cont'd)

Institutional Responses:

1. The progressive development of UNCLOS provides a framework for examining ocean governance institutional arrangements. It states in its preamble that "problems of ocean space are closely interrelated and need to be addresses as a whole."
2. There is but one global ocean! Humans are more protective if there is only one of them!
3. The current fragmented system of UN agencies. Only three UN organizations are involved exclusively with ocean issues: IOC/UNESCO; IMO; and ISA. Other UN agencies have aspects of ocean affairs, e.g., FAO, UNEP, UNDP, and GEF. UN-DOALOS also plays a key role in ocean affairs
4. A supposed coordination mechanism, UN Ocean(s) was created in 2003 with apparent limited success to date.

The Future of Ocean Governance and Capacity Building, 2018

OCEAN GOVERNANCE CHALLENGES IN THE 21ST CENTURY (cont'd)

Technological Challenges and Opportunities:

1. Internet connectivity offers opportunities for increasing range and scope of capacity development and training.
2. Widespread and timely access to data will be key to enhancing ocean governance.
3. Information gathering and sharing will be essential for synoptic marine-environmental reporting etc.
4. Increasing technological capacity will broaden the scope of how we monitor and utilize the ocean.

The Future of Ocean Governance and Capacity Building, 2018

OCEAN GOVERNANCE CHALLENGES IN THE 21ST CENTURY (cont'd)

Future Ocean Governance?

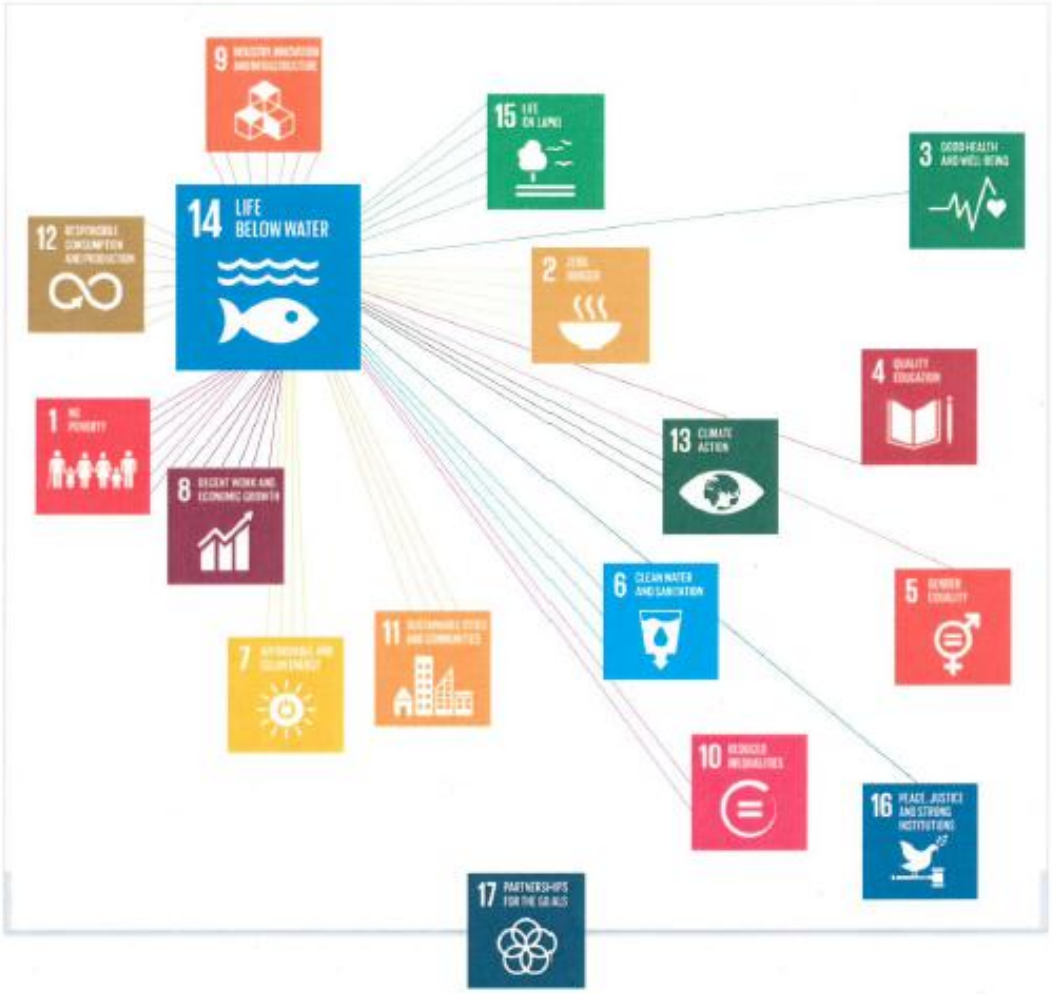
- Effective ocean governance at all levels, from the local to the global, requires identifying and agreeing upon priorities and goals.
- Globally international agreements, based on UNCLOS, are effective when they have the support from the diverse ocean community.
- EMB's advice may be appropriate: "A vision of the future is our best defence…..the disintegrative forces are powerful. But so are the integrative forces. Analyzing them, utilizing them, building on what they have already achieved, trying to contribute to a vision of the future…."

