



INTERNATIONAL OCEAN INSTITUTE



**TRAINING PROGRAMME ON
*OCEAN GOVERNANCE: POLICY, LAW AND MANAGEMENT***

**2018
COURSE REPORT**



**Dalhousie University, Halifax, Canada
23rd May – 20th July, 2018**

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INTERNATIONAL OCEAN INSTITUTE

2018 COURSE REPORT

**IOI-Canada
Dalhousie University
6414 Coburg Road, P.O. Box 15000
Halifax, Nova Scotia, B3H 4R2, Canada**

Tel: 1 902 494 1977 • Fax: 1 902 494 1334 • E-mail: ioi@dal.ca • Web: www.dal.ca/ioihfx

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INTRODUCTION

This report provides a record of the 2018 training programme on *Ocean Governance: Policy, Law and Management*, conducted by the International Ocean Institute (IOI) at Dalhousie University, Halifax, Canada. Held from 23rd May to 20th July, this was the 38th annual course since the training programme was instituted by Elisabeth Mann Borgese, Founder of the IOI. It had a particularly celebratory air as 2018 is both the centenary of her birth and the bicentenary of Dalhousie's founding, with events to mark both being held throughout the year.



The course was attended by 20 participants from 10 countries in Africa, Asia, the Caribbean and North America. Men and women were equally represented in the group, and were drawn from a wide range of disciplines and backgrounds. Lectures and presentations were delivered by over 100 speakers, and included local and international experts and practitioners. Content was organised thematically as follows:

- Module 1:** Orientation and Introduction to the Training Programme
- Module 2:** Ocean Sciences
- Module 3:** Law of the Sea and Principled Ocean Governance
- Module 4:** Integrated Coastal and Ocean Management
- Module 5:** Communication and Negotiation
- Module 6:** Maritime Security
- Module 7:** Fisheries and Aquaculture
- Module 8:** Marine Transportation
- Module 9:** Energy
- Module 10:** Round Table and Conclusion of Training Programme

GROUP PHOTOGRAPH



Photo credit: Nick Pearce, Dalhousie University

Front row (from left to right): Michael Butler, Director (England/Canada), Tahindraza Gilde (Madagascar), Cretus Joseph Mtonga (Tanzania), Liu Yunzhe (China), Brontë Thomas (Canada), Jessica Winters (Canada), Rakotondrazafy Sariaka (Madagascar), Richard Florizone, President, Dalhousie University (Canada)

Second row: Maritza Queeley (St Kitts and Nevis), Rose-Marie Bargain (Seychelles), Yu Qian (China), Yu Feng (China), Michael Ballard (Canada), Wang Jing (China)

Third row: Madeleine Coffen-Smout, Programme Officer (England), Lorenzo George (St Vincent and the Grenadines), Charlie Marshall (Canada), Phillip Prosper (Canada), Alen Shakirov (Kazakhstan), Sun Yonggen (China), Yanet Cruz Portorreal (Cuba), Paul Withers (Canada), Nwafor Ndubuisi Augustine (Nigeria), Bob Edwards, Module Leader (Canada)

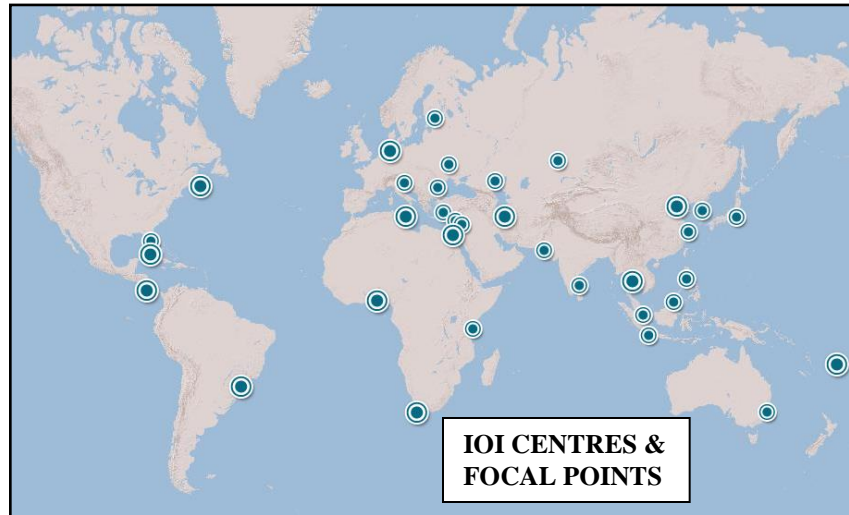
Back row: Mallory Ross, 2018 Course Co-ordinator (Canada), Andrew Williamson, Intern (Canada), Jennifer Barr, Finance Officer (Canada), Hugh Williamson, Senior Research Fellow & 2018 Course Director (Canada), David Griffiths, Senior Research Fellow (Canada), Peter Wells, Senior Research Fellow (Canada)

INTERNATIONAL OCEAN INSTITUTE

IOI-Canada is a leading member of the International Ocean Institute's network of centres and focal points operating worldwide in over 30 countries. One of the earliest IOI centres to be established, it was set up by Elisabeth Mann Borgese in 1979 soon after she arrived at Dalhousie University in Halifax, Nova Scotia, and it has been based at the university ever since.

Registered as the "IOI-Canada Association", IOI-Canada is a not-for-profit organisation, federally incorporated under the Canada Corporations Act and governed by a Board of Directors. It is guided by the IOI-Canada/Dalhousie Oceans Advisory Committee and staffed by an experienced team of professionals, augmented by Senior Research Fellows and interns who contribute to its activities. IOI-Canada is the

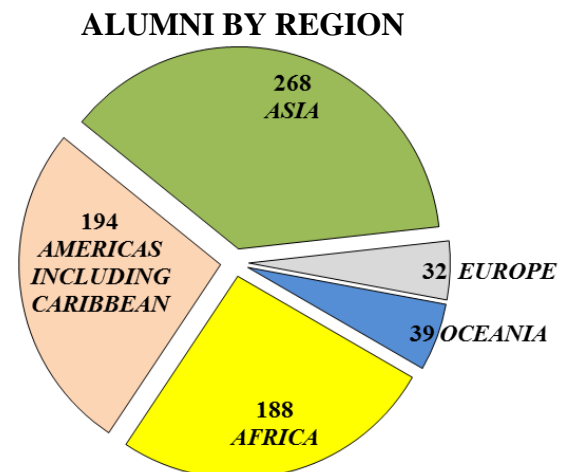
regional co-ordinator of the IOI centres in the Americas, namely IOI-Brazil, IOI-Costa Rica, IOI-Cuba and IOI-USA, in addition to the Canadian centre. The international headquarters of the IOI have been located in Malta since being founded in 1972 by Elisabeth Mann Borgese. Information on IOI headquarters and the network as a whole can be found at www.ioinst.org.



IOI-Canada's mission is to promote responsible ocean governance and the stewardship and sustainable use of coastal and ocean resources in Canada and around the world. Its goals are to encourage and develop the potential and capacity of individuals, institutions and communities to foster:

- a network of individuals dedicated to effective coastal and ocean governance;
- management, education, training, research and outreach; and,
- sustainable and prosperous coastal communities.

IOI-Canada accomplishes its mission and goals through three main activities: education and training, collaborative research and outreach. The provision of interdisciplinary training is its major focus, and through its flagship course in Halifax, it has trained more than 720 individuals from over 100 countries around the globe.



THE TRAINING PROGRAMME

Purpose and Approach

With the support of Dalhousie University, IOI has offered an intensive, interdisciplinary training programme in Halifax annually since 1981. This purpose of this flagship course is to:

- deepen understanding of the ever-increasing importance of the oceans and their resources in world politics and sustainable economic development;
- assist developing countries in the formation of a core of decision-makers fully aware of the complex issues of coastal and ocean management; and,
- maximise benefits to be derived from the United Nations Convention on the Law of the Sea through the proper integration of coastal and ocean management into national and international development strategies.

The programme emphasises the importance of viewing the ocean as a system with varied users and multiple, often competing and conflicting, uses. It also aims to increase awareness of the fact that ocean management requires broad interdisciplinary skills, new institutional and legal infrastructures, and new forms of intergovernmental and non-governmental organisation and cooperation at the local, national and international levels.

The course takes place on the campus of Dalhousie University, and consists of approximately 220 hours of intensive learning. While it is primarily lecture-based, it also includes interactive discussions, participant presentations, exercises and simulations, field trips and a round table.

Participants

The training programme is primarily designed for developing country mid-career professionals with responsibility for some aspect of coastal or ocean governance. Given the under-representation of women in the upper echelons of administration and policy-making worldwide, particular emphasis is placed on trying to achieve equal numbers of female and male participants, and to creating a forum where men and women can learn together, sharing different perspectives and examining issues from different viewpoints.

Course Content

The course is a foundational programme in a very important field of development strategy; it is not intended to provide specialised training. Participants are therefore expected to step out of their fields of specialisation and be exposed to broadly interdisciplinary work.

The 2018 training programme was organised into 10 modules covering a wide range of themes and issues, as set out in the following syllabus. When provided by lecturers, a brief summary of their presentation's topics was posted online at <http://internationaloceaninstitute.dal.ca/2018LectureTopics.doc>.

SYLLABUS

MODULE 1 Orientation and Introduction to the Training Programme

Wednesday, 23rd May

10.00 – 10.30	Introductions and Administrative Matters	Ms Mallory Ross (Module Leader)
10.45 – 12.00	Killam Library Tour	Ms Sarah Stevenson
1.30 – 4.00	Understanding Canada	Dr Jason Grek-Martin

Thursday, 24th May

9.00 – 10.30	Intercultural Awareness	Ms Joanne Fraser
10.45 – 12.00	Managing at University	Dr David Mensink
1.30 – 4.00	Ethical Issues in Ocean Governance	Prof. Ian McAllister

Friday, 25th May

9.00 – 12.00	Introduction to Training Programme	Mr Mike Butler Mr Hugh Williamson Module Leaders IOI staff
1.30 – 2.30	The Sea in Human History	Mr David Griffiths
4.00 – 6.00	Opening Ceremony	All

Saturday, 26th May

All day	Free. Optional morning trip to Farmers Market.
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Sunday, 27th May

All day	Free
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MODULE 2 Ocean Sciences

Monday, 28th May

9.00 – 12.00	Introduction to Ocean Sciences, and Health of the Oceans	Dr Peter Wells (Module Leader)
1.30 – 4.00	Fundamentals of Oceanography	Dr Myriam Lacharité

Tuesday, 29th May

9.00 – 12.00	Fundamentals of Climate Change	Mr Alexander MacDonald
1.30 – 4.00	Vulnerability Assessment and Adaptation to Climate Change	Dr Daniel Lane

Wednesday, 30th May

9.00 – 12.00	Marine Biodiversity: Census of Marine Life & Ocean Biogeographic Information System	Mr Bob Branton Ms Mary Kennedy
1.30 – 4.00	The Land-Sea Interface	Dr Graham Daborn

Thursday, 31st May

9.00 – 10.30	Participant Presentations	Participants
10.45 – 12.00	Plastics and the Ocean	Dr Tony Walker
1.30 – 4.00	Ocean Acidification and its Implications	Dr Kumiko Azetsu-Scott