The Future of Ocean Governance and Capacity Building, 2018

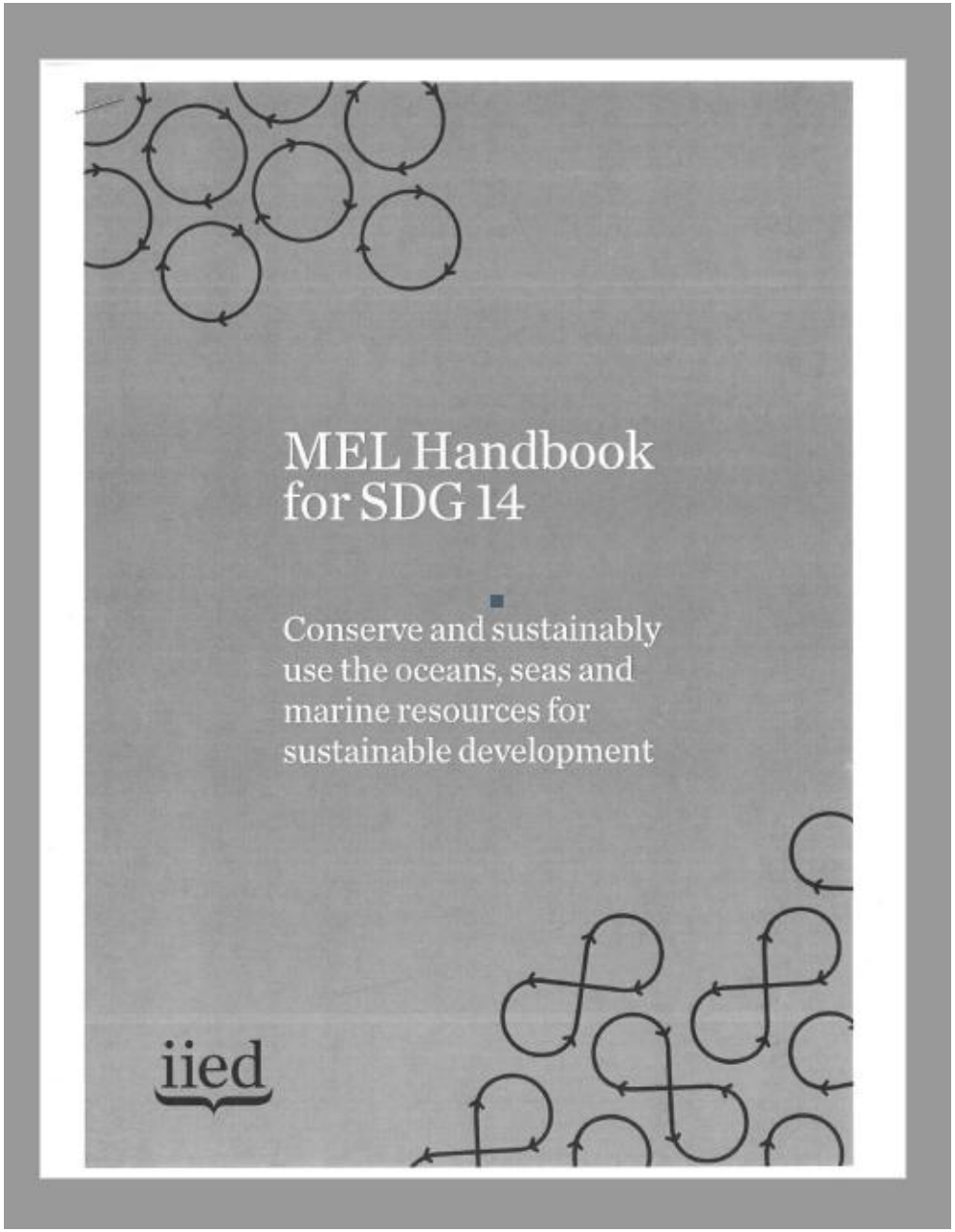
UN SUSTAINABLE DEVELOPMENT GOALS

1. In 2015 countries adopted the 2030 Agenda for Sustainable Develepment as its 17 Sustainable Development goals (SDGs).
2. The SDGs build on the success of the Millenium development goals (MDGs).
3. Goal 14: conserve and sustainably use the oceans, seas and marine resources.
4. Over 3 billion people depend on marine and coastal biodiversity for their livelihood.

Ocean health is central to global sustainable development



IASS Policy Brief 1/2017_9


MEL Handbook
for SDG 14
Conserve and sustainably use the oceans, seas and marine resources for sustainable development
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OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT

Goal: To provide an internationally-agreed framework of research priorities for sustainable development.

Key Issues:

1. Capacity development, particularly for Small Island Developing States (SIDS) and Least Developed Countries (LDC)
2. Ocean Literacy must be a priority for youth, the general public, policy makers and business sector. The Decade should create an "Ocean Generation" of informed citizens.

UN Decade of Ocean Science for Sustainable Development, 2019

OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT (cont'd)

Key Issues:

3. The Observing System must be made sustainable, both in infrastructure and financial support.

4. New technology and innovations are needed for every aspect of the decade of science.

5. The decade must lead to a data sharing revolution.

UN Decade of Ocean Science for Sustainable Development, 2019

OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT (cont'd)

Key Issues:

6. New partnerships with other stakeholders, particularly the Blue Economy sector and the insurance sector.
7. Young professionals, the "engine" of the decade must be involved in its design.

THE BIRTH OF THE CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

- The United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 1992
- Two binding agreements signed at this "Earth Summit":
  - Convention on Biological Diversity
  - Convention on Climate Change
- CBD has three main goals:
  - The conservation of biodiversity
  - The sustainable use of the components of biodiversity
  - Sharing the benefits arising from the utilization of genetic resources

Convention on Biological Diversity

CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

Key Issues Dealt with:

1. Measures and incentives for the conservation and sustainable use of biological diversity
2. Regulated access to genetic resources
3. Access to and transfer of technology, including biotechnology
4. Technical and scientific cooperation

Convention on Biological Diversity

CONVENTION ON BIOLOGICAL DIVERSITY (cont'd)

Key Issues Dealt with:

5. Impact assessment
6. Education and public awareness
7. Provision of financial resources
8. National reporting on efforts to implement treaty commitments

CHALLENGES TO IMPLEMENTING THE CBD AND PROMOTING SUSTAINABLE DEVELOPMENT

1. Meeting the increasing demand for biological resources
2. Increasing our capacity to document and understand biodiversity, its value and threats to it
3. Building adequate expertise and experience in biodiversity planning
4. Improving policies, legislation, guidelines and fiscal measures for regulating the use of biodiversity
5. Adopting incentives to promote more sustainable forms of biodiversity use
6. Promoting trade rules and practices that foster sustainable use of biodiversity