Friday, 1st June

9.00 – 9.30	Alumna Presentation	Ms Vatosoa Rakatondrazafy
9.30 – 12.00	Simulation and Integration Exercise	Mr David Griffiths
1.30 – 3.30	Traditional Ecological Knowledge	Mr Roger Hunka Ms Katherine Sorbey

3.30 – 4.00 Module Wrap-up

Dr Peter Wells
Mr Hugh Williamson
Mr David Griffiths

Saturday, 2nd June

All day Free

Sunday, 3rd June

All day Free

<p>MODULE 3 Law of the Sea and Principled Ocean Governance</p>

Monday, 4th June

9.00 – 12.00 Introduction to Law of the Sea – Part 1

Mr Hugh Williamson

1.30 – 4.00 Precautionary Principle

Dr David VanderZwaag

Tuesday, 5th June

9.00 – 12.00 Introduction to Law of the Sea – Part 2

Mr Hugh Williamson

1.30 – 2.45 UN Agencies

Dr Wendy Watson-Wright

3.00 – 4.00 Participant Presentations

Participants

Wednesday, 6th June

9.00 – 12.00 Law of the Sea and the Arctic

Dr Tony George Puthucherril
(Module Leader)

1.30 – 4.00 Technical Aspects of Maritime Boundary Delimitation

Mr Galo Carrera

Thursday, 7th June

All day	Field Trip: Bedford Institute of Oceanography	Mr Scott Coffen-Smout Mr Steve Cole Dr Mary-Lynn Dickson Dr Diego Ibarra Mr Stephen Locke Dr Hilary Moors-Murphy Mr Brian Robinson Mr Tom Rowsell Ms Tana Worcester Ms Mallory Ross
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Friday, 8th June – World Oceans Day

9.15 – 9.45	Participant Presentation	Participant
10.00 – 11.30	The Role of Coastal Communities in Marine Protection	Dr Susanna Fuller
11.30 – 12.00	Participant Presentation	Participant
1.30 – 2.45	Ocean Governance (<i>Video & Skype</i>)	Dr Awni Behnam (via video link)
3.00 – 4.00	Discussion and Module Summary	Mr Hugh Williamson Dr Tony George Puthucherril Mr David Griffiths
7.00 onwards	Elisabeth Mann Borgese Ocean Lecture: Panel discussion on <i>Peace and Equity in Ocean Governance – Possibility or Pipe Dream?</i> with reception following	Vice-Adm. (ret'd) Glenn Davidson Dr Susanna Fuller Mr Hugh Williamson Dr Wendy Watson-Wright (moderator)

Saturday, 9th June

All day	Free
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Sunday, 10th June

All day	Free
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<p style="text-align: center;">MODULE 4 Integrated Coastal and Ocean Management</p>

Monday, 11th June

9.00 – 10.45	Introduction to Module Themes, and Whales	Dr Sean Brilliant (Module Leader)
11.00 – 12.00	Participant Presentation(s)	Participants
1.30 – 2.45	Ocean Capacity Building in South America and the Caribbean	Dr Eduardo Marone
3.00 – 4.00	Participant Presentations	Participants

Tuesday, 12th June

9.00 – 12.00	Introduction to Integrated Coastal and Ocean Management (ICOM)	Dr Lucia Fanning
1.30 – 4.00	Marine Spatial Planning and MPAs	Mr Paul Macnab Mr Scott Coffen-Smout

Wednesday, 13th June

9.00 – 12.00	Planning in the Coastal Zone	Dr Patricia Manuel
1.30 – 4.00	Coastal Information Management	Dr Bertrum MacDonald Mr Simon Ryder-Burbidge Ms Rachael Cadman Mr James Ross Ms Diana Castillo

Thursday, 14th June

9.00 – 12.00	GIS Web Mapping and Simulation (venue: Killam Library 2902)	Mr James Boxall Ms Caitlin Cunningham Mr Jeff McKenna Mr Andy Sherin Mr David Griffiths
1.30 – 4.00	Project Cycle	Prof. Ian McAllister

Friday, 15th June

9.00 – 10.30	Ocean Education, Literacy and Awareness	Ms Anna Naylor
10.45 – 12.00	Sea Level Rise and Coastal Communities	Prof. Blake Hudson
1.00 onwards	Field Trip to Bay of Fundy: Sustainable Blue Fish Farm, Evangeline Beach	Mr David Roberts Mr Luc Boudreau Ms Mallory Ross

Saturday, 16th June

All day	Field Trip to Bay of Fundy: Annapolis Royal Marsh Nature Trail, Annapolis Tidal Power Station, Fort Anne, Annapolis Royal Market, Parker's Cove, Habitation	Dr Jon Percy Mr Leslie Smith Ms Mallory Ross
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Sunday, 17th June

All day	Field Trip to Bay of Fundy: Fundy Adventures, Port of Digby, Clean Annapolis River Project briefing	Ms Wanda VanTassel Mr Edwin Chisholm Ms Katie McLean Ms Mallory Ross
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Monday, 18th June

All day	Field Trip to Bay of Fundy: Acadian Seaplants, Kejimikujik National Park, Lunenburg Fisheries Museum	Mr Will Neily Ms Mallory Ross
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Tuesday, 19th June

9.00 – 12.00	Ecological Economics	Dr Peter Tyedmers
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<p style="text-align: center;">MODULE 5 Communication and Negotiation</p>

1.30 – 4.00	Introduction to Module, and Media	Mr Ian Porter (Module Leader)
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Wednesday, 20th June

All day	Interview and Presentation Skills	Mr Ian Porter Mr Tim Tracey
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Thursday, 21st June

9.00 – 12.00	Marine Managers and the News	Mr Ian Porter
1.00	Class photograph	All
1.30 – 4.00	Communication	Mr Peter MacLellan

Friday, 22nd June

9.00 – 12.00	Negotiation Theory and Practice	Mr Hugh Williamson Prof. Diana Ginn
1.30 – 2.45	Negotiation Exercise	Mr Hugh Williamson Prof. Diana Ginn
3.00 – 4.00	Module Summary and Integration Exercise	Mr Ian Porter Mr Hugh Williamson Mr David Griffiths

Saturday, 23rd June

All day	Free
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Sunday, 24th June

All day	Free
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<p>MODULE 6 Maritime Security</p>
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Monday, 25th June

9.00 – 12.00	Emergency Management in the Coastal Zone	Ms Murielle Provost
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1.30 – 4.00	Field Trip to Nova Scotia Emergency Management Office (EMO)	Ms Erica Fleck Ms Rhonda Matthews Mr Marc Cayouette Ms Murielle Provost Mr David Griffiths
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Tuesday, 26th June

9.00 – 12.00	Introduction to Maritime Security	Cdr Bob Edwards (ret'd) (Module Leader) Mr Glen Herbert
1.30 – 2.45	Disaster Risk Reduction: International Case Studies	Mr David Griffiths
3.00 – 4.00	Participant Presentations	Participants

Wednesday, 27th June

9.00 – 12.00	Integrated Maritime Security Policy Exercise	Cdr Bob Edwards (ret'd) Mr Glen Herbert
1.00 – 1.25	Optional Briefing: Dalhousie's Marine Affairs Program (FASS 1115)	Ms Becky Field
1.30 – 4.00	Integrated Maritime Security Policy Exercise	Cdr Bob Edwards (ret'd) Mr Glen Herbert

Thursday, 28th June

All day	Integrated Maritime Security Policy Exercise (cont.)	Cdr Bob Edwards (ret'd) Mr Glen Herbert
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Friday, 29th June

9.00 – 12.00	Integrated Maritime Security Policy Presentations	Participants Cdr Bob Edwards (ret'd) Mr Glen Herbert
1.30 – 2.45	Module Summary and Integration Exercise	Cdr Bob Edwards (ret'd) Mr Hugh Williamson Mr David Griffiths
3.00 – 4.00	Participant Presentations	Participants

Saturday, 30th June

All day Free

Sunday, 1st July - Canada Day

All day Free

Monday, 2nd July

All day Free – holiday in lieu of Canada Day

<p>MODULE 7 Fisheries and Aquaculture</p>
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Tuesday, 3rd July

9.00 – 12.00	Fisheries from a Holistic Perspective	Dr Tony Charles (Module Leader)
1.30 – 2.45	Introduction to Fisheries Science	Dr Ross Claytor
3.00 – 4.00	Ecosystem-based Fisheries Management	Dr Nancy Shackell

Wednesday, 4th July

9.00 – 10.30	Policy Development	Ms Kerri Graham
10.45 – 12.00	Participant Presentations	Participants
1.30 – 4.00	Field Trip: Northwest Atlantic Fisheries Organisation	Mr Fred Kingston Ms Jana Aker Ms Dayna Bell MacCallum

Thursday, 5th July

9.00 – 12.00	Seafood Value Chain	Dr Megan Bailey
1.30 – 2.45	Community-based Fisheries	Mr Chris Milley
3.00 – 4.00	Development of Nova Scotia's Aquaculture Policy and Legislation	Mr Brennan Goreham

Friday, 6th July

9.00 – 12.00	Aquaculture	Mr David Roberts
1.30 – 2.00	Module Wrap-up and Integration Exercise	Dr Tony Charles Mr David Griffiths Mr Hugh Williamson
2.00 – 4.30	Legal Aspects of Maritime Boundary Delimitation	Prof. Phillip Saunders, QC

Saturday, 7th July

All day Free

Sunday, 8th July

All day Free

<p>MODULE 8 Marine Transportation</p>
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Monday, 9th July

9.00 – 12.00	Shipping Fundamentals	Capt. Jim Calvesbert
1.30 – 2.45	Human Elements of International Shipping	Capt. Angus McDonald
3.00 – 4.00	Evolution of Containerisation	Mr Jim Frost

Tuesday, 10th July

9.00 – 12.00	Safety of Ships	Capt. Alan Knight
1.30 – 4.00	Port Governance and Reform	Dr Mary Brooks

Wednesday, 11th July

9.00 – 12.00	International Maritime Organisation (IMO)	Mr Bud Streeter
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1.30 – 2.45	Maritime Search and Rescue	Mr John Dalziel
3.00 – 4.00	Participant Presentations	Participants

Thursday, 12th July

9.00 – 10.30	Field Trip: Eastern Canada Response Corporation	Mr Darin Connors Mr Addison Vickard Ms Karaline Reimer Ms Mallory Ross
10.30 – 12.00	Field Trip: Survival Systems Training Ltd	Mr Peter Konings Mr Dan Latremouille Ms Mallory Ross
1.00 – 4.00	Field Trip: Port of Halifax	Mr Patrick Bohan (Module Leader) Mr Alex Bohan Mr William Scholes Ms Mallory Ross

<p>MODULE 9 Energy</p>

Friday, 13th July

9.00 – 12.00	Introduction to Module	Dr Alain Joseph (Module Leader) Dr Wayne Grozsko
1.00 – 1.30	Legal Weakness in a Country with Two Seas and Three Coastal Zones	Dr Camilo Botero
1.30 – 2.45	Geology and Energy	Mr David Brown
3.00 – 4.00	Introduction to Geophysics	Mr Kris Kendell

Saturday, 14th July

All day	Integration Exercise: Preparation of Presentations	Participants
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Sunday, 15th July

All day	Integration Exercise: Preparation of Presentations	Participants
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Monday, 16th July