Convention on Biological Diversity

CHALLENGES TO IMPLEMENTING THE CBD AND PROMOTING SUSTAINABLE DEVELOPMENT (cont'd)

7. Strengthening coordination within governments, and between governments and stakeholders
8. Securing adequate financial resources for conservation and sustainable use
9. Making better use of technology
10. Building political support to ensure biodiversity conservation and sustainable use
11. Improving education and public awareness about the value of biodiversity

Convention on Biological Diversity

STRATEGIC PLAN FOR BIODIVERSITY 2011-2020,
INCLUDING AICHI BIODIVERSITY TARGETS

Goal A Address underlying causes of biodiversity loss.

Goal B Reduce the direct pressures on biodiversity and promote sustainable use.

Goal C Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Goal D Enhance the benefits to all from biodiversity and ecosystem services.

Goal E Enhance implementation through participatory planning, knowledge management and capacity building.

INTERGOVERNMENTAL CONFERENCE ON MARINE BIODIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION (BBNJ)

On 30 August 2019, delegates at the UN elaborated on a new Treaty under UNCLOS and pledged to continue negotiations as the Intergovernmental Conference concluded its third session.

ECOSYSTEM APPROACH TO MANAGEMENT OF OCEAN-RELATED ACTIVITIES

Traditional Approaches Versus Ecosystem Approaches

- **Traditional:**

1. Individual species
2. Narrow perspective and scale
3. Human activities evaluated for individual activities
4. Resource management by sectors
5. Scientific monitoring programmes focused narrowly
6. Single use and purpose observations

UN Training Manual, 2010

ECOSYSTEM APPROACH TO MANAGEMENT OF OCEAN-RELATED ACTIVITIES (cont'd)

Traditional Approaches Versus Ecosystem Approaches

- **Ecosystem Approaches:**
  1. Multiple species, interactions between species and habitats
  2. Broad perspective and scale
  3. Humans integral to ecosystem
  4. Integrated resource management
  5. Adaptive management based on scientific monitoring
  6. Shared and standardized observations

UN Training Manual, 2010

ECOSYSTEM APPROACH TO MANAGEMENT OF OCEAN-RELATED ACTIVITIES (cont'd)

Elements of an Ecosystem Approach:

1. Management of living components is considered alongside economic and social considerations at the ecosystem level of organization; the focus is not simply on managing species and habitats.
2. If management of land, water and living resources in equitable ways is to be sustainable, it must be integrated and work within the natural limits and utilise the natural functioning of ecosystems;
3. Ecosystem management is a social process. There are many interested communities which must be involved through the development of efficient and effective structures and processes for decision-making and management.

UN Training Manual, 2010

ECOSYSTEM APPROACH TO MANAGEMENT OF OCEAN-RELATED ACTIVITIES (cont'd)

Definition of Ecosystem:

"A biotic assemblage and its associated physical environment in a specific space", *Tansley, 1935*

- In 2005 the general assembly of the UN requested the 7th meeting of the UN's Open-ended Informal Consultative Process on Oceans and Law of the Sea to focus on "ecosystem approaches and oceans".
- Ecosystem approaches have also been promoted by: Conference of the Parties (COP) to the Convention on Biodiversity (CBD); FAO; UNEP; UNDP, Global Environment Facility (GEF), etc.

UN Training Manual, 2010

ECOSYSTEM APPROACH TO MANAGEMENT OF OCEAN-RELATED ACTIVITIES (cont'd)

Key Ideas of the Ecosystem Approach:

- A strategy for the integrated management of natural resources and equitably promotes both conservation and utilization.
- An ecosystem is a dynamic complex of plant, animal micro-organism communities and their non-living environment interacting as a functional unit.
- The health of the ecosystem is not only essential to the environment, but important to the existence and development of human society. Ecosystems are life-support systems and critical to the survival and welfare of human beings.