9.00 – 10.30	Exploration and Risk	Ms Jennifer Matthews
10.45 – 12.00	Regulation and the Canadian Environmental Assessment Agency (CEAA)	Ms Elizabeth MacDonald
1.30 – 4.00	Tidal Power	Ms Melissa Oldreive

Tuesday, 17th July

9.00 – 10.30	Wind Power	Mr Aaron Long
10.45 – 12.00	Solar Power	Dr Wayne Groszko
1.30 – 2.30	Module Summary and Integration Exercise	Dr Alain Joseph Mr David Griffiths Mr Hugh Williamson
2.45 – 4.00	Study Period	Participants

MODULE 10 Round Table Conclusion of Training Programme

Wednesday, 18th July

All day	Round Table	Dr Sean Brilliant Dr Dan Lane Mr Wendell Sanford Dr Suzuette Soomai Mr David Griffiths Participants
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Thursday, 19th July

9.00 – 12.00 Round Table

Dr Sean Brilliant
Dr Dan Lane
Mr Wendell Sanford
Dr Suzuette Soomai
Mr David Griffiths
Participants

4.30 – 6.30 Closing Ceremony and Reception

All

Friday, 20th July

9.30 – 1.00 Feedback, What Next? and Closing Remarks

Mr Hugh Williamson
Dr Arthur Hanson
IOI Staff
Module Leaders
Participants

COURSE DIRECTOR'S REPORT

Introduction

While this was the first time that I was accorded the privilege of acting as Course Director, I have a long association with the IOI, and this program specifically. I participated in much of the first program in 1981 and was the first Course Co-ordinator in 1983, assisting the Course Director, Amb. Tommy Koh, President of the Third UN Conference on the Law of the Sea. Since the 1990s, I have been a lecturer, module leader and now finally Course Director, which gives me a unique perspective in evaluating the progress and development of this program over the last 38 years.



For this training program to maintain its viability over the years it has necessarily updated, modified and adapted its curriculum to meet the objectives of providing the necessary initial overview of the elements of ocean governance for decision-makers from a wide variety of nationalities, cultural backgrounds and academic disciplines. The program continues to identify new areas of interest, and expose critical decision-makers to those topics of concern in an ever-changing ocean environment.

As Course Director, my primary responsibility was overseeing the course delivery and helping emphasise thematic linkages within and between modules. I attended the lectures, field trips and other activities during the program and in addition to ensuring that sessions started and finished on time, a major function was to keep lectures and presenters on point and to ensure that questions and comments were appropriate to the subject at hand, and did not drift too far off topic. Often there were issues of specific interest to an individual questioner, but of little or no relevance to most of the course participants. This was a difficult and sometimes challenging balance, as individuals would wish to address their own particular situation, but ran the risk of having the lecture time spent on a very narrow topic. It was also sometimes necessary to ensure that language limitations or unfamiliarity with technical or jargon terms did not hinder participation by different course members.

Course Staffing

IOI-Canada's core staff – Michael Butler, Director, Madeleine Coffen-Smout, Programme Officer and Jennifer Barr, Finance Officer – provide the framework of course design, preparation, management and support, as well as selection of lecturers. For the delivery of the 2018 course, they were assisted by: the Course Director, Hugh Williamson (Senior Research Fellow, IOI-Canada & Adjunct Professor, Marine Affairs Program, Dalhousie University); Course Co-ordinator, Mallory Ross (graduate student of Development Economics at Dalhousie University) with responsibility for day-to-day course logistics and participant support; and Course Intern, Andrew Williamson (cognitive science student at Carleton University) with responsibility for assisting the Course Co-ordinator and providing IT support for lectures.

Course Participants

There were 20 participants in the 2018 training program, which was a larger number than in recent years, and the group was equally gender balanced. The traditional model for participation has been a mid-career civil servant from a developing country who had a basic knowledge and responsibility in one maritime

sector but needed to achieve a broader understanding of multisectoral ocean governance. The strength of the program lies in providing the broadest possible range of expertise, experience and international diversity to increase the participants' exposure to different issues, concerns and perspectives.

This year the participants were from 10 countries, representing Asia, Central Asia, the Indian Ocean, Africa, the Caribbean and North America. Their backgrounds included science, engineering, law, resource management, politics and journalism. Six of the participants were from Canada, including five from indigenous communities across the country. It has long been apparent that the situation of



indigenous peoples around the world in dealing with their national governments is analogous to the situations of developing countries in terms of ocean management. It was strongly felt that representatives of coastal indigenous communities would benefit greatly from the multidisciplinary and multisectoral nature of the program, giving them a stronger awareness of the nature of ocean governance, and strengthening their ability to negotiate with the national government.

Organization

As previously, the course started with a few days devoted to orientation to the university, Halifax and its facilities, and sessions on understanding Canada, ethical issues, intercultural awareness and an introduction to the role of the sea in human history, as well as an overview of the format and content of the program and mutual expectations. The Course Director and Course Co-ordinator also led walking tours from the university to the downtown, pointing out local places of interest and showing where to purchase various foods and commodities, including less common international food items.

One of the difficult elements of curriculum organization is determining the sequence of presentation of fundamental or core materials. Since the participants come from a variety of backgrounds some are more fluent in scientific issues, some in legal principles, and some in other disciplines. To avoid redundancy and ensure that the program builds on previously learned concepts, the sequence of introduction to science and scientific principles, followed by legal principles and law of the sea still provides the best fundamental introduction before moving on to the sectoral modules. Ensuring that the participants all have a basic working knowledge of the concepts and terminology means that subsequent module lectures are able to avoid having to explain too many basic principles.

A typical module week consisted of introductory and topic-specific lectures, divided into a morning and an afternoon session, with a midpoint coffee break. Most weeks also have a morning or afternoon field

trip, finishing with a module wrap-up session usually on the Friday afternoon. Lecturers are encouraged to include some form of practical exercise or discussion session to break up the information delivery.

One new innovation was a "what's going on in the oceans" session at the beginning of each day. Starting promptly at 8:55 a.m. while the participants were still getting to their places, the Course Director would ask what ocean developments or issues were in the news that day, followed by a brief commentary on the significance to international ocean governance. It could be a shipwreck or oil spill, a new technological development, a political development, international meeting or anything which had oceans relevance. Participants were encouraged to scan the news, the Internet, social media sites etc. to bring up items of note. This encouraged them to begin a regular practice of tracking ocean-related issues as they emerge, and then to determine their possible significance.

Chronology of Modules

The course curriculum was once again divided into 10 modules, each under the academic direction of a Module Leader, generally a Senior Research Fellow with expertise in a particular subject area. Module Leaders ensure that the material presented is up-to-date and includes new developments in the sector, and they also help the Course Director with continuity and thematic linkages between the modules. This allows for a progressive building of ocean literacy, prevents repetition of material, and helps make sure that necessary concepts can be integrated into subsequent modules.

Opening Ceremony

The course opening on May 25th at the Great Hall of Dalhousie University was chaired by Michael Butler, Director of IOI-Canada. Dr. Carolyn Watters, Provost & Vice-President, Academic represented Dalhousie University and words of welcome were also provided by Richard Zurawski, Councillor on behalf of the Halifax Regional Municipality; Frank Dunn, Deputy Minister of Nova Scotia Department of Fisheries and Aquaculture on behalf of the provincial government; Dr Alain Vézina, Regional Director of Science, Department of Fisheries and Oceans on behalf of the federal government; and Dirk Werle, Board of Directors, IOI-Canada. Participants Michael Ballard and Rose-Marie Bargain responded to the welcome as representatives of the class of 2018.

World Oceans Day

On 8th June, World Oceans Day, IOI presented the 14th annual Elisabeth Mann Borgese Ocean Lecture, entitled *Peace and Equity in Ocean Governance - Possibility or Pipe Dream?* The panel was moderated by Dr. Wendy Watson-Wright, Chief Executive Officer of the Ocean Frontier Institute. The panellists were Vice Adm. (ret'd) Glenn Davidson, former senior naval officer and Canadian ambassador to Afghanistan and Syria; Dr. Susanna Fuller, Senior Project Officer for Oceans North & Senior Research Fellow, IOI-Canada, and Hugh Williamson, Senior Research Fellow and long-term associate of Elisabeth Mann Borgese. In addition to the course participants there was a large attendance by members of the university, academia and oceans community, as well as the Director of IOI's centre in Brazil, Dr. Eduardo Marone. The lecture was co-sponsored by the High Seas Alliance and WWF–Canada, as well as Dalhousie University which provided the venue at the Schulich School of Law, where the post panel reception was also held.

Closing Ceremony

The Closing Ceremony was held at the Great Hall. The participants received their certificates from IOI and were given an opportunity to express their thanks to the various individuals that assisted them during their stay in Halifax. The ceremony also included the performance of a special IOI song composed by

course participants Michael Ballard from Canada and Gilde Tahindraza from Madagascar. This added to the warm relationships which had developed among the course participants and will provide an additional challenge for subsequent courses to meet!



Field Trips

An integral part of the training programs has been the field trips and visits to local marine institutions which provide visual and practical examples of many of the aspects discussed during the course presentations. Halifax and Nova Scotia have one of the largest concentrations of diverse oceans-related activities. Public and private sector enterprises, educational and government facilities, NGOs and intergovernmental organizations all offer rich opportunities to illustrate the practical aspects of oceans governance and management. The field trips also provide a necessary break in the class schedule, providing a change of pace and a different learning environment which contributes to the overall effectiveness of the program delivery model.

Due to availability issues regarding personnel and facilities, it is often difficult to schedule visits in complete synchronization with the subject issues of the current module. Ideally, there would be one and probably no more than two external visits in any given week scheduled around the current subject matter, but this is not always possible.

BIO

The first major field trip was to the Bedford Institute of Oceanography in Dartmouth. This is Canada's premier oceanographic research center and is one of the world's leading concentrations of ocean-related science. In addition to presentations on the work of the various government departments at the Institute, the participants were able to see active research and test models for oil pollution dispersion, fisheries management and many of the technological innovations in marine scientific research. Unfortunately, due to vessel scheduling, it was not possible to visit on board one of the oceanographic vessels, something which has been done in previous years. Once again, the visit was coordinated by Scott Coffen-Smout, a DFO biologist and long-term associate of the IOI. Many of the participants were able to make contact with experts at DFO involved in their specific areas of interest, once again providing one of the IOI ocean governance program's fundamental objectives, providing personal linkages between Canadian oceans managers and researchers and their international colleagues.

Bay of Fundy

The keystone field trip of the program is a three-day visit to the Fundy shore of Nova Scotia, which offers a unique opportunity for the participants to see a concentration of diverse activities being conducted along one of the world's most unique oceans habitats. The trip started with a visit to Sustainable Blue Fish Farm, a land-based and largely self-contained salmon rearing facility. Participants could observe the entire “growing to market size” process, and discuss with the managers the challenges and opportunities of seafood production in a facility designed for minimal impact on the environment. This was contrasted with an open ocean, pen enclosure, salmon farm which was observed later in the trip.

The participants visited the Annapolis Royal Marsh nature trail, a preserved marshland, where they were able to view both indigenous and invasive species, and compare some of the impact being experienced by an outdoor recreational preserve. The visit to the nearby Annapolis Tidal Power Station, one of the world's only tidal power generating stations, provided an opportunity for frank discussions on the benefits and impact of an energy production facility on the adjoining habitat and fisheries industry.