UN Training Manual, 2010

ECOSYSTEM GOODS AND SERVICES

1. Provision of food, fuel and fibre
2. Provision of shelter and building material
3. Purification of air and water
4. Detoxification and decomposition of wastes
5. Stabilization and moderation of the Earth's climate
6. Generation and renewal of soil fertility, including nutrient cycling

Secretariat of the Convention on Biological Diversity

ECOSYSTEM GOODS AND SERVICES (cont'd)

7. Pollination of plants, including many crops
8. Control of pests and diseases
9. Maintenance of genetic resources as key inputs to crop varieties and livestock breeds, medicines and other products
10. Cultural and aesthetic benefits
11. Ability to adapt to change

THE BLUE ECONOMY

Definition:

All economic activities relating to the oceans, seas and coasts. Blue Economy covers a wide range of interlinked established and emerging sectors

European Commission, The EU Blue Economy Report, 2019

THE BLUE ECONOMY (cont'd)

Established Sectors:

1. Coastal tourism
2. Extraction and commercialisation of marine living resources
3. Marine extraction of minerals, oil and gas
4. Ports, warehousing and water projects
5. Shipbuilding and repair
6. Marine transport

European Commission, The EU Blue Economy Report, 2019

THE BLUE ECONOMY (cont'd)

Emerging Sectors:

1. Blue energy
2. Blue bio economy
3. Marine minerals
4. Desalination
5. Maritime defence

European Commission, The EU Blue Economy Report, 2019

The Roles of ENGOs in Shaping Future Ocean Governance

1. The number and diversity of ENGOs focussed on ocean health has increased rapidly since the 1960s in response to ecological crises, such as climate change and ocean acidification.
2. ENGOs can **catalyse a broader range of stakeholders** needed to address the increasingly complex marine management challenges.
3. ENGOs have emphasised an ecosystem-based management approach through marine spatial planning (MSP) and integrated coastal and ocean management (ICOM)
4. ENGOs often partner with academic programs and research projects to help **train future marine managers**.

Vance and Rangeley in The Future of Ocean Governance and Capacity Building, 2018

The Roles of ENGOs in Shaping Future Ocean Governance (cont'd)

5. ENGOs emphasise transparency, accountability and inclusiveness, through national and international delegations and by engaging media and the public.
6. The number of ENGOs with observer or consultative status at the UN Economic and Social Council (ECOSOC) has increased 500% in the last three decades.
7. ENGOs facilitate and strengthen linkages across sectors and disciplines.
8. ENGOs can effectively communicate with and engage the public with marine issues to promote conservation-focused solutions.
9. ENGOs can affect the development of sustainable industry products, standards and practices
10. ENGOs are playing an increasing and key role in the science-policy-public-industry interface

Vance and Rangeley in The Future of Ocean Governance and Capacity Building, 2018

FOSTERING HUMAN HEALTH THROUGH OCEAN SUSTAINABILITY

Key Points:

1. The Decade of the Ocean for Sustainable Development (2021-2030) provides a time to reflect on the complex interactions between the seas, oceans and human health and wellbeing.
2. The seas and coasts not only provide an essential source of food, opportunities for trade and access to sustainable energy, but also the chance for people to interact with high quality marine environments which can lead to mental and physical health.

Fleming et al., 2019 People and Nature, British Ecological Society

FOSTERING HUMAN HEALTH THROUGH OCEAN SUSTAINABILITY (cont'd)

Key Points:

3. Articulating a vision of how humans might better interact with marine ecosystems in the future…. a first step in identifying policy and management actions that can foster health and wellbeing.

See relevant slide of interactions.