As the Annapolis Basin was the location of the earliest French and English colonization attempts in North America, the class also visited several historical site including Habitation, a reproduction and animation of the original 17th Century French settlement. While providing an interesting historical overview, it also gave an opportunity for the indigenous participants to discuss the historical significance of the first contact between Europeans and the North American indigenous population.

Two sites which also provided an excellent contrast in related marine resource exploitation were Gulliver's Cove seaweed venture, a small family run harvesting and marketing company operating in a former active fishing village, and the Acadian Seaplants research facilities located in the Cornwallis industrial park. The participants were able to contrast a low-tech seaweed for consumption harvesting and processing facility, with a major industrial seaweed research and processing facility, involved in selective breeding and seaweed component extraction for commercial and industrial purposes worldwide.



The field trip also included a visit to the fishing port at Digby to illustrate the management of a significant inshore fishing fleet. Participants were able to discuss with port personnel the requirements of managing a seasonal multi-species fishing operation, focused particularly on scallops and lobster.

The return journey to Halifax took the participants across the province for a visit to Kejimikujik National Park and an opportunity to discuss with park staff some of the issues surrounding the historical and cultural significance of the park to members of the Mi'kmaq indigenous peoples. Unfortunately, due to the rainy weather, the participants were unable to venture onto the coastal rocks to see the petroglyphs, however other historical items of significance were reviewed and discussed with their cultural significance. The final visit on the trip was to the Lunenburg Fisheries Museum, where the participants viewed a number of exhibits dealing with the fishing industry in both its historical and social context.

In total, the field trip provided an opportunity to view coastal habitat, both historical and contemporary, multiple marine uses for commercial and recreational purposes, and the interaction between the marine environments in the different human activities.

EMO

As part of the maritime security module, the participants had a visit to the Nova Scotia Emergency Management Office located in Dartmouth. There they could observe the integrated government response centre and be briefed on the various procedures and support facilities available for disaster management.

NAFO

During the fisheries and aquaculture module, the participants paid an afternoon visit to the Northwest Atlantic Fisheries Organization (NAFO) offices in Dartmouth. NAFO is one of the major international regional fisheries management organizations (RFMOs) and the participants were given a briefing by the Executive Secretary and senior scientific staff, with an opportunity for question and answers on the role of the commission and the problems of managing large multi-species international fisheries.

ECRC, SSTL and Port of Halifax

The final field trip, during the maritime transportation module, was to three different organizations each responsible for a different aspect of management, safety and protection in the commercial shipping and offshore sectors. The Eastern Canada Response Corporation, located in Dartmouth, provides oil spill and pollution response in compliance with a number of Canadian and international legal requirements. Participants received a briefing on the training, preparation and operation of oil spill response and had an



opportunity to review the facilities and equipment which are necessary to provide contemporary environmental protection from oil and chemical spills.

The second visit was to Survival Systems Training Ltd, located in an adjacent facility. This gave the participants an opportunity to see how modern sea survival training is conducted for workers in the offshore sector. They were able to observe the large sea survival simulation tank in operation where ship, life raft, and helicopter rescues are undertaken using a full wave and storm simulation. Training and certification in this or a comparable facility is required for workers in the offshore, including seafarers. This gave the participants an appreciation of the complexity and intensity of training required to ensure the safety and protection of maritime workers.

The final visit was to the Port of Halifax operation centre located on the Halifax waterfront. The participants were briefed on the port operations, the various levels of safety and security regulations, and the commercial exigencies of a modern contemporary multi-cargo port. The participants also had a water tour of the adjacent port facilities, including the cruise ship terminal, Halterm container operation and adjacent RoRo facilities.

Participant Presentations

As a requirement of the program, each participant has to give a short presentation on a topic related to their work or function in their home country. This gives an opportunity for them to practise their speaking skills and their ability to produce relevant visual materials. This element always proves a challenge, and participants whose native language is non-English may find themselves under greater constraints to present the materials. However, it gives an opportunity for a positive critique of presentation styles and mannerisms, as well as providing additional background information for the other participants.



Simulations and Exercises

As with previous years, the major simulation exercise, The Lambent Sea, was conducted by Senior Research

Fellow, David Griffiths. This simulation has steadily evolved since its inception, with suggestions from module leaders for modifications which would allow the elements of the simulation to more closely mirror the curriculum development sequence of the course. Participants are introduced to the overall geopolitical scenario early in the program, which is then gradually enhanced by additional elements culminating in the final presentation of the ocean governance plan to the Round Table of experts. One new addition to the simulation was the use of a Lambent Sea scenario for the negotiations exercise in the Communication and Negotiation module. The participants also seemed to enjoy any practical exercise which breaks the standard model of lecture, PowerPoint delivery and question-and-answer. Part of the objective of the evolving major simulation is to have it sufficiently self-executing so that it is not dependent upon the expertise of any specific simulation director. As it is evolving, the objective may be

achieved so that the model simulation can be more easily transported in an abbreviated form to other course venues within the IOI or otherwise.

This year's concluding Round Table of experts was made up of Dr. Sean Brilliant, Dr. Dan Lane (both of whom had lectured earlier in the course) Dr. Suzuette Soomai and Wendell Sanford, a retired senior Canadian diplomat to provide external overview and critique. David Griffiths served as Moderator.

Analysis

My tenure as Course Director gave me an opportunity to participate in all aspects of the annual training program, to review the curriculum, and to observe how the participants interact, and react to the information in situations being provided. In considering the viability of the program I took as a basis for analysis four key questions:

- 1) Does it attract the right participants?
 - a. People involved in key decision making and policy development
 - b. An appropriate mix representing diverse nationalities and regions
 - c. A mix of professional backgrounds and sectors
 - d. Do employers still see value in letting key people go for 8 weeks?
- 2) Does the programme provide necessary and useful information for current and future situations in ocean governance?
 - a. Just enough basic or introductory material to allow participants to engage in discussion
 - b. Identification of new or emerging trends and issues of importance
 - c. Curriculum updated to eliminate topics which have been superseded
- 3) Does it provide sufficient practical opportunity for mutual learning, analytical skill development and critical thinking?
 - a. Are field experiences relevant and educational?
 - b. Does the simulation enhance awareness and decision making in ocean governance issues?
 - c. Are participants able to provide input from personal knowledge and experience?
- 4) Will the participants enhance the network of international decision-makers in ocean governance?
 - a. Will there be continuous interaction between participants once they resume their professional responsibilities?
 - b. Will this create a synergy of critical ocean governance expertise at the national, regional and international level?

These questions provided a metric for evaluating individual components of the program, and the overall utility in continuing to provide a short multidisciplinary, interactive and intersectoral learning experience for the participants.

My analysis of the program based on these questions is that it is still attracting a critical mass of dedicated international oceans managers and decision-makers. The vast majority of the participants have a considerable background in their specific field of expertise, which they are able to bring to the program and share with the other participants. The cross-fertilization of ideas and the mutual learning which takes place validate the need for a protracted period of interaction, with individuals living and working together, and being exposed to new ideas and concepts for dealing with the oceans, and by extension with each other. Not only does the program engender friendships, but probably more importantly, it serves as

an incubation point or hub where ideas and initiatives are generated , critiqued and refined, and then taken back to home countries for further development and implementation in cooperation with the other participants in the program.

Two specific initiatives which are under consideration as a result of this year's program are:

- 1 – An indigenous peoples' ocean governance training program for the Arctic Ocean, to be conducted in the Arctic and to include indigenous representatives from Arctic Ocean countries.
- 2 – An ocean governance program for Africa and the Indian Ocean to focus on specific needs of African coastal states and small island states in developing a regional approach.

It should further be pointed out that the inclusion of people from industrialized countries has always been a desirable component, expressed by the course participants. It is felt that there is a need to have individuals who are able to express the attitudes and opinions of the industrialized perspective. Having both a Canadian journalist and members of the indigenous communities present on the course provided some of this perspective, as well as adding another social and cultural dimension with the representation of disadvantaged populations not often heard from in the ocean governance debates. Getting indigenous participants, especially those who are starting their careers within their communities, offers IOI-Canada a unique opportunity to develop an entirely new pool of potential course participants, and a dimension to the dialogue which is often missing.

Hugh Williamson
2018 Course Director



PARTICIPANTS



Mr Michael BALLARD, Fishery Officer – Field Supervisor, Conservation and Protection Branch, Fisheries and Oceans Canada, Campbell River, British Columbia, Canada

Ms Rose-Marie BARGAIN, Principal Secretary, Blue Economy Department, Vice President's Office, Mahé, Seychelles

Ms Yanet CRUZ PORTORREAL, Professor, Multidisciplinary Studies Centre of Coastal Zone, Universidad de Oriente, Santiago de Cuba, Cuba

Mr Lorenzo GEORGE, Fisheries Officer (Extension), Fisheries Division, Ministry of Agriculture, Forestry, Fisheries, Rural Transformation, Industry and Labour, Kingstown, St Vincent and the Grenadines

Ms LIU Yunzhe, Law Enforcement Official, South China Sea Branch, China Marine Surveillance, Guangzhou, China

Mr Charlie MARSHALL, Junior Policy Analyst, Fisheries and Integrated Resources Department, Atlantic Policy Congress of First Nations Chiefs, Dartmouth, Nova Scotia, Canada

Mr Cretus Joseph MTONGA, Administrative Officer, Aqua - Farms Organization, Dar es Salaam, Tanzania

Dr NWAFOR Ndubuisi Augustine, Lecturer, Faculty of Law, University of Nigeria, Enugu Campus, Nigeria

Mr Phillip PROSPER, Fishery Officer, Conservation and Protection Branch, Fisheries and Oceans Canada, Lennox Passage, Nova Scotia, Canada

Ms Maritza QUEELEY, Port State Control Officer, Department of Marine Resources, Basseterre, St Kitts and Nevis

Ms RAKOTONDRAZAFY Sariaka Ravaka Andrianavalona, Programme Manager, FANAMBY, Antananarivo, Madagascar

Mr Alen SHAKIROV, Lead Specialist, Marine Survey Department, KazEcoProject LLP, Almaty, Kazakhstan

Mr SUN Yonggen, Researcher, Research Centre for Islands & Coastal Zone, First Institute of Oceanography, Ministry of Natural Resources, Laoshan District, Qingdao, Shandong Province, China

Mr TAHINDRAZA Gilde Bertrand, Southwest Association Support Coordinator, Blue Ventures, Toliara, Madagascar

Ms Brontë THOMAS, Fisheries Technician, Peskotomuhkati Nation at Skutik, St Stephen, New Brunswick, Canada

Ms WANG Jing, Research Fellow, National Marine Data and Information Service, Ministry of Natural Resources, Hedong District, Tianjin, China

Ms Jessica WINTERS, Student, Department of Biology, Memorial University of Newfoundland, St John's, Newfoundland, Canada

Mr Paul WITHERS, Reporter, Canadian Broadcasting Corporation, Halifax, Nova Scotia, Canada

Ms YU Feng, Principal Staff Member, Marine Environment Protection Department, North China Sea Branch, Ministry of Natural Resources, Qingdao, Shandong Province, China

Ms YU Qian, Maritime Program Manager & Junior Research Associate, National Institute for South China Sea Studies, Haikou, Hainan, China

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Sincere thanks are also due to the various organisations which contributed to the 2018 programme by hosting the class and/or assisting with field trips or the EMB Lecture. These included Acadian Seaplants, Annapolis Tidal Power Station, Bedford Institute of Oceanography/Department of Fisheries and Oceans, Clean Annapolis River Project, Eastern Canada Response Corporation, Fundy Adventures, Halifax Port Authority, Northwest Atlantic Fisheries Organization, Nova Scotia Emergency Management Office, Ocean Frontier Institute, Port of Digby, Survival Systems Training Ltd and Sustainable Blue/Sustainable Fish Farming Canada.

Blue Ventures

Level 2 Annex
Omnibus Business Centre
39-41 North Road
London, N7 9DP
England

Tel: 44 (0)207 697 8598
Fax: 44 (0)800 066 4032
E-mail: info@blueventures.org
Web: www.blueventures.org

Blue Ventures is an award-winning marine conservation organisation which develops locally led approaches to marine management that benefit people and nature alike. By listening and responding to basic needs, it designs models that catalyse and sustain marine conservation, unlocking the potential of coastal communities to manage their resources.

For over a decade, Blue Ventures has worked in places where the ocean is vital to local cultures and economies. It is committed to advancing the rights of vulnerable small-scale fishers throughout the coastal tropics and it has set itself the goal of reaching at least three million people by 2020. Its work plays a critical role in rebuilding coastal fisheries, empowering communities with the means to safeguard their futures, improving food and income security, and building resilience to climate change whilst reversing biodiversity loss.

Blue Ventures has piloted sustainable aquaculture businesses, and developed transformative approaches for integrating community health services with marine conservation. Its models have guided fisheries policy and are being replicated by communities, NGOs, businesses, donors and governments worldwide. Today these models are underpinning the largest community-based marine conservation areas on earth, and are supporting local partners to engage communities in conservation in nine tropical coastal countries.

Blue Ventures provided a grant towards the living expenses of a staff member from Madagascar who works to support communities in Locally Managed Marine Areas.

Canadian Broadcasting Corporation

Head Office
181 Queen Street
P.O. Box 3220, Station C
Ottawa
Ontario, K1P 1K9
Canada

Tel: 1 866 306 4636 / 1 613 288 6000
E-mail: liaison@cbc.ca
Web: www.cbc.ca

The Canadian Broadcasting Corporation (CBC/Radio-Canada) is a federal crown corporation which was established in 1936. As Canada's national broadcaster, it has been a source of news, information and entertainment for over 80 years.

CBC's 'arm's length' relationship with government is critical to maintaining administrative and programming independence of political direction. The corporation's autonomy is assured through the authority conferred by Parliament upon its President and the other Directors who act as Parliament's 'trustees' on behalf of the public to define and guard public interest and to fulfil CBC/Radio-Canada's mandate.

The CBC provides quality and accessible programming from coast to coast to coast through radio, television and digital platforming. Programming is offered in both Canada's official languages of English and French, as well as eight different indigenous languages (Dogrib, Inuktitut, Inuvialuktun, Chipewyan, North Slavey, South Slavey, Gwich'in and Cree) via CBC North, and in Mandarin, Arabic and Spanish via Radio Canada International.

Accurate and reliable journalism is a key part of this programming, and CBC News has been Canada's publicly owned news and information service since 1941. CBC News is rooted in every region of the country including Nova Scotia, and it reports on Canada and the world to provide a Canadian perspective on news and current affairs. Its mission is to:

- inform,
- reveal,
- contribute to the understanding of issues of public interest, and
- encourage citizens to participate in the nation's free and democratic society.

CBC Nova Scotia endorsed the nomination of one of its reporters, who works on ocean-related news for radio, television and online, to allow him to participate in the training programme. His tuition was funded nationally by the CBC Learning and Development Department.

Caribbean Regional Fisheries Mechanism

Princess Margaret Drive
P.O. Box 642
Belize City
Belize

Tel: 501 223 4443
Fax: 501 223 4446
E-mail: secretariat@crfm.int
Web: www.crfm.net

Inaugurated in 2003 and headquartered in Belize, the Caribbean Regional Fisheries Mechanism (CRFM) is an intergovernmental organisation with a mission to “promote and facilitate the responsible utilization of the region's fisheries and other aquatic resources for the economic and social benefits of the current and future population of the region.” Its members are Anguilla, Antigua & Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Turks and Caicos Islands.

The CRFM consists of three bodies – the Ministerial Council, the Caribbean Fisheries Forum, and the CRFM Secretariat. The Ministerial Council is the highest decision-making body of the CRFM, and is responsible for formulating the policy of the Mechanism. It is comprised of the Ministers responsible for Fisheries in each Member State. Supported by the Executive Committee, the Forum is made up of one representative from each Member, each Associate Member and each Observer. The CRFM Secretariat is the technical unit, located in offices in Belize and the eastern Caribbean (St Vincent and the Grenadines), comprising a permanent body of technical, scientific and support staff.

Under a Memorandum of Understanding with IOI, the CRFM provides funding to cover travel expenses of participants from its member countries. This year's travel grants enabled staff from St Kitts and Nevis and St Vincent and the Grenadines to attend the course.

Commonwealth Secretariat

Marlborough House
Pall Mall
London, SW1Y 5HX
England

Tel: 44 (0)207 747 6390
Fax: 44 (0)207 930 0827
E-mail: info@commonwealth.int
Web: commonwealth.org

The Commonwealth is a voluntary association of independent and equal sovereign states, each responsible for its own policies, consulting and co-operating in the common interests of its peoples. The Commonwealth Secretariat, headquartered in London is the principal intergovernmental agency of the Commonwealth, collaborating with member governments, the broader Commonwealth family and development partners to improve the well-being of all Commonwealth citizens and to advance their shared interests globally.

As a champion for Small States, the Commonwealth Secretariat advocates on behalf of small and vulnerable states and young people, helping to strengthen governance and diversity, build inclusive institutions and promote justice and human rights. It provides legal, technical and policy advice on political, economic and social development issues; and training and technical assistance for enhancing legislative, regulatory and institutional frameworks, policy development and implementation. It also deploys governance experts and observers who offer impartial advice and support democratic solutions.

Commonwealth Secretariat activities maintain a balance between outcomes and allocation of effort under the longstanding ‘democracy’ and ‘development’ pillars, with the goals being:

- strong democracy, rule of law, promotion and protection of human rights and respect for diversity;
- inclusive growth and sustainable development; and,
- a well-connected and networked Commonwealth.

The Secretariat’s three Directorates focus on: Governance and Peace; Trade, Oceans and Natural Resources; and Economic, Social and Sustainable Development. Mandates on priority areas of work are agreed at Commonwealth Heads of Government Meetings, which occur every two years, with the next summit scheduled for 2020 in Rwanda.

Under the Developmental strategic objective, the Secretariat is supporting the Government of Seychelles in the implementation of their national Blue Economy Strategic Policy Framework and Roadmap. This represents an integrated approach to ocean-based, sustainable development which brings together economy, environment and society. It applies a ‘blue’ lens to current ocean-based activities and supports innovation and entrepreneurship in new and emerging areas.

As a contribution to building national capacity, the Secretariat supported the participation of Seychelles’ Principal Secretary for Blue Economy to attend the IOI course in 2018.

Dalhousie University

1459 Oxford Street
P.O. Box 15000
Halifax
Nova Scotia, B3H 4R2
Canada

Tel: 1 902 494 2211
Fax: 1 902 494 2319
Web: www.dal.ca

Founded by the ninth Earl of Dalhousie in 1818 – and therefore proudly celebrating its 200th anniversary in 2018 (dal200.ca) – Dalhousie University has grown from being the little “college by the sea” into one of Canada’s leading research and teaching universities. Spread over nearly 80 acres in Halifax and with an agricultural campus in Truro, it currently offers 4,000 courses in more than 180 undergraduate, graduate and professional degree programmes, as well as an extensive continuing education programme. Its 18,800 students come from across Canada and more than 115 countries around the globe, and enjoy one of the lowest student-professor ratios in the country. Dalhousie’s graduates form a powerful network making important contributions in all walks of life, and include the first female Supreme Court of Canada judge, the first American woman to walk in space, and 91 Rhodes Scholars.

Dalhousie’s teaching and research strengths go hand in hand, with a strong core of talented and dedicated researchers conducting basic and applied research. As Atlantic Canada’s leading research university, Dalhousie attracts more than \$156 million in external research grants and awards each year. Many of its researchers are nationally and internationally recognised for their work, and the university is home to 50 Canada Research Chairs – more than any other university in the region. Chairholders advance the frontiers of knowledge in their fields, not only through their own work, but also by teaching and supervising students and co-ordinating the work of other researchers.

Ocean studies are one of Dalhousie’s main focuses and strengths. Building on its proximity to the sea, Dalhousie played a pioneering role in oceans education as the first university in Canada with an Oceanography Department. Subsequent Canadian firsts have been its Marine and Environmental Law Program, its Marine Affairs Program and its undergraduate degree in Ocean Sciences. Linked to its ocean learning, Dalhousie has developed a broad range of expertise in ocean research and is increasingly defined as a world leader in this field. Its researchers work on discovering innovative answers to the world’s ocean-related questions in areas such as:

- Ocean Law and Governance
- Marine Affairs
- Marine Biological Resources and Conservation of Biodiversity
- Marine Technologies
- Ocean Environmental Processes
- Arctic Studies
- Atmospheric Science
- Marine Bio-Resources

Each year since the inception of the IOI course in 1981, Dalhousie University has provided crucial in-kind support to this training programme. With the ocean at its doorstep, and with ready access to one of the highest concentrations of marine experts in the world, the university is an ideal host for a course of this kind.

Fisheries and Oceans Canada

200 Kent Street
Ottawa
Ontario, K1A 0E6
Canada

Tel: 1 613 993 0999
Fax: 1 613 990 1866
E-mail: info@dfo-mpo.gc.ca
Web: www.dfo-mpo.gc.ca

Fisheries and Oceans Canada (DFO) is the federal lead for managing Canada's fisheries and safeguarding its waters. The department supports economic growth in the marine and fisheries sectors and innovation in areas such as aquaculture and biotechnology. It aims to ensure healthy and sustainable aquatic ecosystems through habitat protection and sound science. The Canadian Coast Guard (CCG), a special operating agency within DFO, contributes to the safety, security and accessibility of Canada's waterways.

Employees of DFO and the CCG work in over 400 locations across Canada. Their work is centered on the following four core responsibilities, each of which calls for science-based decision-making, engagement with Canada's indigenous peoples and reliance on the CCG fleet for on-water activities:

- **fisheries:** ensuring Canada's fisheries, including aquaculture, are protected, managed sustainably and support indigenous participation, and that the national network of harbours is open and in good repair;
- **aquatic ecosystems:** protecting Canada's oceans, freshwater and aquatic ecosystems and species from the negative impact of humans and invasive species through sound science and in collaboration with indigenous communities;
- **marine navigation:** maintaining waterways year-round so they are safely navigable by mariners and all Canadians;
- **marine operations and response:** responding to maritime incidents, such as search-and-rescue and environmental emergencies, through the Coast Guard fleet and in collaboration with indigenous communities.

Under the Oceans Management Contribution Program (2017-2018), the department provided full funding to enable five indigenous Canadians to participate in this year's course.