Fleming et al., 2019 People and Nature, British Ecological Society

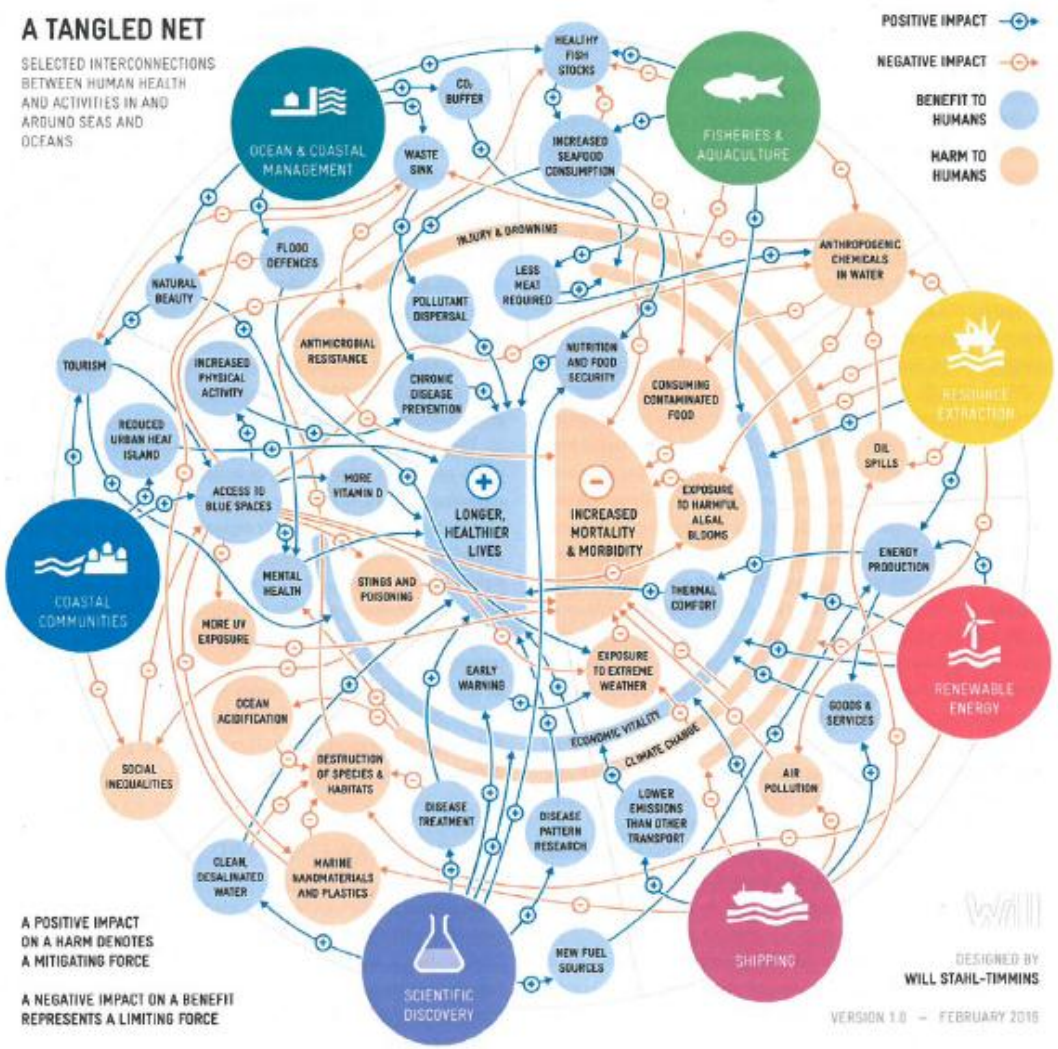


FIGURE 1 A tangled net – selected interconnections between human health and activities in and around the seas and oceans (designed by Will Stahl-Timmins)

Fleming et al., 2019 People and Nature, British Ecological Society

PACE OF CHANGE IN HUMAN IMPACT ON THE WORLD'S OCEAN

Key Points:

- The scope, magnitude, footprint and ultimate cumulative impacts of human activities threaten ocean ecosystems
- A fundamental gap in understanding this issue is the limited knowledge about the **pace of change** in the cumulative impact on ocean ecosystems.