High Seas Alliance

c/o The Ocean Foundation
1320 19th St NW
Washington, DC 20036
USA

Tel: c/o 1 202 887 8996
E-mail: info@highseasalliance.org
Web: www.highseasalliance.org

Founded in 2011, the High Seas Alliance (HSA) is a partnership of organisations and groups aimed at building a strong common voice and constituency for the conservation of the high seas. The Alliance is currently made up of 37+ NGOs plus the International Union for the Conservation of Nature (IUCN).

The objective of the Alliance is to facilitate international cooperation to establish high seas protected areas and to strengthen high seas governance. Members of the HSA share and facilitate access to information in order to promote transparency and encourage an informed public discourse related to the mission and goals of the Alliance. Its mission is to conserve the world's high seas — which cover half of our planet. Its goals are to:

- build a strong common voice and constituency for high seas conservation;
- promote and catalyse the protection, conservation and restoration of marine ecosystems and biodiversity;
- promote and catalyse the building of a comprehensive, representative and effective system of marine protected areas (MPAs), including no-take reserves;
- catalyse and monitor the effective implementation of existing and emerging ocean conservation obligations and rules; and,
- promote and monitor effective governance, management and enforcement systems that support and ensure conservation, sustainability of use and equitable benefit sharing for all high seas marine resources and species, including fisheries.

High Seas Alliance members commit to working together to achieve these goals either as members of a collaborative effort through the Alliance, or as individual organizations supported by or affiliated with the Alliance. They also collaborate to inspire, inform and engage the public, decision makers and experts in support of high seas conservation, and to work through relevant intergovernmental processes and organizations to ensure that meaningful action is taken to achieve these common goals.

A contribution of HSA funding was provided for this year's Elisabeth Mann Borgese Ocean Lecture. This public event was held on World Oceans Day and featured an interdisciplinary panel discussing a wide range of issues relating to *Peace and Equity in Ocean Governance – Possibility or Pipe Dream?*

KazEcoProject LLP

Klochkov Street 123

Almaty 050057

Kazakhstan

Tel: 7 727 352 85 30

Fax: 7 727 250 28 75

Web: www.environmental-expert.com/companies/kazecoproject-llp-58984

KazEcoProject LLP was established in 2011 with its primary focus to provide services in the field of environmental project management. These include:

- design and negotiation of MPE projects
- conducting EIAs
- preparation and further negotiation of environmental emission permits
- design of waste treatment programmes
- design and negotiation of gas processing programmes etc.

The organisation is also currently one of the key players in a relatively new policy direction for Kazakhstan – the Kazakh National GHG Trading System. As an Accredited Independent Entity – an entity accredited by the Ministry of Environmental Protection of the Republic of Kazakhstan – KazEcoProject is responsible for the determination, validation and verification of whether a project and the ensuing reductions of anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks meet the relevant national and international requirements. Thus, a highly qualified expert team from the organisation manages and conducts verification and validation audits and reviews of GHG emission quantifications and GHG emission reduction projects.

KazEcoProject LLP provided a contribution towards the course expenses of the Lead Specialist of their Marine Survey Department.

Maritime Analysis and Risk Investigation Network

Dalhousie University
P.O. Box 15000
Halifax
Nova Scotia, B3H 4R2
Canada

Tel: 1 902 494 6113
Fax: 1 902 420 7858
Web: www.marin-research.ca

Set up in 1997 by Dr Ronald Pelot, the Maritime Analysis and Risk Investigation Network (MARIN) is a Research Group at Dalhousie University based in the Department of Industrial Engineering. Its mission is to develop methodologies and decision support software to investigate all types of maritime activities, and risks associated with them.

Research methods encompass spatial risk analysis, vessel traffic modelling, pattern analysis, location models for resource allocation, and safety analyses. Applications include Search & Rescue (SAR) planning, marine oil spill detection and response, port and maritime security, arctic traffic and risk modelling, and coastal zone management. One of the outputs developed by the Network is a comprehensive database of many types of maritime traffic, with the data used to simulate traffic and assist in the risk analyses for fishing, shipping, ferries, recreational boating and others.

Due to an overlap in research focus, and particularly a shared interest in risk perspectives, MARIN provided financial support in the form of an airfare for the participant from Cuba to help her attend the 2018 course. It also enabled her to consult with Network specialists at the MARIN lab.

Ministry of Natural Resources, China

1 Fuxingmenwai Avenue
Beijing
100860
China

Tel: 86 10 6804 7732
Fax: 86 10 6803 0799
Web: www.soa.gov.cn

As a result of recent government restructuring, China's new Ministry of Natural Resources has taken over the functions of the State Oceanic Administration (SOA), formerly the administrative agency responsible for:

- supervising and managing sea area use, marine environment protection, marine disaster forecasting and mitigation;
- ensuring China's marine sovereignty and rights; and
- promoting research in marine science and technology.

Under this framework, there were 14 departments in its Beijing-based headquarters, three branches, 12 national-level operational centres, five oceanography institutes and two offices responsible for polar affairs and international sea bed mineral resources research and exploration affairs respectively. Their main functions include:

- the supervision and management of sea area use, marine environment protection, marine disaster forecasting and mitigation;
- ensuring comprehensive coordination of marine environmental monitoring, scientific research, waste disposal and ocean resources exploitation;
- formulation of national marine strategy and policies; planning and supervising the implementation of medium and long term National Development Plans for marine issues and a National Development Plan for the marine economy;
- establishing and improving systems concerning marine management, and drafting marine laws and regulations concerning the coastal zone, islands and sea areas;
- supervision, evaluation and information dissemination on marine economic performance;
- regulating, supervising and managing sea area uses;
- island ecological protection and legitimate use of uninhabited islands;
- protection of the marine environment;
- implementing marine research and surveys, promoting marine scientific and technological innovations, undertaking research into – and application and management of – seawater use and marine renewable energy resources, and managing the marine series satellites and ground application system;
- marine environmental observation and forecasting, and marine disaster warning;
- international cooperation and exchange activities;
- safeguarding national maritime rights and interests according to international and domestic laws.

For the 2018 course, the Ministry of Natural Resources provided four scholarships. This funding enabled staff members to attend the course from China Marine Surveillance (Guangzhou), First Institute of Oceanography (Qingdao), National Marine Data and Information Service (Tianjin) and North China Sea Bureau (Qingdao).

National Institute for South China Sea Studies

No. 5, Jiangdong Yiheng Road
Meilan District
Haikou
Hainan, 571100
China

Tel: 86 898 6534 2360
Fax: 86 898 6533 3304
E-mail: nanhai@nanhai.org.cn
Web: www.nanhai.org.cn

The National Institute for South China Sea Studies (NISCSS) is an academic institute in China dedicated to research on South China Sea issues. Its predecessor, the Hainan Research Institute for the South China Sea (HRISCS), was established in 1996 as China's foremost research centre for South China Sea issues. In 2004, the State Council gave approval for it to be upgraded to a national level institute, when it was renamed the National Institute for South China Sea Studies. In 2011, it moved to its current location with extensive facilities for research, conferences and training.

The NISCSS now has six sections:

- Research Centre for Oceans Law and Policy,
- Research Centre for Maritime Economy,
- Research Centre for Marine Science,
- Research Centre for Maritime Silk Road,
- Division for International Exchanges, and
- Administrative Office.

Its Beijing office, which was established in 2013 as part of the institute's long-term development strategy and to strengthen the academic network, falls under the Division of International Exchanges.

The institute's main research areas currently include:

- strategy of the South China Sea;
- geopolitics of the South China Sea, including neighboring countries' policies;
- international law and South China Sea disputes;
- peaceful settlement of the Spratly Islands dispute;
- resources development and environmental protection in the South China Sea;
- strategies, institutions and mechanisms for developing maritime economy and building the maritime silk road in the 21st century.

The NISCSS has linkages with a large number of institutions around the world, including IOI-Canada with which it signed an MOU in 2015. Since then, the two organisations have collaborated on planning and delivering four international courses held in Haikou, with the most recent *China-ASEAN Academy on Ocean Law and Governance* held in November 2018.

The NISCSS contributed towards tuition for a staff member from the Division for International Exchanges to attend the IOI training programme.

Ocean Frontier Institute

Steele Ocean Sciences Building
Dalhousie University
1355 Oxford Street
P.O. Box 15000
Halifax, Nova Scotia, B3H 4R2
Canada

Tel: 1 902 494 8823
E-mail: ofi@dal.ca
Web: www.oceanfrontierinstitute.com

The Ocean Frontier Institute (OFI) is an international hub for ocean research which was established in 2016 through funding from the Government of Canada, the Governments of Nova Scotia and Newfoundland and Labrador, industry and eight international research organisations. It is headquartered at Dalhousie University and has an additional centre at Memorial University of Newfoundland in St John's.

As a collaborative research initiative to harness the vast potential of the world's ocean, the OFI has a mandate to:

- understand ocean and ecosystem change and develop strategic, effective solutions that can be applied both locally and globally; and,
- conduct research that advances policy decisions and the development of a sustainable, blue economy.

With its main focus on the North Atlantic and Canadian Arctic Gateway, the OFI brings together experts from both sides of the North Atlantic to conduct major research projects which will:

- improve prediction and mitigation of major storms;
- help manage human activities as they relate to ocean resources;
- improve the potential for fisheries and aquaculture industries to meet global seafood demand in a sustainable manner;
- strengthen marine safety; and,
- transform ocean monitoring with new data capture and IT tools.

OFI also prioritises education and the advancement of ocean literacy. It offers a range of opportunities for “people exchange” through its International Postdoctoral Program, Visiting Fellows Program and Bilateral Doctoral Program. It also participates in Ocean School which develops ocean literacy exhibits, online and classroom-based learning resources, social media-driven dialogue and other activities that illustrate the complex relationship between humans and the ocean. Learning tools include short films, digital games and 360-degree ‘immersive’ ocean experiences using head-mounted virtual reality displays and tablets.

OFI agreed to sponsor the participant from Cuba with a scholarship for her course-related expenses in Canada.

Organización de Productores de Atún Congelado

C/ Ayala, nº 54
28001 Madrid
Spain

Tel: 34 91 431 48 57
E-mail: opagac@opagac.org
Web: opagac.org/en

The Organización de Productores de Atún Congelado (OPAGAC) is an organisation of producers of frozen tuna recognised in Spain by the Ministry of Agriculture, Fisheries and Food through its subsidiary Agency FROM (Ministerial Order of July 7, 1986). It is one of the 45 associations which make up the Spanish Fisheries Confederation, established in June 2007.

OPAGAC's fleet uses purse seine fishing gear and its target species are Skipjack, Yellowfin and Bigeye. The organisation strives to be a leader in the fishing industry in the development and implementation of improvements in the tuna purse seine fishery to reduce its ecological impact and increase its operational transparency. Through voluntary changes in behaviour of its fleet, changes in fishing operations, and management to solve problems at the level of fisheries governance, OPAGAC/AGAC is committed to achieving environmental, social and operational sustainability of its fleet. Its ultimate goal is to achieve certification by the Marine Stewardship Council (MSC) for these three species of tuna.

OPAGAC has a long tradition of collaboration with Spanish scientific institutes and other entities, making information available to scientists for stock assessments of tropical tuna in the Atlantic, Indian and Pacific oceans, and hosting research trips on board its vessels. Information regarding the activity of the OPAGAC/AGAC fishing fleet is available to scientists via logbooks, FAD diaries, port sampling and observer reports. Organisations with which it has collaborated include the Spanish Institute of Oceanography (IEO), the Food and Agriculture Organization (FAO) and the International Seafood Sustainability Foundation (ISSF).

The OPAGAC fleet fishes in the Seychelles Exclusive Economic Zone under fisheries licensing agreements with the Government of Seychelles. The organisation has participated in various research, management and training programmes with Fisheries and other partners in the Seychelles. For the 2018 IOI training programme, OPAGAC helped sponsor the participation of a senior member of the Vice President's Office.

Société Française de Pêche

Darse de Peche
4 rue Charles Dickens
Le Port, 97420
France

Tel: 262 2 62 42 02 73
Fax: 262 2 62 42 03 85
E-mail: sapmer@sapmer.fr
Web: www.sapmer.com

Based in France, the Société Française de Pêche (SAPMER) is a global fishing company which dates back to 1947. It currently operates in 30 countries across five continents and has over 1,000 employees. Its fleet of vessels includes mainly tuna seiners and longliners, and its fishing activities focus on the Ahi Tuna, Skipjack, Rock Lobster and Patagonian Toothfish. Publicly traded since 2009, the company is experiencing steady growth and reported a turnover of 129.5 million Euros for 2016.

SAPMER is committed to principles of sustainability and vows to preserve the marine ecosystems and work towards the protection of the environment. The company has already been recognised by various types of certification including the Marine Stewardship Council (MSC), Friend of the Sea and Dolphin Safe.

Its collaboration with researchers includes working with the Paris Natural History Museum to improve knowledge of the marine species in the French Southern and Antarctic Lands. Data on the Patagonian Toothfish are collected on board its fishing vessels to be fed into the researchers' databases. SAPMER's vessel, AUSTRAL, is regularly made available for **POKER** campaigns ('POisson des KERguelen' – Fish from the KERguelen), with the aim of evaluating the resources available in these fishing zones. This partnership encourages the observation campaigns carried out by the Paris Natural History Museum and indicates the active role played by SAPMER in preserving marine resources.

Under a negotiated licence agreement with the Seychelles Government, SAPMER fishes in the Seychelles EEZ. It is also involved in important fishing port infrastructure development there. The company provided a contribution towards the travel expenses of a senior member of the Seychelles Department of the Blue Economy in the Vice President's Office.

Stiftung für Meereswissenschaft und -forschung (Ocean Science and Research Foundation)

c/o TREUCO AG
Claridenstrasse 25
Postfach 1272
CH-8027, Zürich
Switzerland

Tel: 41 44 289 25 25
Fax: 41 44 289 25 50

The Ocean Science and Research Foundation (OSRF) is a charitable foundation registered in Switzerland. Its general objective is to promote research in the social and natural sciences pertaining to the oceans by granting financial contributions to appropriate research and training projects.

OSRF provided general training funds for the 2018 training programme, which covered a combination of full funding for the participants from Nigeria and Tanzania and partial “top-up” funding for others. In addition, OSRF contributed some financial support through the Danielle de St Jorre Scholarship (DDSJS) – see below.

Established by the IOI in 1999, the DDSJS honours the memory of the late Danielle de St Jorre, Minister for Foreign Affairs, the Environment and Tourism of the Republic of the Seychelles, and a member of the Governing Board of the IOI, in consideration of all she did in her short life for the benefit of her country, small island developing states (SIDS), and the world at large. With a value of Swiss Francs 10,000, this annual scholarship is open to women from SIDS who wish to attend a training programmes or university degree programme in ocean affairs. Candidates are selected in consultation with the Alliance of Small Island States (AOSIS) and the scholarship is administered by IOI. The 2018 recipient from St Kitts and Nevis was a Port State Control Officer in the Department of Marine Resources. She used the award to help fund her participation in the IOI-Canada training programme.

World Wildlife Fund

WWF-US

1250 24th Street, NW
P.O. Box 97180
Washington, DC 20037-1193
USA

Tel: 1 202 293 4800
Fax: 1 202 861 8324
E-mail: efn@wwfus.org
Web: worldwildlife.org/efn

Founded in 1961, World Wildlife Fund (WWF) has been protecting the future of nature for nearly 60 years. The world's leading conservation organisation works in 100 countries and is supported by over one million members in the United States and nearly five million globally. WWF's unique way of working combines global reach with a foundation in science, involves action at every level from local to global, and ensures the delivery of innovative solutions that meet the needs of both people and nature. WWF is committed to reversing the degradation of our planet's natural environment and to building a future in which human needs are met in harmony with nature. Its mission is to conserve nature and reduce the most pressing threats to the diversity of life on Earth.

In recognition of the fact that effective policy, education, fieldwork, and other conservation initiatives depend on sound technical knowledge and skills, WWF's Russell E. Train Education for Nature Programme (EFN) was established in 1994. Dedicated to Russell E. Train, WWF's founding trustee, past president, and former chairman of the board, the programme aims to build a dynamic and highly qualified corps of conservation leaders in Africa, Asia and Latin America. Through a number of initiatives that help build the capacity of individuals and institutions, EFN provides proven and potential leaders with financial support to pursue degrees, attend short-term training, and conduct local conservation workshops. These initiatives provide conservationists with the skills they need to take on conservation challenges in their home countries and regions.

Professional Development Grants were provided by EFN to two participants from Madagascar as a contribution towards their course expenses.

WWF-Canada

410 Adelaide Street West
Toronto
Ontario, M5V 1S8
Canada

Tel: 1 416 489 8800
Fax: 1 416 489 8055
E-mail: ca-panda@wwfcanada.org
Web: www.wwf.ca

For the 2018 training programme, support was also received from WWF-Canada which is headquartered in Toronto and has offices across the country including Halifax. A donation was provided towards the expenses of the 2018 Elisabeth Mann Borgese Ocean Lecture. This public event was held on World Oceans Day and featured an interdisciplinary panel discussing a wide range of issues relating to *Peace and Equity in Ocean Governance – Possibility or Pipe Dream?*

LECTURERS AND FIELD TRIP CO-ORDINATORS

Special thanks are due to all the lecturers and field trip co-ordinators - and particularly the key individuals who also acted as module leaders -- for their invaluable donation of time and expertise. Their contribution to the success of the training programme is gratefully acknowledged.



Ms Jana Aker, Fisheries Information Administrator, Northwest Atlantic Fisheries Organization, Dartmouth, Nova Scotia, Canada

Dr Kumiko Azetsu-Scott, Research Scientist, Ocean and Ecosystem Sciences Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Dr Megan Bailey, Assistant Professor & Canada Research Chair, Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada

Dr Awni Behnam (via video-conferencing), Honorary President, International Ocean Institute, Châtelaine, Switzerland

Ms Dayna Bell MacCallum, Scientific Information Administrator, Northwest Atlantic Fisheries Organization, Dartmouth, Nova Scotia, Canada

Mr Alex Bohan, Intern, Halifax Port Authority, Halifax, Nova Scotia, Canada

Mr Patrick Bohan (Module Leader), Manager – Business Development, Halifax Port Authority, Halifax, Nova Scotia, Canada

Dr Camilo M. Botero, Professor, Escuela de Derecho, Universidad Sergio Arboleda - Santa Marta, Santa Marta, Colombia

Mr Luc Boudreau, Sustainable Fish Farming Canada, Centre Burlington, Nova Scotia, Canada

Mr James Boxall, Lecturer, Earth Sciences Department and Marine Affairs Program, & Geographer and Map Curator, GIS Centre, Killam Library, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Bob Branton, Scientific Consultant, Kiely Cove Marine Enterprises, & Member, Canadian National Committee on CODATA, Dartmouth, Nova Scotia, Canada

Dr Sean Brilliant (Module Leader), Senior Research Fellow, IOI-Canada, & Senior Conservation Biologist, Marine Conservation Program, Canadian Wildlife Federation, c/o Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada

Dr Mary Brooks, Professor Emerita, Rowe School of Business, Dalhousie University, Halifax, Nova Scotia, Canada

Mr David E. Brown, Senior Advisor – Geology, Canada-Nova Scotia Offshore Petroleum Board, Halifax, Nova Scotia, Canada

Ms Rachael Cadman, Project Coordinator, MacEachen Institute of Public Policy and Governance, & Team Member, EIUI Research Program, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

Capt. Jim Calvesbert, Marine and Business Consultant, Master Mariners of Canada, Bedford, Nova Scotia, Canada

Mr Galo Carrera, Chief Executive Officer, Geometrix Inc., Dartmouth, Nova Scotia, Canada

Ms Diana Castillo, Graduate Student, Master of Library and Information Studies, & Team Member, EIUI Research Program, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Marc Cayouette, Senior Emergency Management Officer, Emergency Management and Programs Branch, Public Safety Canada, Dartmouth, Nova Scotia, Canada

Dr Anthony Charles (Module Leader), Professor, Sobey School of Business, & Director, School of the Environment, Saint Mary's University, Halifax, Nova Scotia, Canada

Mr Edwin Chisholm, Port Manager, Digby Harbour Port Association, Digby, Nova Scotia, Canada

Dr Ross Claytor, Formerly: Manager, Population Ecology Division Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Scott Coffen-Smout, Senior Research Fellow, IOI-Canada, & Senior Oceans Management Biologist, Oceans and Coastal Management Division Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Stephen Cole, Fishery Officer, Conservation and Protection Branch, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Darin Connors, Training and Development Co-ordinator, Eastern Canada Response Corporation, Dartmouth, Nova Scotia, Canada

Ms Caitlin Cunningham, Student Intern, GIS Centre, Killam Library, Dalhousie University, Halifax, Nova Scotia, Canada

Dr Graham Daborn, Honorary Research Associate, Acadia Centre for Estuarine Research, & Professor Emeritus, Department of Biology, Acadia University, Wolfville, Nova Scotia, Canada

Mr John Dalziel, Adjunct Professor, Department of Industrial Engineering, Dalhousie University, Halifax, Nova Scotia, Canada

Vice-Adm. (ret'd) Glenn Davidson, Former Ambassador of Canada to Afghanistan and Syria, Halifax, Nova Scotia, Canada

Dr Mary-Lynn Dickson, Director, UNCLOS Programme, Geological Survey of Canada – Atlantic, Natural Resources Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Cdr Bob Edwards (ret'd) (Module Leader), Retired Naval Officer, Halifax, Nova Scotia, Canada

Dr Lucia Fanning, Professor, Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada

Ms Becky Field, Administrator, Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada

Ms Erica Fleck, Division Chief, Emergency Management, Halifax Regional Fire & Emergency, Dartmouth, Nova Scotia, Canada

Ms Joanne Fraser, Manager, Learning & Development, Human Resources Department, Dalhousie University, Halifax, Nova Scotia, Canada

Mr James Frost, President, MariNova Consulting Ltd, Halifax, Nova Scotia, Canada

Dr Susanna Fuller, Senior Project Officer, Oceans North, & Senior Research Fellow, IOI-Canada, International Ocean Institute, Dalhousie University, Halifax, Nova Scotia, Canada

Prof. Diana Ginn, Professor of Law, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Brennan Goreham, Manager, Licensing and Leasing, Aquaculture Division, Nova Scotia Department of Fisheries and Aquaculture, Shelburne, Nova Scotia, Canada

Ms Kerri Graham, Regional Director, Policy and Economics Branch, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Dr Jason Grek-Martin, Assistant Professor, Department of Geography and Environmental Studies, Saint Mary's University, Halifax, Nova Scotia, Canada