Halpern et. al. Recent pace of change in Human impact on the world's ocean.2019, Scientific Reports

PACE OF CHANGE IN HUMAN IMPACT ON THE WORLD'S OCEAN (cont'd)

Key Points:

- Most of the ocean (59%) is experiencing significantly increasing cumulative impact, particularly due to climate change but also from fishing, land-based pollution and shipping.
- Nearly all countries saw increases in cumulative impacts in coastal waters, as did all ecosystems, with coral reefs, seagrasses and mangroves most at risk.

Halpern et. al. Recent pace of change in Human impact on the world's ocean.2019, Scientific Reports

THE FUTURE OF OCEAN GOVERNANCE AND CAPACITY DEVELOPMENT

Contents:

- Part 1 – Perspectives on Ocean Governance
- Part 2 – Capacity Development for Responsible Ocean Governance
- Part 3 – Law of the Sea and Principles Ocean Governance
- Part 4 – Ocean Sciences
- Part 5 – Integrated Coastal and Ocean Management

The Future of Ocean Governance and Capacity Development: Essays in Honour of Elisabeth Mann Borgese, Brill, 2018

THE FUTURE OF OCEAN GOVERNANCE AND CAPACITY DEVELOPMENT (cont'd)

- Part 6 – Fisheries and Aquaculture
- Part 7 – Ocean Energy
- Part 8 – Maritime Safety and Security
- Part 9 – Maritime Transportation
- Part 10 – Communication and Negotiation
- Part 11 – Synthesis: Looking Ahead – Ocean Governance Challenges in the 21st Century

The Future of Ocean Governance and Capacity Development: Essays in Honour of Elisabeth Mann Borgese, Brill, 2018

STATE OF OUR OCEAN, 2019 EDITION

Key Issues:

A. Awareness raised on ocean issues in 2018, e.g. G7 Declaration on the Ocean; SDG 14; Climate negotiations at COP 24.

B. Environmental challenges are increasing; climate change, overfishing, mass extinction, pollution.

C. Development pressures continue.

D. Current resources and capacity are insufficient to restore ocean health.

PRIORITIES FOR ACTION

1. Maintain focus on the ocean in global policy debates.
2. Cultivate technology innovation and investment.
3. Develop new multi-stakeholder partnerships.
4. Ensure progress on BBNJ.
5. Set global ecotourism standards.
6. Propose a moratorium on seabed mining.
7. Increase MPA areas to 20% of the ocean.
8. Ensure sufficient multilateral funding.
9. Address inequality between OECD and SIDS.