Mr David Griffiths, Research Fellow, Centre for the Study of Security and Development, & Senior Research Fellow, IOI-Canada, Dalhousie University; and: Honorary Fellow, National Centre for Maritime Policy Research, Bahria University, Pakistan, c/o Pendragon Applied Research, Halifax, Nova Scotia, Canada

Dr Wayne Groszko, Adjunct Professor, Resource & Environmental Studies, Dalhousie University, & Research Scientist, Applied Energy Research, Nova Scotia Community College, Dartmouth, Nova Scotia, Canada

Mr Glen Herbert, Regional Manager, Oceans and Coastal Management Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Prof. Blake Hudson, Professor of Law, Law Center, University of Houston, Houston, Texas, USA

Mr Roger Hunka, Director, Maritime Aboriginal Aquatic Resources Secretariat, & Director, Intergovernmental Affairs, Maritime Aboriginal Peoples Council, Truro Heights, Nova Scotia, Canada

Dr Diego Ibarra, Oceans Biologist/Programmer, Oceans and Coastal Management Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Dr Alain Joseph (Module Leader), Adjunct Professor, Mechanical Engineering, Dalhousie University, & Director, Applied Research, Nova Scotia Community College, Halifax, Nova Scotia, Canada

Mr Kris Kendell, Advisor – Geophysics, Canada-Nova Scotia Offshore Petroleum Board, Halifax, Nova Scotia, Canada

Ms Mary Kennedy, Volunteer, Ocean Biogeographic Information System (OBIS Canada), Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Fred Kingston, Executive Secretary, Northwest Atlantic Fisheries Organization, Dartmouth, Nova Scotia, Canada

Capt. Alan W. Knight, Senior Marine Inspector, Marine Safety Division, Transport Canada, Dartmouth, Nova Scotia, Canada

Mr Peter Konings, Director of Business Development & Contracts, Survival Systems Training Ltd, Dartmouth, Nova Scotia, Canada

Dr Myriam Lacharité, Postdoctoral Researcher, Applied Oceans Research Group, Nova Scotia Community College, Dartmouth, Nova Scotia, Canada

Dr Daniel E. Lane, Chair, Ocean Management Research Network, & Professor Emeritus, Telfer School of Management, University of Ottawa, & Associate Professor, Centre de Recherche Marine, Université Sainte-Anne, Petit de Grat, Cape Breton, Nova Scotia, Canada

Mr Dan Latremouille, Training and Operations Manager, Survival Systems Training Ltd, Dartmouth, Nova Scotia, Canada

Mr Stephen Locke, Director, Geological Survey of Canada – Atlantic, Natural Resources Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Aaron Long, Director of Business Services, Alternative Resource Energy Authority, Halifax, Nova Scotia, Canada

Mr Alex MacDonald, Climate Change Specialist, Energy & Environment, Planning & Development Office, Halifax Regional Municipality, Dartmouth, Nova Scotia, Canada

Dr Bertrum MacDonald, Professor, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

Ms Elizabeth MacDonald, Advisor – Environmental Affairs & Conservation Officer, Canada-Nova Scotia Offshore Petroleum Board, Halifax, Nova Scotia, Canada

Mr Peter MacLellan, Principal, Raeberry Communications, Smiths Cove, Nova Scotia, Canada

Mr Paul Macnab, Oceans Biologist, Oceans and Coastal Management Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Dr Patricia Manuel, Professor and Director, School of Planning, Faculty of Architecture and Planning, Dalhousie University, Halifax, Nova Scotia, Canada

Dr Eduardo Marone, Director, IOI-South Western Atlantic Ocean, & Professor, Centre for Marine Studies, Universidade Federal do Paraná, Pontal do Paraná, Brazil

Ms Jennifer Matthews, Health, Safety and Environmental Policy Advisor, Atlantic Canada, Canadian Association of Petroleum Producers, Halifax, Nova Scotia, Canada

Ms Rhonda Matthews, Emergency Management Planning Officer, NS Emergency Management Office, Dartmouth, Nova Scotia, Canada

Prof. Ian McAllister, Department of Economics, Dalhousie University, Halifax, Nova Scotia, Canada

Capt. Angus McDonald, Past President, Company of Master Mariners of Canada, Halifax, Nova Scotia, Canada

Mr Jeff McKenna, Director, Gateway Geomatics, Lunenburg, Nova Scotia, Canada

Ms Katie McLean, Communications & Outreach Coordinator / Species at Risk Project Leader, Clean Annapolis River Project, Annapolis Royal, Nova Scotia, Canada

Dr David Mensink, Psychologist, Health and Wellness Centre, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Chris Milley, Adjunct Professor, Marine Affairs, Dalhousie University, & President, NEXUS Coastal Resource Management Ltd, Halifax, Nova Scotia, Canada

Dr Hilary Moors-Murphy, Aquatic Science Biologist, Ocean and Ecosystem Sciences Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Ms Anna Naylor, Manager of Learning and Development, Centre for Ocean Ventures and Entrepreneurship (COVE), Dartmouth, Nova Scotia, Canada

Mr Will Neily, Horticultural Research Manager, Acadian Seaplants R&D Centre, Cornwallis Park, Nova Scotia, Canada

Ms Melissa Oldreive, Research & Outreach Manager, Fundy Ocean Research Centre for Energy (FORCE), Halifax, Nova Scotia, Canada

Dr Jon Percy, Freelance Writer/Editor, SeaPen Communications, Granville Ferry, Nova Scotia, Canada

Mr Ian Porter (Module Leader), Journalism Lecturer, Halifax, Nova Scotia, Canada

Ms Murielle Provost, Program Coordinator & Instructor, Emergency Management, School of Professional Studies, Cape Breton University, Sydney, Nova Scotia, Canada

Dr Tony George Puthucherril (Module Leader), Research Associate, Marine & Environmental Law Institute, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

Ms Vatosoa Rakotondrazafy, National Co-ordinator, Madagascar Locally Managed Marine Area Network (MIHARI), Ampahibe, Antananarivo, Madagascar

Ms Karaline Reimer, Operations Support, Eastern Canada Response Corporation, Dartmouth, Nova Scotia, Canada

Mr David Roberts, Aquaculture Specialist & Production Director, Sustainable Fish Farming Canada, Centre Burlington, Nova Scotia, Canada

Mr Brian Robinson, Aquatic Science Chemist, Centre for Offshore Oil, Gas & Energy Research, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr James Ross, Lecturer, Faculty of Engineering, & Team Member, EIUI Research Program, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Tom Rowsell, Acting Director, Canadian Hydrographic Service (Atlantic), Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Simon Ryder-Burbidge, Marine Conservation Officer, Ecology Action Centre, & Team Member, EIUI Research Program, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Wendell Sanford, Research Associate, Marine & Environmental Law Institute, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

Prof. Phillip Saunders, QC, Director, Marine & Environmental Law Institute, & Associate Professor of Law, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

Mr William Scholes, Intern, Halifax Port Authority, Halifax, Nova Scotia, Canada

Dr Nancy Shackell, Research Scientist, Ocean and Ecosystem Sciences Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Mr Andrew Sherin, Director, Coastal and Ocean Information Network (COINAtlantic), Dalhousie University, Halifax, Nova Scotia, Canada

Mr Leslie Smith, Manager of Interpretive Services, Annapolis Tidal Power Station, Annapolis Royal, Nova Scotia, Canada

Dr Suzuette Soomai, Regional Fisheries Management Officer, Resource Management Branch, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Ms Katherine Sorbey, Mi'Kmaq Elder, Membertou, Nova Scotia, Canada

Ms Sarah Stevenson, Interim Head & Associate University Librarian - Research Services, Killam Library, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Bud Streeter, Chair of the Board, Clear Seas Centre for Responsible Marine Shipping, Dartmouth, Nova Scotia, Canada

Mr Timothy Barron Tracey, Independent Director, Machine Productions, Halifax, Nova Scotia, Canada

Dr Peter Tyedmers, Professor & Director, School for Resource and Environmental Studies, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

Dr David VanderZwaag, Professor & Canada Research Chair in Ocean Law and Governance, Marine & Environmental Law Institute, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

Ms Wanda VanTassel, Fundy Adventures, Gulliver's Cove, Nova Scotia, Canada

Mr Addison Vickerd, Response Centre Manager, Eastern Canada Response Corporation, Dartmouth, Nova Scotia, Canada

Dr Tony Walker, Assistant Professor, School for Resource and Environmental Studies, Dalhousie University, Halifax, Nova Scotia, Canada

Dr Wendy Watson-Wright, Chief Executive Officer, Ocean Frontier Institute, Dalhousie University, Halifax, Nova Scotia, Canada

Dr Peter Wells (Module Leader), Senior Research Fellow, IOI-Canada, International Ocean Institute, Dalhousie University, Halifax, Nova Scotia, Canada

Mr Hugh Williamson (Course Director), Adjunct Professor, Marine Affairs Program, & Senior Research Fellow, IOI-Canada, Dalhousie University, Halifax, Nova Scotia, Canada

Ms Tana Worcester, Coordinator, Advisory Services, Regional Director General's Office, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

IOI-CANADA CONTACT INFORMATION

International Ocean Institute
Dalhousie University
6414 Coburg Road, P.O. Box 15000
Halifax, Nova Scotia, B3H 4R2
Canada

Tel: 1 902 494 1977 • Fax: 1 902 494 1334 • E-mail: ioi@dal.ca • Web: www.dal.ca/ioihfx

STAFF AND INTERN

Ms Jennifer Barr
Finance Officer

Tel: 1 902 494 8018
E-mail: ioiadmin@dal.ca

Mr Michael Butler
Director

Tel: 1 902 494 1977
E-mail: michael.butler@dal.ca

Ms Madeleine Coffen-Smout
Programme Officer

Tel: 1 902 494 6918
E-mail: madeleine.coffen-smout@dal.ca

Ms Mallory Ross
2018 Course Co-ordinator

Tel: 1 902 494 1893
E-mail: maljacross@gmail.com

Mr Andrew Williamson
Intern

Tel: 1 902 494 1893
E-mail: andrewwilliamson217@gmail.com

2018 COURSE DIRECTOR

Mr Hugh Williamson

E-mail: hrwillia@dal.ca

SENIOR RESEARCH FELLOWS

Mr Paul Boudreau

E-mail: paulboudreau@dal.ca

Dr Sean Brilliant

E-mail: seanb@cwf-fcf.org

Dr Ratana Chuenpagdee

E-mail: ratanac@mun.ca

Mr Scott Coffen-Smout

E-mail: scott.coffen-smout@dfo-mpo.gc.ca

Dr Susanna Fuller

E-mail: susannadfuller@gmail.com

Mr David Griffiths

E-mail: david.griffiths@dal.ca

Dr Larry Hildebrand

E-mail: lh@wmu.se

Dr Peter Wells

E-mail: oceans2@ns.sympatico.ca

Mr Hugh Williamson

E-mail: hrwillia@dal.ca

BOARD OF DIRECTORS

Dr Daniel Lane (Chair)

E-mail: dlane@uottawa.ca

Ms Anita Coady

E-mail: c/o ioi@dal.ca

Prof. Ian McAllister

E-mail: ian.mcallister@dal.ca

Mr William Rose

E-mail: c/o ioi@dal.ca

Mr Dirk Werle

E-mail: dwerle@ca.inter.net