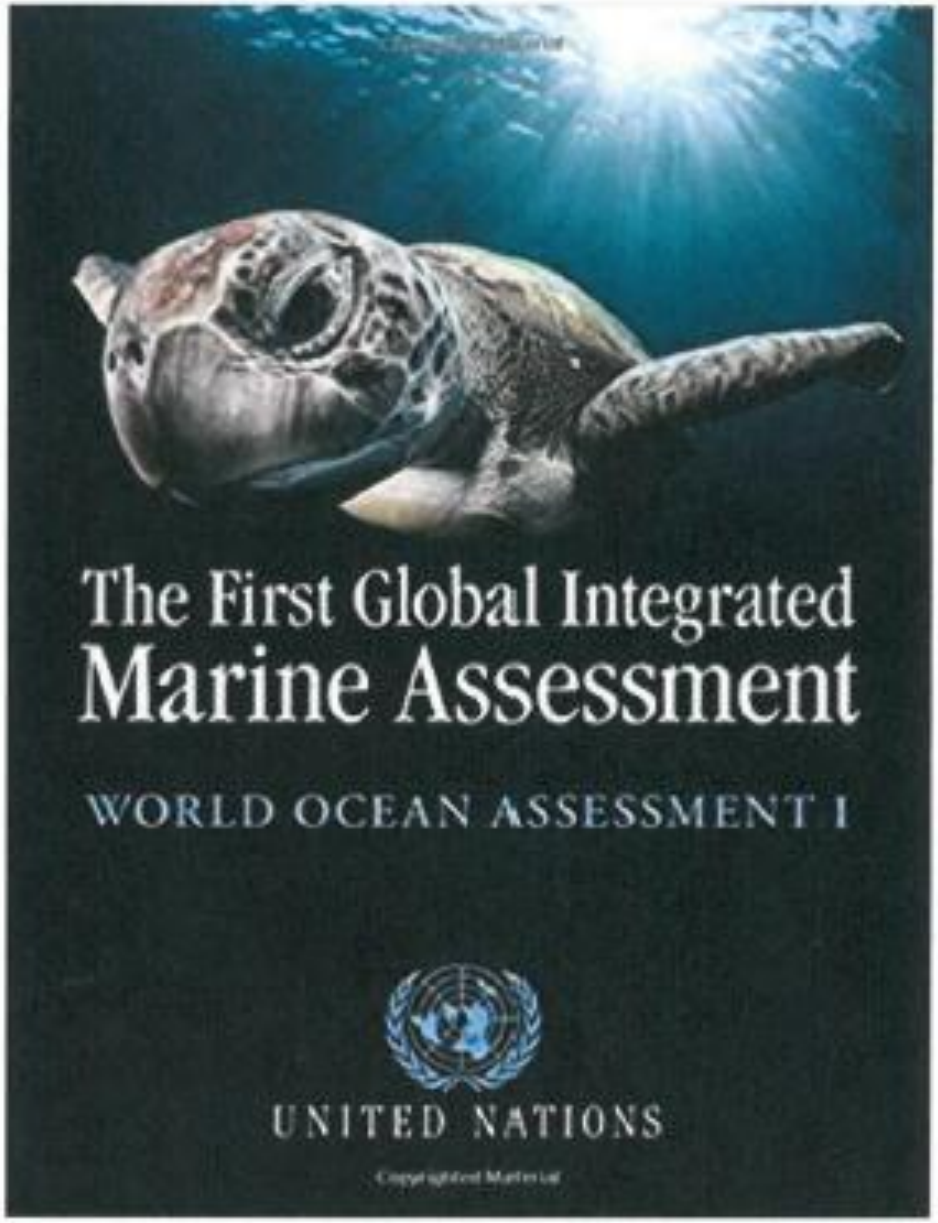
Sustainable Ocean Alliance (www.soalliance.org)

Predicting Future Oceans

Sustainability of Ocean and Human Systems Amidst Global Environmental Change

Edited by
Andrés M. Cisneros-Montemayor
William W. L. Cheung
Yoshitaka Ota

ELSEVIER


The First Global Integrated
Marine Assessment
WORLD OCEAN ASSESSMENT I
UNITED NATIONS

DISCUSSION QUESTIONS

1. What ocean governance capacity development programs do you have in your country ?
2. How do you assess or measure their effectiveness ?
3. How can you create a multiplier effect, so that more than just the course participants benefit from the training?
4. What role do course alumni play in ocean governance development capacity programs ?
5. How do you manage your alumni ?
6. Does your country have a strategy re ocean governance capacity training and what challenges does it face ?
7. Are there any regional organisations that provide ocean governance capacity development for countries adjacent to the South China Sea ?
8. What roles do national universities, technical colleges and ENGOs play in ocean governance capacity development ?

DISCUSSION QUESTIONS (cont'd)

9. What would your recommendations be to enhance ocean governance capacity development in this region ?
10. Is ocean literacy considered to be important in your country, and if yes, how is this promoted, and if not, why not?
10. How would you, as individuals, help to promote ocean governance capacity development in your country and the region ?
11. What topics would you like to see added to the Academy's curriculum ?
12. Do you consider the current Course length to be optimum and if not what length would you recommend ?
13. Do you think the international enrolment at the annual Academies in Hainan will contribute to a resolution of the conflicting claims to the resources and geography of the South China Sea ?